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

THEME SiS.2013.1.2-1
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CASI

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EUROPEAN CITIZENS' VISIONS FOR A SUSTAINABLE EU FUTURE

Research Priorities and Policy Advice
Deliverable 3.3

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The CASI project

The CASI project ("**Public participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation**") aims to respond to one of the Grand Challenges set out in the Horizon 2020 programme of the European Union, namely "Climate action, environment resource efficiency and raw materials". It represents an EU-wide cross-sectoral partnership on innovation-related challenges and considers not only the impacts of social and technological innovation, but also the types of actors involved and their inherent interests. It thus effectively integrates the perspectives of civil society, SMEs, industry, policy stakeholders, and leading academics.

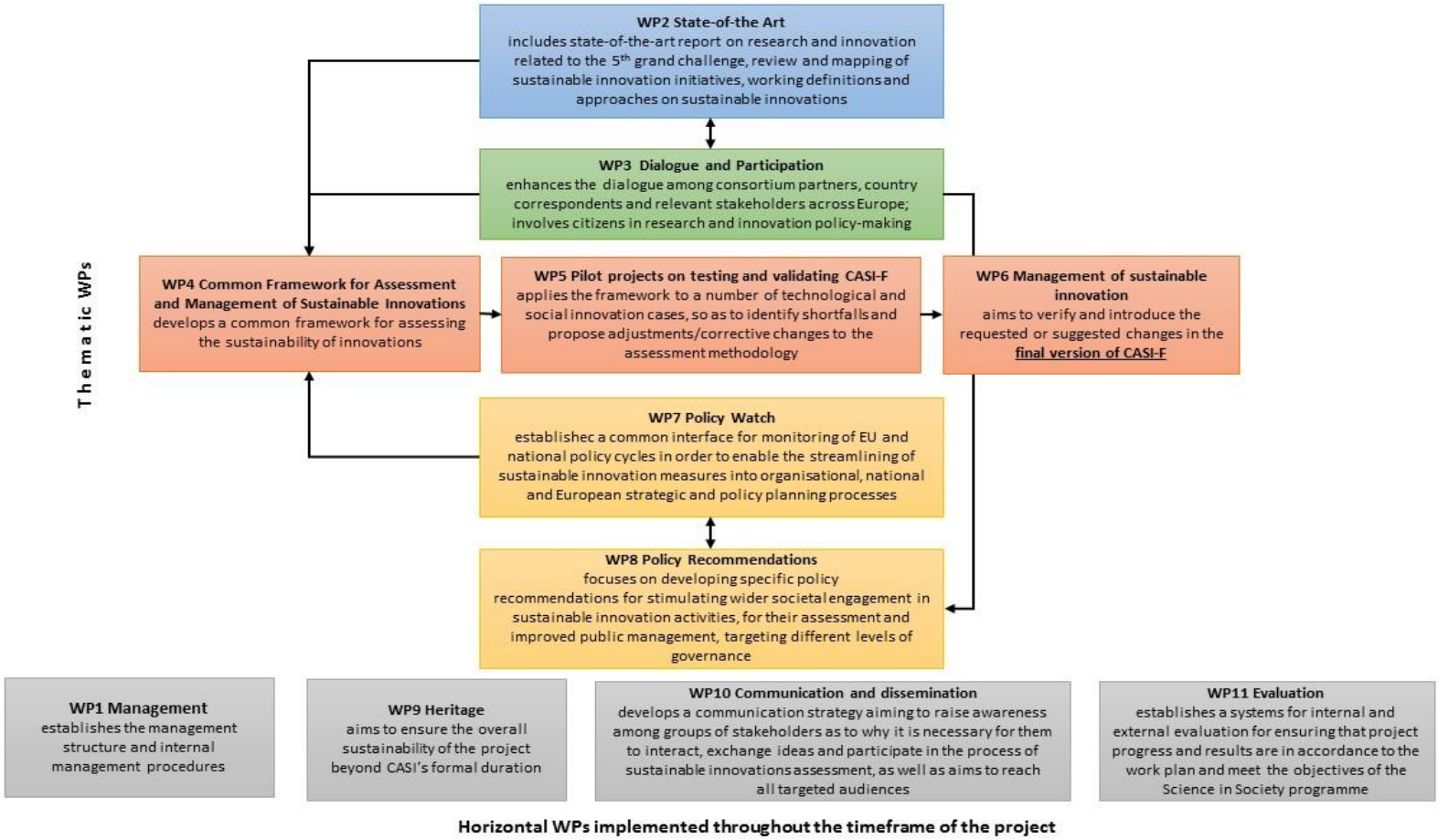
CASI is based on the understanding of innovation as a key driver of societal progress in the age of technology and of imminent uncertainties about the future. Sustainable innovation, on the other hand, further enhances this understanding by introducing sustainability as a focal core of the innovation process and as an objective of innovation diffusion through social and market opportunities. At the same time, this is not an attempt to introduce yet another distinctive type of innovation. Rather, **CASI fosters a debate on conceptual dimensions, policy boundaries, and good practices combining innovative pursuits with sustainability objectives**.

The collaboration of partners investigates the scope of sustainable innovation as a societal phenomenon and enables the elaboration of an **assessment and management framework of sustainable innovation practices**, based on a sound conceptual framework and a shared understanding of sustainability in innovation processes among stakeholders. CASI further **explores the impacts of innovative practices, as well as of specific technological and social innovations**, vis-à-vis the persisting challenges of climate change and resource depletion, and the societal effects thereof. Thus, it **makes a thorough inquiry into the balance between the social, economic and environmental impacts of innovations**, and **helps determine the scope and priorities for national and EU policy making**.

CASI is supported by the Science in Society Programme of FP7, Theme SiS.2013.1.2-1 "Mobilisation and Mutual Learning (MML) Action Plans: mainstreaming Science in Society actions in research". It is coordinated by the Applied Research and Communications Fund (ARC Fund), a Bulgarian non-governmental policy and innovation research institute. The project's consortium includes **19 partner organisations from 12 EU countries** and relies on an extended network of national experts in the remaining 16 countries not represented in the consortium to ensure coverage and inquiry in every EU member state.

CASI includes a rich and intensive set of activities carried out across the EU. The methodology of the project is structured into the following work packages:

CASI – Organigramme of WPs



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1. Executive summary

The ambition of the EU FP7-funded project "Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation" (CASI) is to develop a methodological framework for assessing sustainable innovation and managing multi-disciplinary solutions through public engagement in the Research, Technological Development and Innovation (RTDI) system.

Task 3.4 contributed to the achievement of this ambition by producing a set of research priorities based on citizens' concerns and wishes for a sustainable future. It also provided mutual learning among project partners by building capacity for the future use and understanding of the applied methodology. The methodology combines citizens' input and experts' insights and was first developed and used in the FP7 Blue Sky research project, CIVISTI. The deliverable at hand is the final report on this Task.

1.1. The Transnational Citizen Top-10 European Research Priorities

The principal result of Task 3.4 is the Transnational Citizen Top-10 of European Research Priorities, developed and selected at citizen panel meetings in 12 European countries (Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and the United Kingdom). The titles of the research priorities of this transnational Top-10 are presented in table 1.

The Top-10 list is the result of an extensive deliberative process involving 245 European citizens and 23 experts in 25 consultation events (24 citizen panel meetings and 1 expert workshop). Through the formulation of 50 visions for a sustainable future, the citizens provided input to the experts, who translated these visions into 27 research priorities, before the citizens voted on these, creating the transnational Top-10. It was the responsibility of 12 partner organisations to coordinate the local citizen panel meetings under the guidance of the Task leader, The Danish Board of Technology.

Table 1: The Transnational Citizen Top-10, as voted by the 185 citizens of 12 European countries participating in Citizen Panel Meeting 2.

Transnational citizen Top-10 ranking	Name of research priority
1	Supporting local/regional agricultural production, distribution and consumption system
2	Holistic education for a sustainable future
3	Supporting people to become producers of renewable energy
4	Sustainable construction of buildings
5	Sustainable transformation of existing traffic infrastructure in cities
6	New working models – new economic models
7	Innovating agriculture: the sustainability option
8	More green in cities
9	Understanding and implementing sustainable electronics
10	Fair and participatory access to limited resources

The Top-10 list is a unique contribution to the EC's ambition of embedding responsible research and innovation (RRI) in Horizon 2020 and can serve as inspiration for future research calls. One of the key observations made in Task 3.4 is that research priorities favoured by citizens only to a limited degree overlap those of the experts involved in the process. This clearly illustrates the relevance of citizen participation in the formulation of European research priorities. Another key observation is the fact that the three top research priorities focus on ways to empower citizens to live and act more sustainably, a focus that deserves more attention in National or European research programs.

1.2. Policy advice

Building on the experience from organising the citizen consultation process and the analysis of the results, we believe the following set of key observations and advice will be of interest to policy makers, stakeholders, experts, and civil servants[1]:

1. More research topics should relate to social change and empower citizens

Citizens' research priorities differ from those of experts and the European Commission. Citizens favour research priorities with stronger emphasis on social change and solutions as well as those with the aim of empowering citizens to bring about themselves a more sustainable future.

2. The research priorities should be used by the European Commission to define future research topics

The research priorities most favoured by the citizens should be developed into concrete research topics to be introduced in the Science With And For Society (SWAFS) and GSC5 research programmes.

3. The method should be used for defining research topics for other research programmes as well

The method is well suited to define research topics in both European and national research programmes of all kinds. It is well tested, well documented, and produces what it promises to deliver, namely research priorities based on citizens' visions for a sustainable future.

4. The method could be used to define research topics cutting across existing Horizon2020 work programmes

Considering the holistic cross-sectoral nature of the research priorities developed on the basis of citizens' visions, it should be considered to use the engagement of citizens as a method for defining research priorities that bridge existing research programmes, thus serving as a remedy for "silo thinking".

