CASI POLICY BRIEF

Issue 5 June 2016

## CASI: Project description

Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation (CASI)

COORDINATOR:
ARC Fund, Bulgaria: Zoya Damianova.

CONSORTIUM:
The CASI consortium consists of 19 partners representing 12 European countries. Country correspondents extend the reach to all EU-28 countries.

FUNDING SCHEME:
Coordination and support action, funded under the 7th Framework Programme of the European Community, SCIENCE-IN-SOCIETY-2013.1.2

# Top-10 research priorities for sustainable futures

## Insights from and for Austria

### CASI ENGAGES CITIZENS AND EXPERTS

EXECUTIVE SUMMARY

Sustainability in lifestyles is closely connected to the change of every day patterns of individuals and their approach towards food and consumption, mobility and transport, housing, education, health and recreation with strong cross-linkages with communities and interpersonal relationships. Lifestyles also relate to cultural heritage as well as specifics of natural and economic environment. Hence, sustainability in lifestyles is also determined by the surrounding environment, not only personal needs.

### RESOURCE EFFICIENCY AND BUSINESS MODELS

The pursuit of economic growth may take place at the cost of use of natural resources, which results in detrimental environmental impacts. Hence, the state of the environment, the quality of life and well-being correspond to economic growth, profits and consumption, and call for sustainable business models and the green economy. A shift to sustainable business models can be achieved by optimising the efficiency and improvement of practices relating to health and well-being, by minimising negative social and environmental impacts, and by developing new markets for sustainable products and services in response to emerging global megatrends. New technologies and innovations also enable solving societal challenges.

This policy brief presents and reviews Top-10 lists of sustainable research priorities for Europe and for Austria. These priorities have been formed in systematic interaction with citizens and experts. In Austria, the following recommendation were elaborated following the insights gained by the analysis of the 10 research priorities:

### 10 SUSTAINABLE RESEARCH PRIORITIES FOR AUSTRIA

- Sustainability as a concept should be integrated into the efforts to foster the establishment of new businesses. So far there only exist separated approaches like outlined in the government program for 2013-2018.
- The MONE Indicator reports should serve as a basis for the future implementation of regulatory action to foster sustainability on all levels.
- The areas identified as improvable by the UNECE report on sustainable education in Austria should be tackled by a new program and new initiatives specifically targeting these fields (e.g. lifelong learning).

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

# Introduction

## PATTERNS OF HUMAN BEHAVIOUR

The worrying sustainability trends of European lifestyles call for long-term measures and moreover, for strong stakeholder engagement and endorsement of policy measures. In order to make a difference, a deep understanding of the diversity of needs, desires and motivations of individual people and communities is needed to understand factors that have an impact on lifestyles, human behaviour and environments that foster change.

## CASI ENGAGES CITIZENS AND EXPERTS

In order to address needs that have impacts on the sustainability of the future, the CASI project conducted a comprehensive citizen and expert engagement exercise, which involved 184 citizens in 12 European Member States. As a result, the CASI project delivered Top-10 lists for sustainable of research priorities for Europe and for each of the participating Member States. This policy brief reviews those Top-10 lists (see attachment for clusters of priorities for all 12 Member States).

## CASI DELIVERS TOP-10 RESEARCH PRIORITIES

The sustainable research priorities were identified through an interactive process engaging citizens and experts. First, citizens drafted visions of sustainable and desirable futures, which experts then formulated into research priorities. Finally, citizens assessed and validated these priorities. The overall procedure as well as the Top-10 scoring procedure are described in greater detail in three CASI reports which are available at www.casi2020.eu (Matschoss et al. 2015 on Top-10 research priorities, Repo et al. 2015 on expert formulation of research priorities, and Kaarakainen et al. 2015 on citizen visions).

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

# European Top-10

EUROPEAN SUSTAINABLE RESEARCH PRIORITIES

The Top-10 list for European sustainable research priorities serves as the focal point for research priorities in the 12 Member States (Tregner-Mlinaric et al. 2015).

FOCUS ON AGRICULTURE, CITIES AND TECHNOLOGY

At a European level, the Top-10 research priorities relate to agriculture, cities and technology. It is noteworthy that the top priority on 'Supporting local/regional agricultural production, distribution and consumption system' was the only one that made the Top-10 in all 12 Member States.