Overall, the results and consultative process completed through Task 3.4 of CASI illustrate the need for and benefits of including citizens in research priority setting. Besides providing new input, citizen participation can lead to more socially robust research and innovation results. Inviting citizens to participate in research priority setting also help provide legitimacy and transparency to the spending of public research funds and gives citizens an active role in the shaping of their own and EU's future.

2. Introduction

The project "Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation" (CASI) is a response to one of the Grand Challenges set out in the European Union's research and innovation programme Horizon 2020, namely "Climate action, environment, resource

[1] For an extended version of the Policy Advice, see Chapter 6

efficiency and raw materials". CASI receives funding from the EU's FP7 for research, technological development and demonstration.

2.1. Objectives of CASI

The main objective of CASI is to develop a methodological framework for assessing sustainable innovation and managing multi-disciplinary solutions through public engagement in the Research, Technological Development and Innovation (RTDI) system.

One way to ensure sustainable innovation is to promote and practice societal engagement in the research and innovation process, thereby allowing public interests and concerns to influence it. Thus, a secondary objective of CASI is to develop ways in which societal engagement in research and innovation can be practiced and enhanced.

In this report, we deal with one out of several ways, in which societal engagement in research and innovation can be practiced, namely the participation of citizens in the definition of research priorities for the European research agenda.

2.2. Objective of Task 3.4

The main objective of Task 3.4 was to produce a set of research priorities based on citizens' concerns and wishes for a sustainable future. The method, combining citizen input and experts insight, was first developed and used for the FP7 Blue Sky research project, CIVISTI[2]. It has since then been applied in Austria by the Federal Office for Food Safety and has inspired the development of a new method elaborated and implemented in CIMULACT, a citizen and multi-actor consultation on Horizon2020. The method used in CASI builds on experiences made in CIVISTI.

A secondary objective of the task was to enhance mutual learning among project partners by building capacity for future uses of the methodology and understanding of the rationale behind it.

Figure 1: The 12 countries that organised Citizen Panel Meetings Source: Kaarakainen et al (2015)

2.3. Why involve citizens in the development of research priorities?

Science and technology play a crucial part in the shaping of our modern life and of our future. In democratic terms, it is therefore fair that the public should have a say in deciding which research gets funded with public money and thus influence how their future is shaped. Also, engaging the public in the research and innovation activities can lead to more socially robust results by securing outcomes that are more likely to gain public acceptance and uptake. This is especially valuable when decision makers need to find the right, but often unclear, path towards a sustainable future and a balance between concerns for the economy, the environment and social wellbeing. Another argument for citizen participation in the development of research priorities is the fact that it can help bridge the gap between scientific and public discourse.

[2] For a presentation of the CIVISTI method and results please see e.g. Rask & Damianova (2009) or Andersen & Jacobi (2011).

3. How to produce research priorities building on citizens' wishes and concerns

This Chapter presents the method used by 12 project partners in Task 3.4. It involved three key steps and activities:

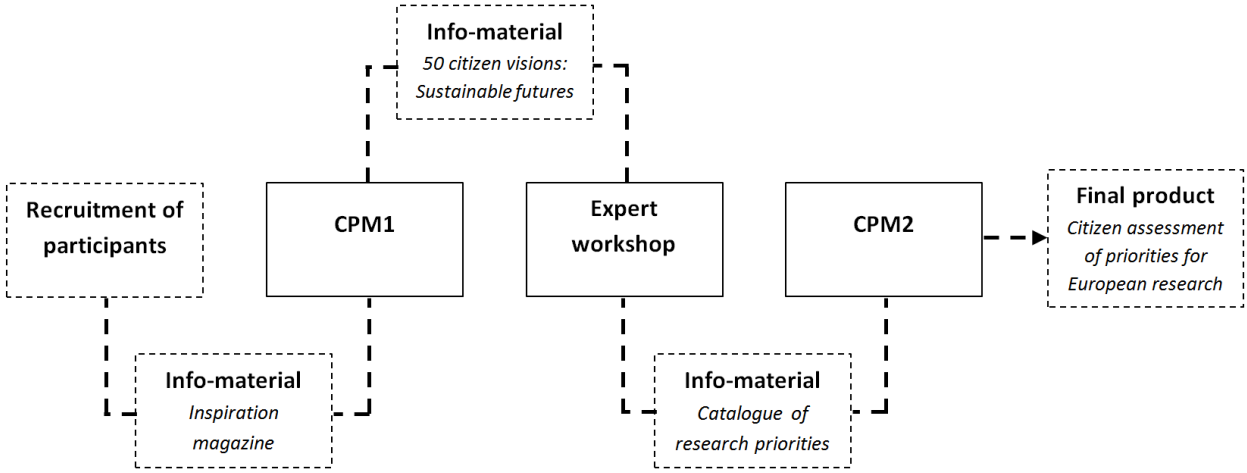
1) The first Citizen Panel Meetings (CPM1), which produced 50 citizen visions for a more sustainable future.

2) An expert workshop, at which experts translated half of the visions into research priorities and ranked them.

3) The second Citizen Panel Meetings (CPM2), where citizens validated and ranked the research priorities produced at the expert workshop.

Figure 2 presents the key methodological steps implemented in Task 3.4. We call this process 'the citizens-experts-citizens process' – or the CEC-process in brief.

Figure 2: The Task 3.4 method



Both rounds of citizen panel meetings (CPMs) were organised in the 12 partner countries: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and the United Kingdom. It was the responsibility of the partners from these respective countries to organise the CPMs, based on training (in the form of a seminar and several Webinars) and detailed guidelines, developed by the task leader the Danish Board of Technology Foundation (DBT), for the partners, to ensure a uniform process in all countries, allowing for comparison of results. The methodological material provided by the DBT included the following:

- Manual for Citizen Panel Meetings (February 26, 2015): An overall presentation and timeline of the consultative process.

- Cookbook for the First Citizen Panel Meeting – Annex 1 to 'Manual for Citizen Panel Meetings' (February 26, 2015): A detailed presentation of how to implement CPM1, including timelines and guidelines for how to recruit citizens.
- Guides to facilitators and table moderators – Annex 2 and 3 to 'Manual for Citizen Panel Meetings' (February 26, 2015): Detailed guides and scripts for the facilitators and guidelines for the table moderators of CPM1.

- Cookbook for Second Citizen Panel Meeting – Annex 4 to 'Manual for Citizen Panel Meetings' (August 26, 2015): A presentation of how to implement CPM2.

- Guides to facilitators and table moderators – Annex 5 to 'Manual for Citizen Panel Meetings' (August 26, 2015): Detailed guides and scripts for the facilitators and guidelines for the table moderators of CPM2.

The University of Helsinki was responsible for the planning and execution of the expert workshop, from e.g. programme development and the method to recruitment of the experts, to facilitation of the workshop. The University of Helsinki further evaluated the results of the CEC-process in three publicly available reports, namely Kaarakainen et al (2015), Repo, Kaarakainen & Matchoss (2015) and Matschoss et al (2015)[3]. Some of the key findings of these reports are incorporated into this deliverable.

Besides the above-mentioned guidelines and reports, other key sources of material for this deliverable includes questionnaires answered by the participants following the three events as well as reports by the 12 partner organisations. The authors and/or collectors of these are presented as contributors above, together with the partner personnel taking part in the events.

3.1. Preparations for the first citizen panel meeting (CPM1)

In addition to the detailed guidelines presented above and produced for the use of the consortium partners, the main preparatory steps for CPM1 were the recruitment of diverse groups of citizens and the production of the information material presented to them.

3.1.1. Recruitment of participants and composition of CPM1

'Cookbook for the First Citizen Panel Meeting' described in detail how the 12 partners should recruit the required 18 to 25 participants for the citizen panels. In order to secure diversity among the citizen panel members, the following five demographic criteria were used for recruitment:

1. Age (18-25, 25-35, 35-50, 50-60, 60-75; 3-4 from each group, and 1/3 must be under 35 years)
2. Gender (50% women and 50% men, or as close to)
3. Educational level (selected from low, middle and high levels)
4. Occupation (from a variety of occupations in public and private sector)
5. Geographical zone (both city and country dwellers)

The composition of the panel was to reflect the national statistical distribution along those parameters in order to achieve sufficient heterogeneity. A further, non-quantified, criterion was the personal motivation for joining the citizen panel. This was included to help ensure that different opinions and convictions were represented in the citizen panel.

The participants should be lay people, and the personal motivation combined with the knowledge about applicants' occupation, served as an additional means for the organisers to disregard "expert citizens", i.e. citizens with an expert knowledge about, or professional interest in, the issues at stake during the CEC-process. This is important to avoid that "lay citizens" be dominated by "expert citizens".

[3] The reports are available on the CASI webpage – www.casi2020.eu – and enclosed in the annex of this deliverable as annex 2, 4 and 5.

Partners developed and discussed different recruitment strategies, including sending out invitations and advertising. The relative freedom of recruitment methods allowed each partner the flexibility of using the method that would grant the greatest success, based on their local knowledge. Four of the partners had to put additional efforts into recruiting an adequate panel and in general, the recruitment processes of the partners left them with only a limited number of applicants. Also, 40 citizens cancelled/did not show up after having been accepted as participants. For one of the panels this applied to eight of the invited citizens. Previous experiences with citizen participation show that this level of drop-out is to be expected, even when efforts are made to avoid it. A total of 230 citizens participated in the CPM1s, on average 19 per CPM1, though in three of the events less than 18 citizens participated.

An examination of the composition of the individual panels, as evident in the partner reports submitted after CPM1, shows that living fully up to the recruitment criteria was a challenge. Typical difficulties included the recruitment of young people, people with little education, and overrepresentation of students. These difficulties are well known and shortcomings recur despite efforts to avoid them[4]. The important lesson here, however, is that by using demographic selection criteria, partners succeeded in composing citizen panels that were quite diverse in terms of personal background and opinion.

3.1.2. Information material for CPM1: Inspiration Magazine

Two weeks before the CPM1s the citizens received an Inspiration Magazine in their native language. The goal of the magazine was to inspire, motivate, inform and support the citizens on the panels, and to prepare them for the production of their own visions for a sustainable future. The magazine should be easily understandable for many different demographic profiles without prior knowledge about sustainable innovation.

The inspiration magazine presented the following topics to the participating citizens:

- What is a vision?
- What are 'future studies'?
- What is sustainability?
- The role of research
- Questions inspiring citizens to think about environmental sustainability in the future.

This magazine of 12 pages, includes articles and interviews with both citizens and stakeholders, including Hans Bruyninckx (Executive Director of the European Environment Agency), Connie Hedegaard (former European Commissioner for Climate Action and current chairwoman of KR Foundation) and Ian Miles (Professor of Technological Innovation and Social Change at the Manchester Institute of Innovation Research of The University of Manchester). An English version of the Inspiration Magazine is enclosed in this deliverable as annex 1.

3.2. The first Citizen Panel Meeting (CPM1)

The objective of each CPM1 was to develop and produce four to five elaborated citizen visions. The visions had to present an image of a desirable sustainable future 30-40 years from now. These visions were then used as input for the expert workshop.

In practice, the meetings were held as either 1 or 1.5 day(s) events in April 2015, with four out of the 12 citizen panels held as 1.5 days' events. One CPM1 was organised on two days with one week between

[4] CASI partners tried to avoid these shortcoming through tailored recruitment plans and mostly succeeded.

them. According to the partner organising the citizen panel, this made it easier to recruit a diverse group of citizens and not only retirees.

At the CPM1s, the first three sessions focused on getting the citizens inspired and accustomed to the task of creating visions concerning sustainability. Then five sessions focused on the actual creation of visions. This process started in groups brainstorming on a prepared set of questions. Afterwards the groups presented results of the brainstorms in plenary, before turning them into, first, draft visions in smaller groups. These draft visions were also presented in plenary. By majority vote, the citizens chose the draft vision they would like to develop in more detail - one for each working group. The process leading to the final visions included feedback from other working groups, before citizens presented the finalised visions in plenary.

Each vision was presented at CPM1 in a template consisting of a short and long description of the citizens' vision for a sustainable future. The long and more detailed description of the vision outlines both benefits and possible negative consequences of the vision as well as actions needed to realize the future wished for.

The main difference between the 1-day events and those lasting 1.5 days was primarily the time available for the last steps of the process where visions were chosen and further developed.

Throughout the workshops, moderated by consortium members and – in some cases – by professional moderators, the citizens where nudged towards focusing their visions on environmental sustainability, e.g. by specifically formulated templates for them to fill in. Visions not conforming to this focus were, however, not disqualified.

The output of the 12 workshop processes were 50 visions for a sustainable future. These visions will be presented in Chapter 4.

3.3. Information material for the expert workshop: Catalogue of 50 Citizen Visions on Sustainable Futures

The output of the 12 CPM1s, i.e. the 50 citizen visions, was presented in Kaarakainen et al (2015): Catalogue of 50 Citizen Visions on Sustainable Futures (see annex 2). This catalogue served as input to and information material for the following expert workshop. The goal of the workshop was to translate these visions into research priorities.

The catalogue explained the objectives of the expert workshop and presented the 50 visions in eight thematic clusters and in their full wording (translated into English). The catalogue was sent to the participating experts, along with the final workshop programme, five days before the workshop – a bit too late according to some of them.

3.4. Expert workshop

The expert workshop was a two-day event, organised by the University of Helsinki from June 8 to 9, 2015, in Copenhagen, Denmark, at the premises of DBT. The objective was to turn the 50 citizen visions into research priorities and to also gather policy recommendations for sustainable innovation.

The participating experts should:

1. Represent various scientific fields e.g. technology, health, environment, engineering, marine, society, economy or agriculture etc.
2. Have expertise in sustainability, innovation and/or participation
3. Have knowledge of European level RTDI policies

4. Have no strong involvement in politics
5. Represent various types of organisations (e.g. private, public and education)
6. Come from EU countries and be representing each of the CASI partner countries
7. Be interested in citizen involvement

23 experts participated in the workshop. According to the partner evaluation of the workshop, combining questionnaire answers from 16 of the 23 participating experts, a vast majority of the experts were from the academic community and represented 11 different European countries, 10 of which were consortium partner countries[5]. The gender balance was approximately 50% women and 50% men. Approximately half of the experts were older and half of them younger than 35 years.

Workshop participants were assigned to five working groups, so that experts with similar occupation and expertise were grouped together. Following an introduction to the CASI project and the eight thematic clusters in which the 50 citizen visions had been incorporated[6], the experts worked first with all eight clusters and second with one to two thematic cluster(s) within their field of expertise. They had to produce at least one research priority for each of the visions in their cluster(s). In the next step, they provided feedback to each other's recommendations, followed by a selection process (including a voting procedure) in which they chose 27 research priorities for further elaboration.

The further development of the 27 draft research priorities was organized as an 'open space process', allowing all experts to work with the research priorities they found most interesting. Following a final presentation in plenary of elaborated research priorities, the participating experts rated them on a scale from 1-5 according to three criteria:

1. Novelty ('is the research priority innovative according to your knowledge?')
2. Essentiality ('how important is the research priority for reaching a more sustainable future?')
3. Timeliness ('how acute is the research for us to reach a more sustainable future?')

3.5. Preparations for the Second Citizen Panel Meeting (CPM2)

In addition to the detailed guidelines produced for the use of the consortium partners (presented earlier in this chapter), the main preparatory steps for CPM2 were to ensure that the citizens participating in CPM1 also turned up for these events, as well as to produce the information material sent to them.

3.5.1. Information material for the second citizen panel meeting: Catalogue of research priorities

The information material for the citizens participating in CPM2 was a catalogue with the 27 research priorities developed at the expert workshop – translated into native language. The catalogue for the citizens' panel meeting of each country includes first a section with specific attention to the research priorities inspired by visions from that particular country and citizen panel followed by a full presentation of all the 27 research priorities. The citizens received the catalogue two weeks prior to CPM2 and were advised to read the first section carefully and familiarise themselves with excerpts of all research priorities, if not reading them in full.

The information material, in English, is enclosed as annex 3 of this deliverable.

[5] The 11th country, with a representative present at the expert workshop, was Switzerland.
[6] See chapter 4 for an introduction to the thematic clusters.

3.5.2. Composition of the panels for the second round of citizen panel meetings

Citizens invited to participate in CPM1 were also invited to participate in CPM2. The 12 CPM2s were held in October 2015, five months after CPM1. Consortium partners therefore sent reminders and shared information with the citizens over the five months. Despite those efforts, a quarter of the citizens dropped out of the process, as 74% of the citizens at the CPM1 also participated in CPM2 (170 citizens). Five partners invited new participants in order to boost the number of citizens, so 185 ended up participating in CPM2 (80% of the number of participants in CPM1). The drop-out is to be expected but also challenging to the efforts for securing diversity in the panels. Thus, due to the drop-out, the panels for CPM2 were less diverse than for CPM1 (e.g. with regards to gender, level of education and age).

3.6. The second citizen panel meeting (CPM2)

The objective of CPM2 was, first, to validate the research priorities derived from the countries respective visions and, second, to produce a Top-10 of the entire list of the 27 research priorities, based on citizens' individual votes. The national Top-10s were later merged into a transnational Top-10 list of research priorities for bringing about a more sustainable future. The transnational Top-10 is presented in section 4.3.

Citizens compared the research priorities produced in the expert workshop with the original vision(s) produced by their panel. This comparison consisted of a validation of the "faithfulness" of the research priority, i.e. the degree to which it reflected the original vision, and the "relevance/importance" of the research priority for bringing about a sustainable future. The citizen panels only validated the research priorities that stemmed from visions to which their own country had contributed. The validation was facilitated through plenary presentation of the research priorities, followed by discussion in working groups in light of the two validation criteria, before citizens gave "validation scores" to the research priorities dealt with by their panel.

In the second part of CPM2, all 27 research priorities were presented to the citizens, who voted on the ones they found most important for reaching a more sustainable future. The voting procedure resulted in a top-10 list of research priorities for each citizen panel. The results were later merged to create a transnational Top-10 of research priorities across all 12 CPM2s (see section 4.3 for a presentation of the transnational Top-10).

3.7. Final report: Citizen Assessment of Priorities for European Research – Report on the second citizen panel meeting

The final output of the process is the report Matschoss et al (2015): Citizen Assessment of Priorities for European Research – Report on the second citizen panel meeting. The report is enclosed as annex 5, while key results are presented in the next chapter.

3.8. From vision to research priority – an example

Table 2 illustrates how the vision titled "Distributed small-scale energy generation in mainstream within 30-40 years" became a validated and rated research priority through the CEC-process. This vision was one of the 50 visions created in the first citizen panel meetings (CPM1) and was thematically clustered in "Energy and production" in Kaarakainen et al (2015).