ENCOURAGEMENT AND SUPPORT

The main focus of research priorities on agriculture is, on the one hand, to encourage and support communities' local producers and suppliers in the creation of less polluting, organic, local and regional alternative market production, distribution and consumption and on the other, to ensure that local and organic production is prioritized. As for cities, best cases and effects for urban liveability and living conditions should be studied in order to make cities greener. Concerning technology, focus should be on how to support people to become producers of renewable energy and on the application of the concept of circular economy to the electronics industry.

# Top-10 for Austria

THE TOP-10 LIST FOR SUSTAINABLE RESEARCH PRIORITIES FOR AUSTRIA IS THE FOLLOWING:

1. Holistic education for a sustainable future
2. Fair and participatory access to limited resources
3. Supporting people to become producers of renewable energy
4. Innovating agriculture: the sustainability option
5. Unified ecological grading system
6. Supporting Eco-preneurship
7. Understanding and implementing sustainable electronics
8. Sustainable living environment
9. New working models – new economic models
10. Supporting local/regional agricultural production, distribution and consumption system

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

## INNOVATIVE BUSINESS MODELS

Austria traditionally has the reputation of being quite innovation-friendly, as the annual Bloomberg innovation index - where Austria ranked in the Top-10 three times in the last five years - shows. Nonetheless problems like excessive bureaucracy or high labour taxes exist and are especially challenging for sustainable and innovative business models.

Furthermore, in the aftermaths of the European economic crisis in 2008, the Austrian economy is still struggling to get back on track. Processes like digitalization and cuts of public expenditure call for the development of new business models and innovative ideas. The demand for research about new business models is expressed through the following research priorities: (3)'Supporting people to become producers of renewable energy', (4)' Innovating agriculture: the sustainability option', (6)'Supporting Eco-preneurship', (9) 'New working models – new economic models' and (10)' Supporting local/regional agricultural production, distribution and consumption system'

Two of the research priorities specifically refer to the creation of sustainable agricultural systems. This shows that the strong roots of the Austrian Economy in agricultural production are in need of new inputs and incentives even though Austria already applies measures to foster the diversification of agricultural production (see: BMLFUW: Austrian program for rural development 2007-2013; Arbeitsprogramm der österreichischen Bundesregierung 2013-2018, p. 18-20).

However, the Austrian government program adapted in 2013, already expresses intentions to foster the establishment of new businesses (see: Arbeitsprogramm der österreichischen Bundesregierung 2013-2018, p. 10) to tackle the problem of excessive bureaucracy and low numbers of new establishments. However, a specific emphasis on sustainability aspects is missing in this declaration of intent.

## EDUCATION

Education, broad of a topic as it is, has a lot of different implications and fields of use. This is also represented through the three research priorities which were subsumed under this label, namely (1) 'Holistic education for a sustainable future', (3) 'Supporting people to become producers of renewable energy' and (7) 'Understanding and implementing sustainable electronics'. While the first one clearly aims at a reformation of the educational system itself, the other two are more specific and also related to questions of new Technologies and also to the 'regulatory action cluster'.

It is not surprising that the topic of education was considered as very important by the participants because in the last decade an educational reform was discussed highly controversial in the Austrian context. However, in the period of 2008-2014 the 'Austrian strategy for sustainable education' was developed and partly implemented as part of the UN Decade of Education for Sustainable Development. In the course of this programme a number of projects were planned and executed to foster the inclusion of sustainable education as a core concept of the Austrian educational system.

Nevertheless, the final report of the UN showed that, especially in the areas of non-formal and informal education as well as lifelong learning, Austria still has to improve (Umweltdachverband: Österreichischer Bericht zur UN-Dekade für Bildung für Nachhaltige Entwicklung 2005 – 2014, p. 52). With regards to technological aspects of sustainability and education, the Austrian Program on Technologies for Sustainable Development outlines an effort to foster research and development in the area of sustainability (see: BMVIT: Technologies for Sustainable Development).

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

Austria is well known for its establishment of a well fare state under the premise of a so called ‘social-market economy’ that allows state actors to regulate market forces, provide a social safety net and protect public goods and interests. However, especially in the first decade of the 21st century these established mechanisms where threatened by intended social cuts, deregulation and privatization (see: Stelzer-Orthofer/Bacher 2006).