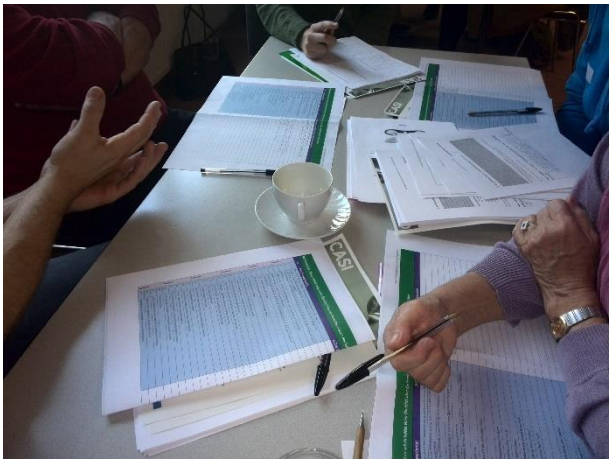
In the first stage of the expert workshop, the vision was developed into a draft research priority and subsequently selected as one of the 27 to be further elaborated. It received a rating of 3.60 and, consequently, was ranked as number 11.

In the second citizen panel meeting (CPM2), citizens voted on the priorities and the priority received an index of 5.59 and was ranked as third amongst the 27 research priorities. See chapter 4 for an introduction to the ranks and ratings of the research priorities.

Table 2: A case of how one vision became a research priority through the CEC-process

Process stage	**Citizen panel CPM1**	**Expert workshop**		**Citizen panel CPM2**
Task	*Creates visions*	*Creates draft research priorities*	*Elaborates selected research priorities*	*Validates and rates research priorities*
Example of vision and priority	*Vision:* *Distributed small-scale energy generation in mainstream within 30-40 years*	*Research priority:* *Supporting people to become producers of renewable energy*		*Research priority:* *Supporting people to become producers of renewable energy*
Transfor-mation of vision to priority	*One of 50 citizen visions, clustered in energy and production*	*Selected for elaboration*	*Expert rating 3.60, rank 11*	*Citizen index 5.59, rank 3; validation score on faithfulness 4.06*
Output	*Catalogue of 50 visions*	*49 draft research priorities*	*27 elaborated research priorities*	*Citizen assessment of 27 research priorities, Top-10*

Vienna, Austria (CPM2)



Leuven, Belgium (CPM1)

Sofia, Bulgaria (CPM1)

Prague, Czech Republic (CPM2)

Copenhagen, Denmark (CPM1)

Helsinki, Finland (CPM1)

Milan, Italy (CPM1)

Poznan, Poland (CPM1)

Porto, Portugal (CPM1)

Izola, Slovenia (CPM1)

Stratford-Upon-Avon, UK (CPM1)

The Expert Panel Meeting

4. Results and analysis

This chapter presents and analyses some of the key results from the CASI citizen participation process:

(1) The 50 visions for a more sustainable future produced at CPM1 by 230 citizens from 12 EU countries.
(2) The 27 research priorities based on the citizens' visions and developed at a trans-disciplinary expert workshop.
(3) The Top-10 research priorities selected by the 185 citizens at CPM2.

4.1. 50 visions for a sustainable future

The 50 visions for a sustainable future elaborated by the participating citizens of CPM1 are presented and clustered in Kaarakainen et al (2015) (included in this deliverable as annex 2).

A vision, as defined in the CASI project, is a picture or an imagination of a desirable future. A vision can be based on hopes and dreams - but also upon concerns and fears in relation to problems or imagined threats. In CASI, the time span of the vision is 30-40 years from the present.

The 50 visions presented by the citizens participating in CPM1 represent different aspects of a sustainable future, from technological implementations to change in mind-sets. While some target social dimensions of sustainability, others deal more with technical dimensions. Two examples illustrate the diversity of the visions: A vision from Bulgaria requested *Global solidarity based on volunteering, technological development and regulated distribution of resources*, while a vision from Denmark called for *Sustainable electronics*.

The visions are remarkably original when comparing them with each other, and only one topic – pertaining to urban farming – was developed in visions in two different countries. Some visions present a critique of the current society, while others build self-contained visions of a sustainable future. The visions reflect to a varying degree on the transformative change necessary for them to become reality.

The citizens participating in the panels were asked to think both as members of society, with a focus on the collective good, and as private individuals, with special interests, e.g. patients, city-dwellers or car owners. Both of these perspectives might present relevant input when visions are developed.

For the purpose of the expert workshop, the 50 visions were clustered, using TIB software (TIB software, 2015)[7] by Kaarakainen et al (2015). TIB makes use of statistical analysis, merges words into topics (cf. taxonomies or thesaurus) and expresses relationships between topics. The idea of this approach is to base the analysis on data rather than apply any predefined concepts or categories to the analysis.

Through visualisation of the citizen visions (translated into English), in the form of a topic cloud, eight main clusters emerged. These clusters are presented below in table 3. For a description of how the clusters were developed, please see Kaarakainen et al (2015).

[7] TIB software (2015): Text analytics made easy! Available online at research.kapiche.com.

Table 3: Presentation of clusters, visions included therein, their primary focuses and the number visions included in the cluster. Source of data: Kaarakainen et al (2015)

Title of cluster	Title of visions included in the cluster	Primary focus(es) of the cluster	Number of visions in cluster
1. Energy and production	*Distributed small-scale energy generation in mainstream within 30-40 years; Energy for humanity and ecosystems preservation; Insects – the dish of the future; New sustainable energy economy; Self-supply with healthy food; Sharengy – Sharing renewable energy sources*	Energy and production of food	6
2. Social development and people	*Eco2Social Industry in 2050; Facing immigration of nations; Food for all; Homo Faber; Human world; Living in community; Recognition, rethinking and responsible governance / action; Societal reset; Society of understanding (empathic); The happy life: Healthy and contending life as the driver of a holistically sustainable development*	Social communities, working life and humanity	10
3. System resources	*Cannabis utopia; Clean nature for a better quality of life; Conflict free distributive justice; Development of new technologies and improvements of the existing in harmony with nature and society; Distributive justice of essential resources; Healthy living; Sustainable agriculture; Sustainable electronics*	Nature, and sustainability	8
4. Local needs and support	*Eco-preneurship – Sustainable business for the future; The sustainable construction of buildings*	Local resources	2
5. Change for the future	*Assets of the planet on the school curriculum; Eco credits; Education - a path to spiritual and sustainable future; Education=aware citizen=aware society=sustainability; EUCRES - EU collaboration for recycle systems; New ways for sustainable education; Think coloured; Vision of quality*	Education and change processes	8
6. Values and politics	*1⁄2 day labour; Active civil society for sustainable development; Beauty will save the world; Global solidarity based on volunteering, technological development and regulated distribution of resources; Society of potential capacities; Sustainable living environment, sustainable values; Union of the earth – World without the borders*	Wide variety of topics ranging from civil society to sustainability	7
7. Living and spaces	*From physical activity to electricity; More green in the city; Network for a world as home; Optimal living together in the city and surrounding areas; Supporter of body and mind [IPHA – intelligent personal health adviser]*	Personal activities	5
8. Urban life	*Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational spaces; The city my home / home in the city; Urban farm; Urban farming*	Cities and urban farming from a parallel perspective	4

4.2. The 27 elaborated research priorities

Following the CPM1 and the creation of the 50 citizen visions, an expert workshop convened 23 experts in sustainable innovation. Their task was to 'translate' the visions into research priorities.

First, 49 draft research priorities were made, and 27 (55 %) were then selected for further elaboration[8]. Table 4 below shows the number and percentages of draft and elaborated research priorities from each of the eight clusters.

It is interesting to see that technologically oriented clusters were more popular among the experts than the following three clusters, which were more socially orientated:

- Change for the future (visions on educational change and change processes)
- Values and politics (visions covering a wide range of particular issues)
- Social development and people (visions on social communities, working life and humanity)

At the end of the workshop the experts rated the 27 elaborated research priorities according to three criteria: '*Novelty'*, *'Essentiality'* and *'Timeliness'*. The non-weighted averages of these three ratings, on a scale from 1 to 5, are shown in table 5. All research priorities received rather high ratings, with a relatively low standard deviation. Also, there are only minor differences between the ratings of research priorities next to each other in rank. Five research priorities received somewhat higher ratings than the rest, while four research priorities received rather low ratings.

Table 4: Selection of draft research priorities for elaboration according to eight clusters of visions. Source: Repo, Kaarakainen & Matschoss (2015)

	Draft research priorities	Elaborated research priorities	Share of elaborated priorities, %
Local needs and support	2	2	100
Energy and production	6	5	83
Urban life	4	3	75
System resources	8	5	63
Living and spaces	5	3	60
Change for the future	7	4	57
Values and politics	7	3	43
Social development and people	10	2	20
Total	*49*	*27*	*55*

[8] For a detailed presentation and analysis of the results, see annex 4: Repo, Kaarakainen & Matschoss (2015).

Table 5: Overall rating of 27 elaborated research priorities. '=' indicates that at least two research priorities have received the same rating. Source: Repo, Kaarakainen & Matschoss (2015)

Overall rank	Research priority	Overall rating	Topic
1	Improvement of European electricity transmission to increase renewable energy production	4.11	Energy and production
2	Research on business models and changing institutions related to sustainable energy economy	3.84	Energy and production
3	Sustainable living environment	3.83	Values and politics
=4	Holistic education for a sustainable future	3.81	Change for the future
=4	A new European food culture	3.81	Social development and people
6	Access to natural resources as a human right	3.71	System resources
7	Co-developing green technology	3.68	System resources
=8	Sustainable economics	3.65	Social development and people
=8	Unified ecological grading system	3.65	Change for the future
10	Sustainable transformation of existing traffic infrastructure in cities	3.63	Urban life
11	Supporting people to become producers of renewable energy	3.60	Energy and production
12	Supporting an active civil society for sustainable development	3.59	Values and politics
13	New working models – new economic models	3.57	Values and politics
=14	Sustainable construction of buildings	3.56	Local needs and support
=14	Fair and participatory access to limited resources	3.56	System resources
=16	Understanding and implementing sustainable electronics	3.51	System resources
=16	Innovating agriculture: the sustainability option	3.51	System resources
=16	New spaces for public discourse	3.51	Change for the future
=19	Supporting local/regional agricultural production, distribution and consumption system	3.48	Energy and production
=19	Supporting Eco-preneurship	3.48	Local needs and support
21	Collaboration through shared space	3.46	Change for the future
22	Impact of virtual communities in behaviour change	3.40	Living and spaces
23	Ensuring inclusive and dynamic city centres	3.33	Urban life
24	Enhanced physical activity for better quality of life and energy efficiency	3.24	Living and spaces
25	Exploring the introduction of insect food	3.08	Energy and production
26	More green in cities	3.00	Living and spaces
27	Research on individual urban farming	2.97	Urban life

A comparison of the mean overall rating of the research priorities in the eight vision clusters is presented as table 6. The two clusters receiving the highest score are primarily social, while the third is more technical in nature. The three clusters receiving the lowest score merge both technical and social aspects.