## REGULATORY ACTION

The strong demand of citizens to include the research priorities (2) ‘Fair and participatory access to limited resources’, (5) ‘Unified ecological grading system’ and (8) ‘Sustainable living environment’ show that regulatory actions on different (local, national, European, global) levels are demanded by citizens and are necessary for creating a sustainable society.

As an important first step towards more regulatory action the Austrian government initiated the elaboration of sustainability indicators (MONE) in the year 2002 as part as the overall ‘Strategy for Sustainable Development’. The MONE indicators gather societal and environmental data and serve as means to assess the sustainable development in Austria (see: BMLFUW: Monitoring Sustainable Development in Austria).

The CASI project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

Comparing the national and the European Top 10 lists one thing strikes out the most: While in a cross-European context emphasis was put on the need to make cities key players in achieving a sustainable society, Austrian citizens did not put much importance on these research priorities. This may be due to the fact that Austrian cities – with the exception of Vienna – are rather small and therefore not perceived as creating problems as regards sustainability, even though more than 50% of the population live in urban areas (Source: Climate and Energy Found, 2011) . Furthermore various Austrian cities already put great effort in positioning themselves as drivers of the transformation towards sustainability (see: Smart City Wien, I Live Graz).

The research priority dealing with education for sustainability ranked 2nd in Europe but was seen as the most important one by Austrian participants. This fits well considering the long-lasting discussions in Austria about a reformation of the educational system. Not only structure of the education system is scrutinized by citizens but also the content that is thought in Austrian Schools.

## AUSTRIA AND EUROPE

Three of the research priorities in the Austrian top-10 List didn´t make it to the European list. For one there is the research priority regarding a unified ecological grading system for all kinds of products and services. Even though in Austria several grading systems exist (e.g. ÖkoRein, see: http://www.umweltberatung.at/bewertung-von-reinigungsprodukten) the need to look into the unification of them and to include sustainability measurements is expressed through this prioritization.

Belonging to the cluster of New Business Models, the research priority ‘Supporting Eco-preneurship’ illustrates the importance of emphasising the necessity of new Business models even more, especially in the field of eco innovation. Even though strategies to foster local eco-innovation cluster exist (see: Schwarz-Wölzl et. al., 2015) no explicit program targets this topic on a national level.

Finally participants from Austria regarded research about a ‘Sustainable living environment’ as specifically important both in an Austrian and a global context. As discussed before this research priority specifically targets new ways of regulatory action of different government bodies to foster sustainable innovations and to better coordinate already existing policies concerning the legal framework of sustainability measures.

## EMPOWERING THE PEOPLE AND PROVIDING A REGULATED FRAMEWORK

Leaving the thematic clustering aside some interesting observations of tensions and similarities are detectable. The research priorities create a field of tensions, which spans from empowerment and individual responsibility to creating a regulatory framework that limits the powers for the interaction of market actors. While some priorities aim at the direct support of people to get active in the field of sustainable production and consumptions themselves, others demand the provision of a regulatory framework that steers the economic development towards sustainability. Although these two approaches create a field of tension they are in no way contradictory. The challenge in the Austrian and also in the European context will be to harmonize them. Research projects looking for the best ways of implementing and achieving harmonisation shall be conducted.

The CASI project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

# RECOMMENDATIONS FOR POLICYMAKERS IN AUSTRIA

POLICY-RECOMMENDATIONS

Although the presented priories are designed as inputs for research policy agenda setting they nonetheless offer a strong insight in requested political actions. Therefore, it is also possible to derive the following recommendations for policy makers on a national level:

• Sustainability as a concept should be integrated into the efforts to foster the establishment of new businesses. So far there only exist separated approaches like outlined in the government program for 2013-2018.
• The MONE Indicator reports should serve as a basis for the future implementation of regulatory action to foster sustainability on all levels.
• The areas identified as improvable by the UNECE report on sustainable education in Austria should be tackled by a new program and new initiatives specifically targeting these fields (e.g. lifelong learning).

The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

**Further Reading and References:**


1. Tregner-Mlinaric, Anita; Repo, Petteri; Matschoss, Kaisa; Kaarakainen, Minna (2015). CASI policy brief: Resource efficiency and sustainable lifestyles. www.casi2020.eu
2. Repo, Petteri: Kaarakainen, Minna; Matschoss Kaisa (2015). European Research Priorities Based on Citizen Visions. www.casi2020.eu
3. Matschoss, Kaisa; Repo, Petteri; Kaarakainen, Minna; Kloppenborg, Else; Ibsen-Jensen, Jacob; Kyhn, Bjarke (2015). Citizen assessment of priorities for European research. Report on the second citizen panel meetings. CASI project. www.casi2020.eu
4. Repo, Petteri; Kaarakainen, Minna; Matschoss, Kaisa (2015). European research priorities based on citizen visions. A report from the CASI expert workshop in Copenhagen 8.-9.2015. CASI project. www.casi2020.eu
5. Kaarakainen, Minna; Repo, Petteri; Matschoss, Kaisa; Bedsted, Bjarke; Damianova, Zoya; Popper, Rafael; Rask, Mikko (2015). www.casi2020.eu
6. Bloomberg Company (2015): The Bloomberg Innovation Index. http://www.bloomberg.com/graphics/2015-innovative-countries/
7. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (2007): Organigramm zum österreichischen LE-Programm 07-13. https://www.bmlfuw.gv.at/land/laendl_entwicklung/le-07-13/org_allge.html
8. Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft (2002): Monitoring sustainable development in Austria. Retrieved from: https://www.bmlfuw.gv.at/en/environment/Sustainabledeve/Monitoring.html
9. Bundesministerium für Verkehr, Innovation und Technologie (n.y.): Technologies for Sustainable Development. http://www.nachhaltigwirtschaften.at/english/
10. Climate and Energy Fund (2011): Smart Cities – cities with a future. Vienna. Retrieved from: Graz: I LIVE GRAZ - smart people create their smart city. Blue Globe Report SmartCities #19/2012. Retrieved from: http://www.klimafonds.gv.at/assets/Uploads/Projektberichte/Smart-Energy-Demo---FIT-for-SET-1.-Ausschreibung/BGR192012K11NE2F00034Grazv1-0.pdf
11. Vienna: Smart City Wien – towards a sustainable development of the city. Blue Globe Report SmartCities 1/2012. http://www.smartcities.at/assets/Projektberichte/
12. Schwarz-Wölzl, Maria (2015): The Eco-innovation Action Plan in an environmental policy context - Insights from and for Austria. http://www.casi2020.eu/library/#d1430
13. Stelzer-Orthofer, Christine; Bacher, Johann (2006): Sozialabbau und Neokonservativismus in Österreich. Soziale Gerechtigkeit: Reformpolitik am Scheideweg. In: Grasse, Alexander; Ludwig, Carmen; Dietz, Berthold (ed.): Soziale Gerechtigkeit. Sozialpolitik am Scheideweg. Wiesbaden: Verlag für Sozialwissenschaften.
14. Government Program of the Austrian government (2013): Arbeitsprogramm der Österreichischen Bundesregierung 2013-2018. https://www.bka.gv.at/DocView.axd?CobId=53264


The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

## CASI Project Description

CASI: PROJECT DESCRIPTION
PROJECT TITLE: Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation (CASI)
COORDINATOR: ARC Fund, Bulgaria: Zoya Damianova.
CONSORTIUM: The CASI consortium consists of 19 partners representing 12 European countries. Country correspondents extend the reach to 28 countries.
FUNDING SCHEME: Coordination and support action, funded under the 7th Framework Programme of the European Community, SCIENCE-IN-SOCIETY-2013.1.2-1.
DURATION: 42 months, 1/2014-6/2017
BUDGET: 4.5 M€, 428 person month
REFERENCE: Haider, Wolfgang; Schwarz-Wölzl, Maria; Feichtinger, Judith; Matschoss, Kaisa; Repo, Petteri; Kaarakainen, Minna; Tregner-Mlinaric, Anita (2016). CASI policy brief: Crowdfunding in sustainable innovation. Insights from and for Austria.
WEBSITE: www.casi2020.eu
EDITORIAL BOARD 2016: Danish Board of Technology: Andreas Hastrup Clemmensen; META Group: Anita Tregner-Mlinaric; Zentrum für Soziale Innovation GmbH: Maria Schwarz-Woelzl; Futures Diamond: Monika Popper

## Contacts


| | |
|---|---|
| **Name and Surname:** | Wolfgang Haider; Maria Schwarz-Wölzl; Judith Feichtinger |
| **Organisation:** | ZSI - Centre for Social Innovation |
| **E-mail:** | haider@zsi.at; schwarz@zsi.at; feichtinger@zsi.at |
| **Address of the organisation:** | ZSI - Centre for Social Innovation Ltd. Linke Wienzeile 246, 1150 Vienna, European Union |