While the experts primarily selected draft research priorities for elaboration that had a technological focus, they gave in the end the more socially oriented research priorities the highest ratings. The reason for this might be that social research priorities were few in numbers in the final pool of elaborated visions, and therefore seen as relatively important during the rating session. The fact, however, that experts chose at an early stage in the process to disregard most of the visions on social communities, values, politics and humanity, when they picked research priorities for further elaboration, still merits some attention. One reason could be that experts preferred elaborating the research priorities that were closer to their own field of expertise. Another could be that some of the socially oriented research priorities might be perceived as somewhat radical – whether too ideological or very political – and thus, in the eyes of an expert, appeared unsuitable as material for a research priority.

Either way, the limited selection of citizen visions on social development and people and on values and politics shows that even in a process designed for citizen-expert co-construction of research priorities, clear differences can be identified between the priorities of citizens and experts respectively.

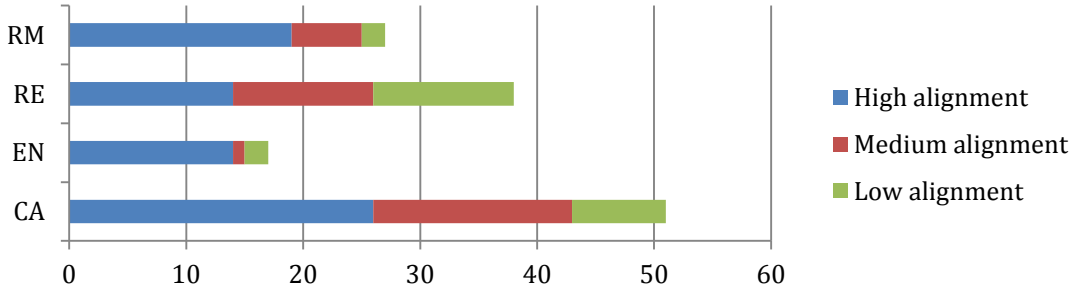
Despite these differences identified between citizens' and experts' priorities, the 27 elaborated research priorities are still based on citizens' visions for a sustainable future. Seen as such, it is interesting to compare them with the 22 Horizon2020 priorities in Grand Societal Challenge 5 (GSC5).

Table 6: Mean overall rating by the experts of research priorities pertaining to the eight vision clusters.

	Mean overall rating
Social development and people	3.73
Values and politics	3.66
Energy and production	3.62
Change for the future	3.61
System resources	3.59
Local needs and support	3.52
Urban life	3.31
Living and spaces	3.21

4.2.1. H2020 priorities

Figure 3: Alignment between *the research priorities developed through the CEC-process and the research priorities of Horizon2020.*
Source: Popper et al., Deliverable 2.1 (2016)



The 22 Horizon2020 GSC5 priorities are presented in table 7. Table 8 (next page) shows that although there is some overlap between the citizens based research priorities and the GSC5 priorities, there are also several research priorities with little overlap, showing that citizens' visions also point to different desired futures than those prioritized in GSC5.

Interestingly, the highest overlap and alignment is with the Climate Action (CA) priorities as indicated by figure 3 above.

As a final observation, most research priorities also overlap several GSC5 priority areas, as can be seen in Table 8.

Table 7: Presentation of the 22 Horizion2020 priorities included in Grand Societal Challenge 5.

Source: Popper et al., Deliverable 2.1 (2016)

RE4	Eco-innovation and green economy transition
CA3	Climate change mitigation solutions
RE3	Resource efficient sustainable lifestyles
CA5	Climate action by sustainable lifestyle
CA2	Climate change adaptation solutions
CA6	Climate action eco-innovation policies
EN4	Strategic intelligence and citizens' participation
RM8	Effective raw materials policies
RM7	Raw materials conscious sustainable lifestyle
RM4	Awareness on raw materials shortage
EN1	Biodiversity examination and understanding
CA1	Climate change projections and scenarios
EN3	Solutions for cultural heritage assets
RE2	ICT systems improving resource efficiency
RM1	Long-term raw materials availability
RM2	Solutions to explore, extract, process and recycle
CA4	ICT to assess and predict climate actions
EN2	ICT mapping natural resources and trends
RE1	Solutions for water imbalances
RM5	ICT systems to map raw materials trends
RM6	Eco-solutions to reduce raw materials use
RM3	Alternative raw materials

Table 8: The overlap between the research priorities developed through the CEC-process and the research priorities of Horizon2020. Source: Popper et al., Deliverable 2.1 (2016)

Citizens-based research priorities relevance to H2020 priorities	RE4	CA3	RE3	CA5	CA2	CA6	EN4	RM8	RM7	RM4	EN1	CA1	EN3	RE2	RM1	RM2	CA4	EN2	RE1	RM5	RM6	RM3	Total
c19 Supporting an active civil society for sustainable development	√		√	√		√	√	√	√	√			√										9
c21 Access to natural resources as a human right				√	√	√		√	√	√	√	√						√					9
c17 Unified ecological grading system		√			√	√		√			√	√					√			√			8
c24 Co-developing green technology	√	√			√		√		√	√			√								√		8
c8 More green in cities	√	√	√	√		√					√		√										7
c10 Fair and participatory access to limited resources	√		√					√	√	√					√				√				7
c14 Sustainable living environment	√	√	√		√	√	√	√															7
c2 Holistic education for a sustainable future		√	√	√			√		√		√												6
c3 Supporting people to become producers of renewable energy	√	√	√	√			√									√							6
c18 Research on business models and changing institutions related to sustainable energy economy	√	√			√	√	√	√															6
c13 Ensuring inclusive and dynamic city centres	√	√	√	√	√																		5
c20 Supporting Eco-preneurship	√	√			√	√		√															5
c22 Research on individual urban farming	√		√	√	√				√														5
c23 Collaboration through shared space		√			√					√				√	√								5
c1 Supporting local/regional agricultural production, distribution and consumption system	√	√	√	√																			4
c6 New working models – new economic models	√		√	√			√																4
c15 A new European food culture		√	√	√					√														4
c16 Sustainable economics	√					√		√				√											4
c5 Sustainable transformation of existing traffic infrastructure in cities	√	√			√																		3
c7 Innovating agriculture: the sustainability option	√	√	√																				3
c9 Understanding and implementing sustainable electronics	√	√												√									3
c25 Impact of virtual communities in behavior change			√	√										√									3
c26 New spaces for public discourse			√				√			√													3
c27 Exploring the introduction of insect food			√	√							√												3
c4 Sustainable construction of buildings	√	√																					2
c11 Enhanced physical activity for better quality of life and energy efficiency	√			√																			2
c12 Improvement of European electricity transmission to increase renewable energy production	√															√							2
	19	16	15	13	10	8	8	8	7	6	5	3	3	3	2	2	1	1	1	1	1	0	133

4.3. Citizens' Top-10 research priorities for a more sustainable future in Europe

At the CMP2, citizens were asked to vote on their preferred research priorities out of the 27 that were further developed at the expert workshop. Voting results from the 12 panels were subsequently merged, resulting in the transnational Top-10 list of the citizens preferred research priorities presented below[9]. For some of the research priorities the experts had also suggested policy recommendations. When this is the case, they appear directly after the research priorities they refer to.

1. **Support local/regional agricultural production, distribution and consumption systems**
   Research should be done on how to encourage communities' local producers and suppliers to support each other as well as on how to support the creation of less polluting, local and regional alternative market production, distribution and consumption. Furthermore, research should examine how to ensure that local production is prioritised, how it could substitute part of the super market supply, how to encourage local communities to identify their local ethnical, traditional and seasonal products and dishes, and, moreover, how to develop tools to create functioning business models, quality and labelling.

   Two specific research suggestions:

   Map the existing or emerging cases of community supported agriculture (CSA), and learn from their experiences.

   Map and understand the role of the municipalities, such as in protecting local water resources, and how that links with local agricultural form.

   Research priority stemmed from the vision: 'Self-supply with healthy food'

2. **Holistic Education for a Sustainable Future**
   The research priority focuses on how to identify and elaborate the skill-set that is needed for 'eco-citizenship'. Research should be done on how to identify and elaborate the skill-set that is needed for 'eco-citizenship'. Further research should be directed at exploring the differences between types of educational systems in whether, and how, they promote eco-citizenship. Also, research should explore which characteristics of educational systems are relevant in this regard, and how the educational systems can adapt to a more holistic mind-set and, finally, how educational systems are perceived and valued in different countries.

   Policy recommendation: The EU should promote eco-citizenship as part of the curriculum in schools and as a part of adult education. Eco-citizenship should be promoted as a part of education on European level.

   Research priority and policy recommendation stemmed from the visions: 'Education - a path to spiritual and sustainable future' and 'Education=aware citizen=aware society=sustainability'

3. **Support people to become producers of renewable energy**
   The research priority focuses on how to support people to become producers of renewable energy.