The CASI project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 612113

**Appendix 1 Top-10 research priorities for sustainable futures in selected countries.**

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| **AUSTRIA** | | |
| Innovative Business Models | 3)'Supporting people to become producers of renewable energy' 4)' Innovating agriculture: the sustainability option' 6)'Supporting Eco-preneurship' 9) 'New working models – new economic models' 10)' Supporting local/regional agricultural production, distribution and consumption system' | Tackle the problem of excessive bureaucracy; foster the establishment of new businesses; development of new business models and innovative ideas needs to be facilitated. |
| Education | 1) 'Holistic education for a sustainable future' 3) 'Supporting people to become producers of renewable energy' 7) 'Understanding and implementing sustainable electronics'. | Ongoing discussions about an educational reform; implementation of the 'Austrian strategy for education for sustainable education'; improve in the areas of non-formal and informal education as well as lifelong learning. |
| Regulatory Action | 2) 'Fair and participatory access to limited resources' 5) 'Unified ecological grading system' and (8) 'Sustainable living environment' | Provide a regulatory framework that fosters sustainability; empower citizens to act on their own towards a more sustainable society. |
| **BELGIUM** | | |
| Longing for a sustainable and locally embedded food system | 'Supporting local/regional agricultural production, distribution and consumption system' | Supporting communities' local producers and suppliers in the creation of less polluting, organic, local and regional alternative market production, distribution and consumption would require balancing between scaling-up to ensure the development of a market and maintaining a local value chain. |
| Longing for a sustainable energy production and consumption system | 'Improvement of European electricity transmission to increase renewable energy production'; 'Supporting people to become producers of renewable energy'. | Research on public concerns and research on how to ensure the uptake of those concerns in the decision-making process and how to empower societal stakeholders to take action themselves (e.g. how to stimulate to become producers of electricity) is needed, which is highly dependent on political will and balancing the voice of citizens against powerful lobby groups. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Longing for a sustainable housing system | ’Sustainable construction of buildings’; ’Ensuring inclusive and dynamic city centres’ | There is need for enhancing new regulation to support the renovation of old buildings, supporting the development of new financial products to support individuals to renovate old houses and build new houses according to the stricter regulation, enhancing the inclusiveness into the transition towards a resilient housing system. A deep inclusive dialogue about financing instruments for renovation is required. |
| Longing for sustainable working models | ’Sustainable economics’; ’New working models – new economic models’ | It is crucial to assess the impact of policies on the time and opportunities citizens have to actively engage in society, democracy and participation. It is necessary to investigate the conditions that enable them to do so, in particular the time they have available for such participation. |
| Longing for a sustainable transport system | ’Sustainable transformation of existing traffic infrastructure in cities’ | The bottom-up initiative Ringland won public support and demonstrates that a mobility issue touches upon the liveability, health and city development. Ringland has recently moved away from its confrontation model to a more cooperative in model in which they decided to cooperate with the city administration for the southern part of the ring road. One of the keys to move to a cooperation model lies, according to Luc Huyse, in the power of knowledge and good understanding of the issue among the citizens. It will be interesting to see whether Ringland created a precedent that will be followed by other bottom-up movements. |
| **BULGARIA** | | |
| Education and building civil society | Holistic education for a sustainable future Supporting an active civil society for sustainable development | Culture change is needed to move towards more to sustainability |
| Agriculture | Supporting local/regional agricultural production, distribution and consumption system Innovating agriculture: the sustainability option | Food safety and the sustainability of food practices are major issues to address |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Energy | Improvement of European electricity transmission to increase renewable energy production Supporting people to become producers of renewable energy Enhanced physical activity for better quality of life and energy efficiency | Focus on citizens' empowerment and enhanced public participation |
| Sustainable infrastructures | Sustainable transformation of existing traffic infrastructure in cities Sustainable construction of buildings | There is need for promoting technological developments in the field |
| **CZECH REPUBLIC** | | |
| Food and lifestyle | (1) 'Enhanced physical activity for better quality of life and energy efficiency'; (2) 'Exploring the introduction of insect food'; and (3) 'A new European food culture' | Through the observation of national and global trends and patterns, people are becoming more open to innovative and alternative solutions, such as the introduction of insect food, which can provide secured food supply and sustain their quality of life. |