[9] In Annex 3 of this deliverable all 27 research priorities and the visions from which they stem are available in full wording

Further research should be carried out on the possibilities of mechanisms to increase bargaining power of small-scale energy producers, and how to give them more market power.

Policy recommendation: Map and draw on best practice studies of energy production cooperatives and provide tools to support cooperation and upscaling.

Research priority and policy recommendation stemmed from the vision: 'Distributed small-scale energy generation in mainstream within 30-40 years'

4. Sustainable construction of buildings

The research priority focuses on how to build and retrofit in innovative carbon-neutral ways. To this end, research should be done to identify materials that last longer, or are made of recyclable materials. There is primarily a need for business models, incentives and understandings of what can ensure large-scale changes in the building sector. Further, there is a need for continued development of new technologies and materials.

Research should be directed at how public procurement can be a driver in this process, what kind of new innovative service designs can spur further dissemination, and how to minimise all environmental costs.

Research priority stemmed from the vision: 'The sustainable construction of buildings'

5. Sustainable transformation of existing traffic infrastructures in cities

Research priorities should ensure comparative studies of local cases of city planning targeting traffic planning, infrastructures and mobility modes. Key questions include: How can a city accomplish changes in this field, and do ideas for a transformation of traffic infrastructure exist? Solutions exist; however, they depend on political will for their implementation.

Policy recommendation: Focus on functionality so that an area becomes more valuable. Areas should have new functions when they are changed – for instance change from one traffic function to another.

Research priority and policy recommendation stemmed from the vision: 'Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational space', the research priority is further related to the visions 'More green in the city' and 'Clean nature for better quality of life'.

6. New working models – New economic models

The research priority focuses on new economic models of value creation as well as formal and informal economies. One could look at existing companies or cases with reduced working time, and look at the social, economic and environmental impacts and their transferability.

Interactions between regulation, labour market, social infrastructure and the public sector should be examined. Similarly, it should be explored who would be interested in ½-day labour. Development of alternative economic models and a better understanding of their dynamics and underlying discourses are required.

Policy recommendation: See better work-sharing as a means to bring people into the labour market.

Research priority and policy recommendation stemmed from the vision: '½-day labour'

7. **Innovate agriculture: The sustainability option**
   Research priorities should focus on a comparative study of experiences with public regulation to increase organic food production and consumption and, furthermore, on experiences with changes in household diets, focusing on less consumption of animal products.

   Research should be directed towards the question of how to create new green jobs. Also, the subsidies that are reforming the CAP should be studied as well as how to increase the share of organic farms in the EU.

   Research priority stemmed from the vision: 'Sustainable agriculture'

8. **More green in cities**
   Additional research should be done on the best cases of making cities greener, and on the effects on urban liveability and living conditions. Moreover, research should focus on making comprehensive planning-instruments to increase the share of urban green areas, and in this respect build on analysis of best cases or practices.

   Policy recommendation: Concerning regulation of city planning, specific goals for 'more green in cities' should be created. Local initiatives should be supported or organised to help citizens plant trees and make their areas greener. Green spaces should be used for community building and civic actions. Traffic infrastructure should be converted into green areas. Existing spaces in cities should be optimised. Citizens should be included in the decision-making.

   Research priority and policy recommendation stemmed from the vision: 'More green in the city'

9. **Understand and implement sustainable electronics**
   The research priority focuses on the application of the concept of circular economy to the electronics industry, for instance, how can leasing as a new consumption model and new supply-chain monitoring systems be set up to assess the social and environmental impact of production. Research should focus on new models for the application of circular economy and the different value chains in the production of electronics.

   Policy recommendation: Set up support schemes for companies that can develop circular economy models and new business models for taking products back for recycling. One key question is the role of the public sector and, related, if lobbying at political level should take place (e.g. the European Commission has cancelled its proposal on circular economy).

   Research priority and policy recommendation stemmed from the vision: 'Sustainable electronics'

10. **Fair and participatory access to limited resources**
    Research should focus on the excuses of different actors for not acting on the problems of limited resources. Participatory scenario-building should be done. All major intended and unintended consequences should be studied. Concept analysis should be done. We need more information about who are the gatekeepers of change and drivers with veto-powers.

    Policy recommendations: Global transparency in terms of resources. Increase the understanding of what will happen in different countries in the future due to problems with limited resources. There should be a bottom-up approach where global issues are handled

locally. Policy should fight against companies that acquire resources in an illegal and/or unfair way.

Research priority and policy recommendation stemmed from the vision: 'Conflict free distributive justice'

It is noteworthy that the three top priorities focus on ways to empower citizens to live and act more sustainably (producing food closer to their home; education on how to live a more sustainable life; assisting citizens with producing renewable energy themselves). This focus on empowerment is rarely highlighted in research programmes, be they national or European.

Before voting on their preferred research priority, citizens went through a validation process to assess the extent to which they adequately reflected the visions. Each citizen panel validated the research priorities that were based on visions they had developed in CPM1[10]. On a scale from 1 to 5, citizens assessed how "faithful" those research priorities were to the original vision. Furthermore, the citizens rated all 27 research priorities with regards to their relevance/importance for reaching a more sustainable future.

Table 9 below compares the rating by the citizens of the Top-10 priorities presented above, to the rating given by the participating experts to the same priorities, according to three criteria; novelty, essentiality, and timeliness.

Although the exact same criteria were not used by citizens and experts for their ranking of research priorities, they are similar enough to allow for a meaningful comparison, showing that the rankings are quite different.

Only two of the research priorities that the experts ranked among the 10 most important research priorities are included in the Top-10 European research priorities, based on citizen votes. Citizens gave higher priority to research priorities in search of socially oriented solutions and changes, while experts were more supportive of technologically-oriented solutions. Having said that, most research priorities developed by experts on the basis of the citizens' visions, tend to cut across several research areas and involve both technical and social elements.

[10] For more information about the validation process, see Matchoss et al (2015)

Table 9: Top-10 European research priorities according to mean index scores and validation against vision, and further the validation scores of the citizens according to 'Faithfulness' and 'Relevance/importance' and the experts' overall ranking and rating from the expert workshop ('=' before a ranking indicates that the ranking was shared), as well as the three parameters (novelty, essentiality and timeliness) on which the overall ranking is calculated. Source of data: Matschoss et al (2015) and Repo, Kaarakainen & Matschoss (2015)

Transnational citizen Top-10 ranking	Name of research priority	Citizens' votes		Experts' votes				
		Validation score (Faithfulness)	Validation score (Relevance/importance)	Overall ranking	Overal l rating	Novelty	Essentiality	Timeliness
1	Supporting local/regional agricultural production, distribution and consumption system	4.53	3.82	=19	3.48	2.95	3.95	3.52
2	Holistic education for a sustainable future	3.51	3.46	=4	3.81	3.67	3.81	3.95
3	Supporting people to become producers of renewable energy	4.06	3.00	11	3.60	3.24	3.86	3.71
4	Sustainable construction of buildings	3.31	3.69	=14	3.56	2.38	4.19	4.10
5	Sustainable transformation of existing traffic infrastructure in cities	3.33	3.14	10	3.63	2.81	4.05	4.05
6	New working models – new economic models	3.33	3.44	13	3.57	3.48	3.71	3.52
7	Innovating agriculture: the sustainability option	3.13	3.94	=16	3.51	3.29	3.81	3.43
8	More green in cities	3.33	3.06	26	3.00	2.29	3.33	3.38
9	Understanding and implementing sustainable electronics	3.69	3.46	=16	3.51	3.10	3.71	3.71
10	Fair and participatory access to limited resources	2.55	3.55	=14	3.56	3.19	3.67	3.81