| Healthy green cities | (1) 'More green in cities'; (2) 'Sustainable Construction of buildings'; (3) 'Sustainable transformation of existing traffic infrastructure in cities'; and (4) 'Supporting people to become producers of renewable energy' | Green, clean and healthy cities are of great important to Czech citizens. Local government should play stronger role in facilitating and supporting community projects/initiatives that allow the public to get actively involved and feel empowered and motivated to become part of the solution through, for example, planting, composting, producing their own renewable energy. |
| Czech Citizens and sustainability | (1) 'Sustainable construction of buildings'; (2) 'Understanding and implementing sustainable electronics'; (3) 'Sustainable transformation of existing traffic infrastructure in cities'; and (4) 'Holistic education for a sustainable future' | Czech people already have sustainability mind-sets but are missing a platform that would allow them to express their views and opinions and give them a chance to influence and transform systems as a result of their participation. They are, however, believed to be more open to innovative solutions that demonstrate a link to Czech culture and tradition, as they fear of loosing their culture to technology that changes ethics and behaviours, for example. Nevertheless, four research priorities with direct reference to 'sustainability' featured in the Czech Top-10 as voted by Czech citizens. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| **DENMARK** | | |
| Sustainable agriculture | Supporting local/regional agricultural production, distribution and consumption system ; Innovating agriculture: The sustainability option | Agricultural lands make up a large percentage of the Danish land-area and are as such a focal point when looking towards a sustainable future. |
| A greener, more social economy | New working models – new economic models ; Understanding and implementing sustainable electronics ; Sustainable economics | Ensuring a sustainable future, could also necessitate the transformation of the economy. |
| Technological solutions | Sustainable construction of buildings ; Improvement of European electricity transmission to increase renewable energy production ; Enhanced physical activity for better quality of life and energy efficiency | Technological solutions might provide some of the push towards a sustainable future, but it is further evident that they cannot stand alone. |
| Sustainable cities | More green in cities ; Ensuring inclusive dynamic city centres | As a large percentage of Danes lives in cities, focus should be put on how to ensure that their local neighborhoods provide a frame for their future. |
| A sustainable life | Sustainable living environments; Holistic education for a sustainable future | Indications on how to live a more sustainable life could be useful for Danish citizens. The two research priorities however focus on two different aspects – one forces the citizens to live a more sustainable life, while the other offers it as a possibility. |
| **FINLAND** | | |
| Sustainable infrastructures | Supporting people to become producers of renewable energy Sustainable construction of buildings Sustainable living environment Sustainable transformation of existing traffic infrastructure in cities | High energy consumption due the climate, geographically large country and sparse population |
| Sustainable business culture | Sustainable economics Understanding and implementing sustainable electronics Fair and participatory access to limited resources Unified ecological grading system | High labor costs challenge business and industry. High unemployment rate, however approach to work is changing. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Sustainable agriculture | Supporting local/regional agricultural production, distribution and consumption system Innovating agriculture: the sustainability option | Appreciation of local and national food. Agriculture and farming changed significantly after Finland joined the EU. |
| **GERMANY** | | |
| Fair distribution of resources and participation rights for all | 1. Holistic education for a sustainable future 2. Fair and participatory access to limited resources 4. Supporting people to become producers of renewable energy 8. Access to natural resources as a human right 8. Sustainable living environment 8. Supporting an active civil society for sustainable development | Huge target but absolutely necesarry to follow in each step |
| Sustainable business models | 3. Sustainable economics 4. Research on business models and changing institutions related to sustainable energy economy 4. Supporting people to become producers of renewable energy | a lot of current research is done on this topic. During the next years business has to be discussed and involved in economic thinking |
| Sustainable food system | 6. Supporting local/regional agricultural production, distribution and consumption system 6. Research on individual urban farming 8. A new European food culture | segmentation in German society exist of partly changing food cultures |
| Traffic infrastructure in cities | 8. Sustainable transformation of existing traffic infrastructure in cities | a lot of buttom initiatives but many barriers to become mainstream |
| **ITALY** | | |