5. Evaluation of the method and lessons learned

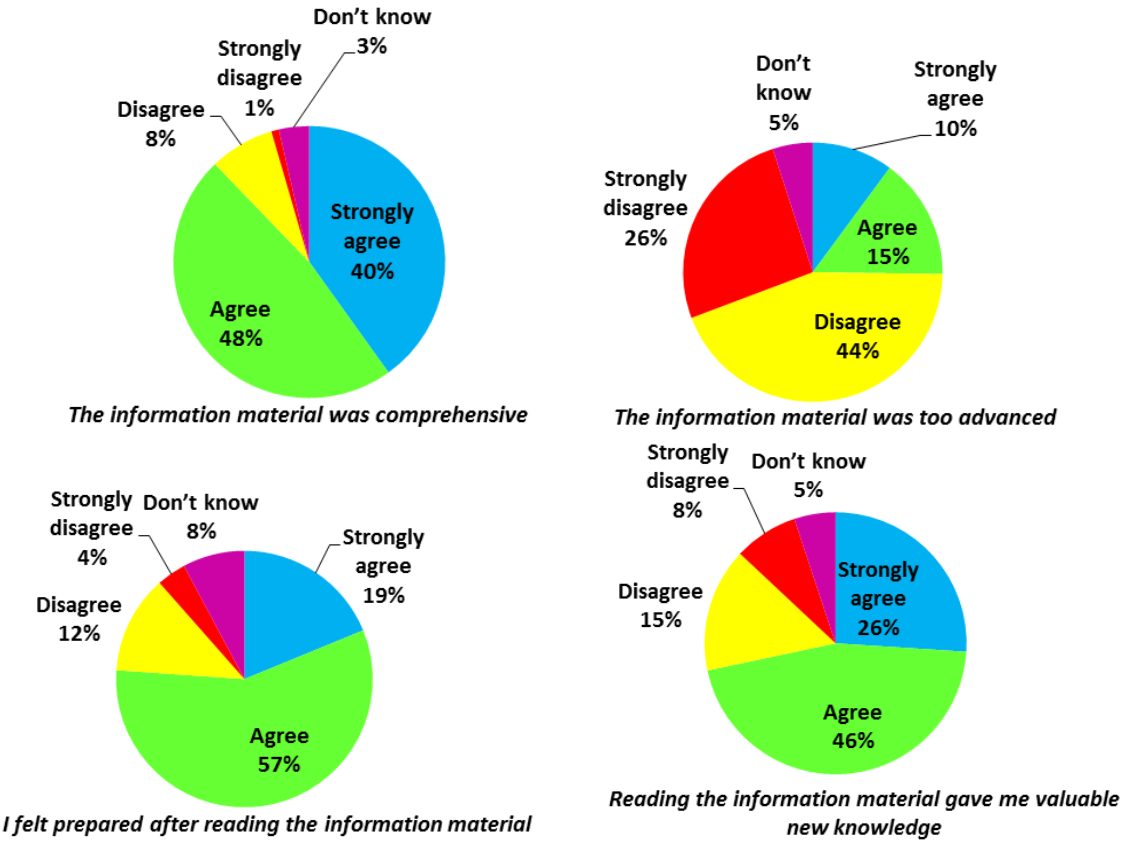
5.1. Recruitment of participants

As explained in Chapter 3, only 4 out of 12 citizen panels lived up the citizen recruitment criteria, despite extensive efforts made by the partners. While still sufficiently diverse for the purpose of the method applied, it does show that recruiting a random sample of citizens is a difficult task not to be taken lightly. Shortcomings in the CASI citizen panels – also experienced in other citizen participation projects - included underrepresentation of citizens with less educational background; of women; and of young people. Several young women dropped out shortly before CPM1. These observations may well be useful when designing recruitment plans for future citizen participation processes. Also, careful planning (including regular contacts to citizens) should be made in order to minimise drop-out between CPM1 and CPM2.

5.2. Information material for CPM1: Inspiration Magazine

Judging from citizens' answers to a questionnaire distributed to participants in CPM1 (see figure 4), citizens were in general satisfied with the information material, which made a strong majority feel well prepared for the event and provided them with what they themselves felt was valuable new knowledge. In conclusion, the inspiration material seemed to live up to its goals and can be used as best practice inspiration[11] for future similar processes.

Figure 4: Evaluation of the information material for CPM1 by the 230 participants.
Source: Work package leader evaluation for the first citizen panel meeting (2015)



[11] Interested readers are invited to consult the Information Magazine, provided as annex 1 of this deliverable.

5.3. The first Citizen Panel Meeting

As can be seen from figures 5 and 6 below the participating citizens in CPM1 were generally satisfied with the process and the visions they produced. This is perhaps most evident from figure 6 illustrating that, overall, less than one percent of the participants felt dissatisfied with the events. From figure 6 it can be seen that a majority of the participants felt that some participants had more influence on the final visions than others. However, they still found the produced visions to reflect their personal views and further that they were able to reach consensus with their fellow participants.

With regard to the organisation of the events, the time spent on each part of the agenda was generally seen as suitable by the participants, though some stated in written comments that there was too little time for some parts. Citizens also stated that the chosen working methods were suitable for the topics and for the participants.

When comparing the evaluations of the CPM1s that lasted 1 day to the ones lasting 1.5 days, no obvious differences emerge. This includes both the content and the practical organisation, which the participating citizens thought worked well in both cases.

This leads us to conclude that the method used for CPM1 works well as it is, regardless of whether 1 or 1.5 days is allocated to the process.

Figure 5: Overall evaluation of the CPM1 by the 230 participants.
Source: Work package leader evaluation for the first citizen panel meeting (2015)

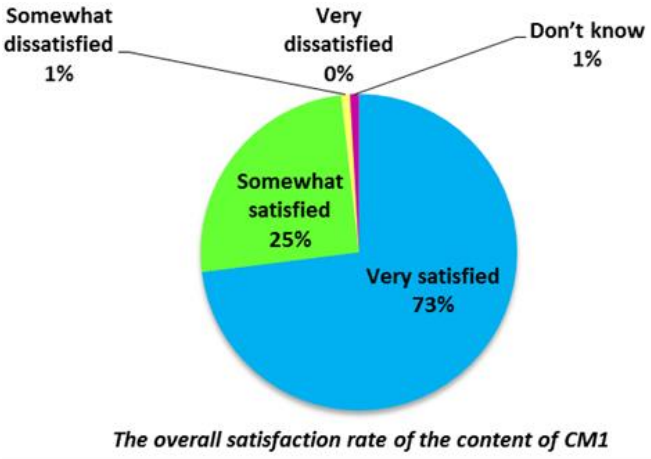
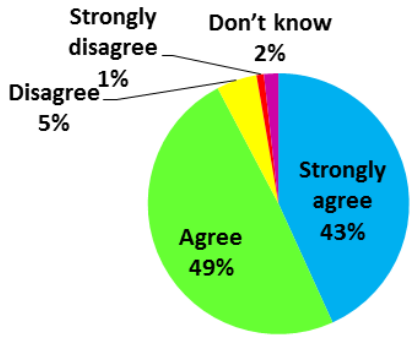
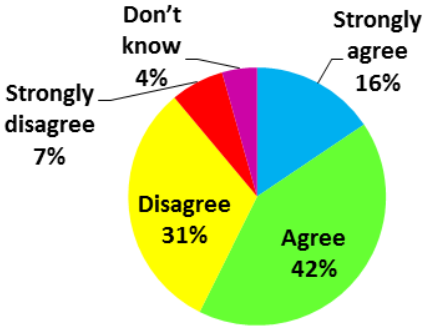


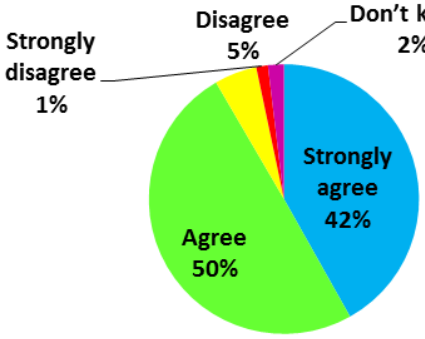
Figure 6: Evaluation of the CPM1, according to the 230 participants.
Source: Work package leader evaluation for the first citizen panel meeting (2015)



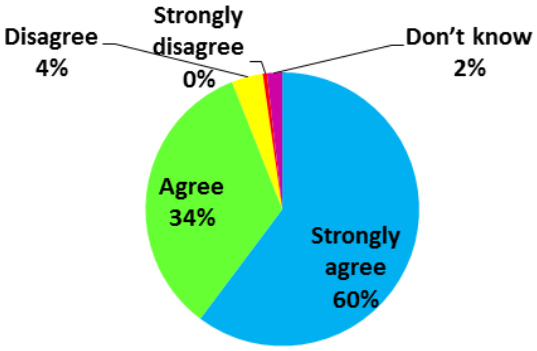
"The elaborated vision from my group expressed my personal views"



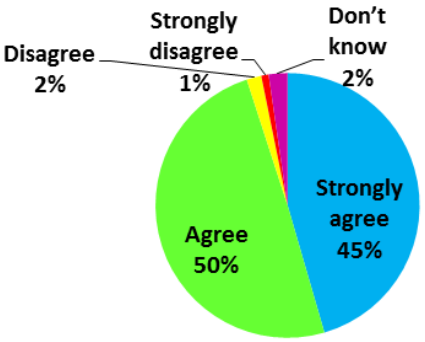
"Some participants had more influence on the final formulation of the vision than others"



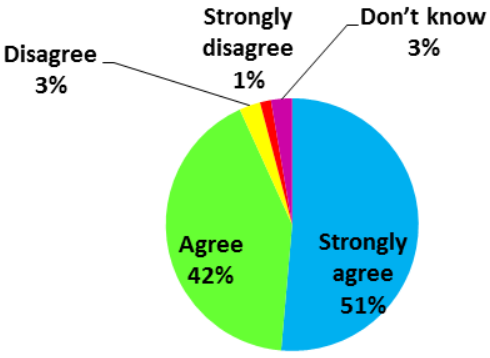
"I'm satisfied with the overall quality of the elaborated visions"



"The working atmosphere at the citizen panel encouraged my creativity"



"My own knowledge about the topics was sufficient to participate in the discussions"

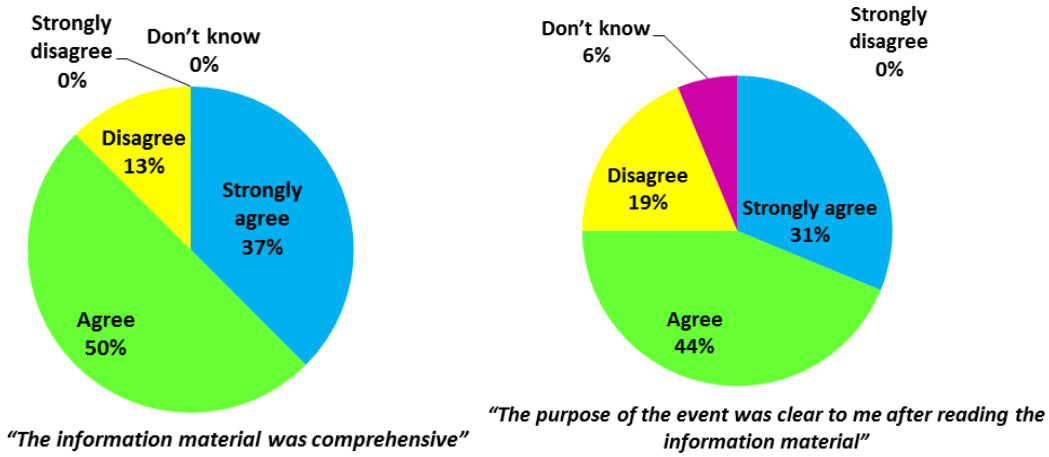


"Despite different opinions we were able to reach consensus"

5.4. Information material for the expert workshop: Catalogue of 50 Citizen Visions on Sustainable Futures

As indicated by figure 7 the majority of the participants in the expert workshop were satisfied with the information material[12], which was distributed prior to the workshop. More could be done, it seems, to explain the purpose of the workshop and some experts felt they had too little time (the experts received the material five days before the start of the workshop) to go through the material.