| Sustainable innovation towards sustainable economic development | Provide target support, in particular to the regions, and empower them with ownership over innovation development in the area of agriculture, energy, transport, green jobs. New business models are another top priority. | Territorial disparity, lack of coherent regional policy and the lack of the innovation drive in the country. The overall R&D&I eco-system of the country shall be strengthened with rapid reforms. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Urban mobility and sustainability | Here the concept of urban mobility and sustainability refers to the broader spectrum related to the smart city concept, including the infrastructure and the energy savings. | The good examples and measures that have already been implemented across Italy shall be used as a model for development of other regions/cities and use it as a platform for the knowledge exchange and further policy making by involving all relevant actors. |
| Sustainable well-being at all levels | Italy is a family oriented country with strong tradition in preserving its lifestyle, culture and health, thus the eco system and the models shall be built around these values and further translated into the process of innovation (traditional oriented innovation models). | Huge rate of unemployment and inward and outward migrations, brain drain. |
| **POLAND** | | |
| ENERGY PRODUCTION AND CONSUMPTION | Sustainable construction of buildings Improvement of European electricity transmission to increase renewable energy production | Poland is one of the biggest coal consumers in the world and the least emission-efficient economy in the EU. There is a problem of high costs of energy taking into account the incomes of households. |
| IMPROVING SOCIAL INTERACTIONS AND PARTICIPATION IN PUBLIC DISCOURSE | Supporting an active civil society for sustainable development Holistic Education for a Sustainable Future New Spaces for Public Discourse Impact of virtual communities in behaviour change | Weak development of civil society can be observed in the country by low level of citizens' engagement in public life, little volunteering and membership in associations/social organisations, as well as lower voter turnout rates. |
| CHANGING FOOD CULTURE | Supporting local/regional agricultural production, distribution and consumption system A new European food culture | The number of entrepreneurs in the healthy food sector increases dynamically; there is a growing demand for more sustainable food consumption. |
| **PORTUGAL** | | |
| Sustainable cities | (1.) Sustainable construction of buildings, (2.) 'Sustainable transformation of existing traffic infrastructure in cities', (9.) 'More green in cities' | Portugal is urbanising rapidly and this cluster indicates the growing demand for smart and sustainable cities. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Sustainable renewable energy | (3.) Supporting people to become producers of renewable energy, (10.) Improvement of European electricity transmission to increase renewable energy production. | Renewable energy has been one clear focus of Portuguese policies in the past, and the topic continues to be seen an important aspect to sustainability. |
| Sustainable agriculture | (5.) Innovating agriculture: the sustainability options, (6.) Supporting local/regional agricultural production, distribution and consumption system | Ranks lower than in European priorities, due to strong urbanisation trend. Also, one reason for agriculture to rank higher in Europe is that the topic of food quality is trending very high in most developed countries. |
| Sustainable living models | (4.) Enhanced physical activity for better quality of life and energy efficiency, (7.) New working models – new economic models, (8.) Holistic education for a sustainable future | Portugal has been suffering from severe economic crisis for the past eight years, which increases the burden of daily life and increases the aspiration for more sustainable living models. |
| **SLOVENIA** | | |
| Facing societal changes | Holistic education for a sustainable future Enhanced physical activity for better quality of life and energy efficiency New working models – new economic models Access to natural resources as a human right | Changes toward sustainability is in education on all levels |
| Needs for sustainable agriculture | Supporting local/regional agricultural production, distribution and consumption system Research on individual urban farming | Strict measures are needed for sustainable agriculture |
| Efficient use of energy | Fair and participatory access to limited resources Sustainable construction of buildings Improvement of European electricity transmission to increase renewable energy production | Sustainable future is possible only with strict orientation in effective use of energy on whole level |
| **UNITED KINGDOM** | | |
| Sustainable Construction | Supporting the sustainable construction of buildings | Political will is required to support the latest technology in order to continue to lead the way in sustainable construction of buildings. |

| Clusters of topics | Research priorities | Challenges/observations |
|---|---|---|
| Sustainable Economics | Supporting sustainable economics, collaboration through shared space and support for eco-preneurship. | Key challenge is developing economic models that build on the principles of sustainable development. |
| Sustainable food production | supporting local/regional agricultural production, distribution and consumption system, exploring the introduction of insect food and a new European food culture. | Enabling a culture change. |

Appendix 1 summarises relevant and representative policies and initiatives in selected countries participating in the CASI project. Each of these summaries is presented in greater detail in respective national level policy briefs available on the CASI website at www.CASI2020.eu. A more in-depth European level policy brief is also available on the site.