Figure 7: Evaluation of the information material for the expert workshop according to the 23 experts. Source: Work package leader evaluation for the first citizen panel meeting (2015)



5.5. Expert workshop

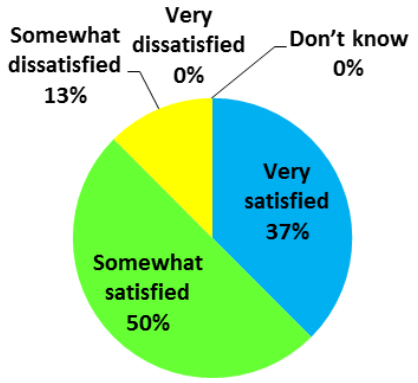
Considering the difficult task given to the experts, the general satisfaction with the workshop is quite high, as shown by figure 8 and 9[13].

Importantly, also the satisfaction with the research priorities produced was high. Yet, it is also clear from the evaluations of the event that some elements of the process can be improved.

As indicated by figure 10, half of the experts stated that 'Too little time was spent on some of the agenda items'; while a few indicated that 'too much time spent on some agenda items'. Written comments in the evaluation form indicate that lack of time was in particular the case on day one, when the draft recommendations were made.

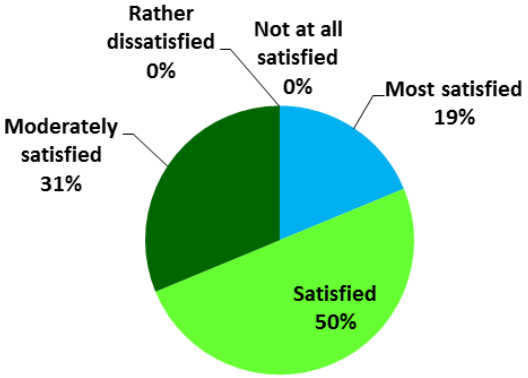
[12] See part 2 of the annex.
[13] Please be advised that only 16 of the 23 participating experts filled in the questionnaire.

Figure 8: Overall level of satisfaction of the participating experts.
Source: Work package leader evaluation for the first citizen panel meeting (2015)

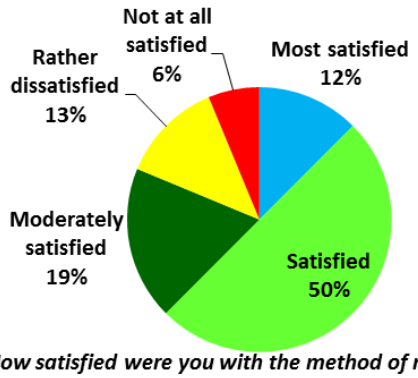


"Overall, how satisfied were you with the content of the event?"

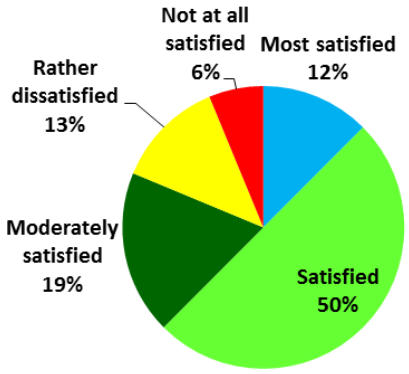
Figure 9: Evaluation of two workshop days by the participating experts.
Source: Work package leader evaluation for the first citizen panel meeting (2015)



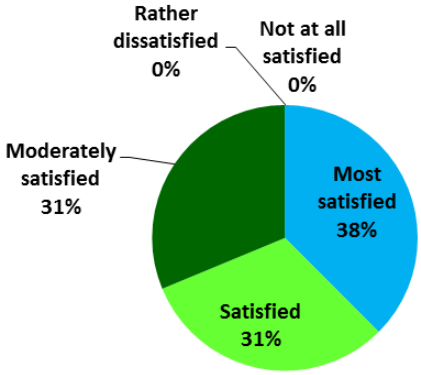
"How satisfied were you overall with the chosen methods you were asked to use during the workshop?"



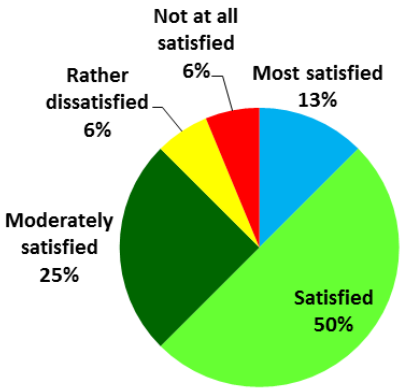
"How satisfied were you with the method of making draft recommendations on day 1?"



"How satisfied are you with the final draft recommendations that you made on day 1?"



"How satisfied were you with the method of open space process of making elaborate recommendations on day 2?"



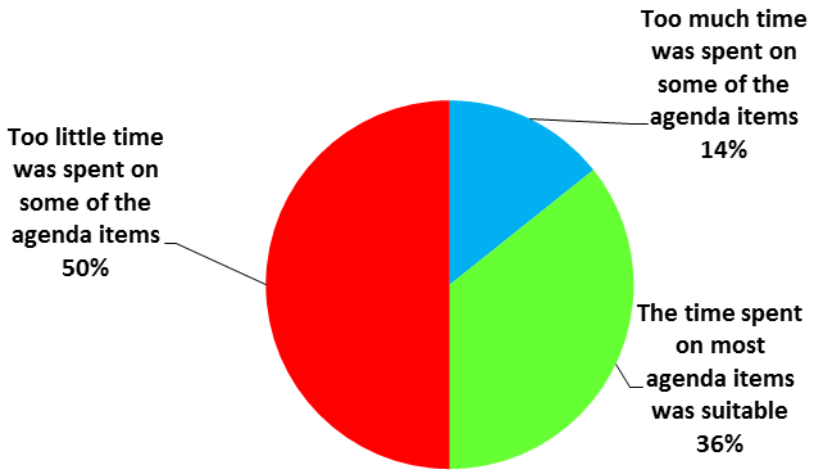
"How satisfied are you with the final elaborated recommendations?"

Suggestions for ways to remedy the time pressure include:

- Allocating more time to the expert workshop
- Reducing the number of visions produced in CPM1
- Reducing the number of research priorities produced at the expert workshop

Either way, the time pressure at the expert workshop should be reduced for future applications of the methodology. It is also recommended not to underestimate the efforts needed for the recruitment of qualified experts with relevant background and to distinguish more clearly between the production of research priorities and policy recommendations. The latter, which caused some confusion at the workshop, should ideally be a separate process not connected one-to-one to the production of research priorities.

Figure 10: Evaluation of the allocated time by the participating experts.
Source: Work package leader evaluation for the first citizen panel meeting (2015)

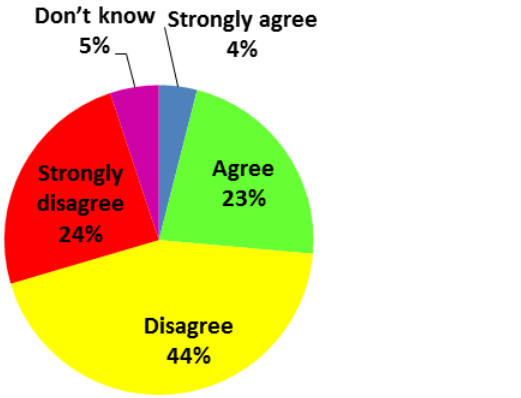


"How satisfied were you with how times distributed among the different sessions?"

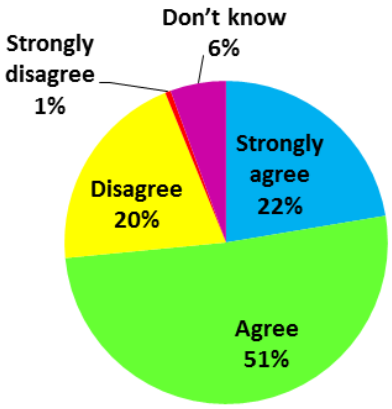
5.6. Information material for CPM2: Catalogue of Research priorities

The information material for the citizens participating in CPM2 was a catalogue of the 27 elaborated research priorities[14] produced at the expert workshop. In general, citizens felt well prepared for CPM2 after having read the catalogue, although around a quarter found the level of the content too advanced, as indicated by figure 11. Care should therefore be taken to make experts at the expert workshop draft the research priorities in as clear and straight forward language as possible.

Figure 11: The 185 participants of CPM2 answers in the questionnaire relating to the information material. Source: Work package leader evaluation for the second citizen panel meeting (2015)

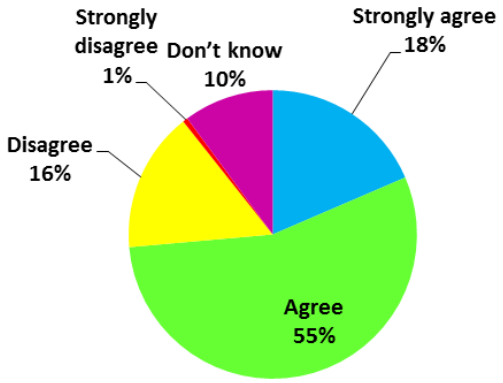


"For my experience level the content of the catalogue was too advanced"



"I felt well prepared after reading the catalogue"

14 The information material is enclosed as annex 3 of this deliverable.



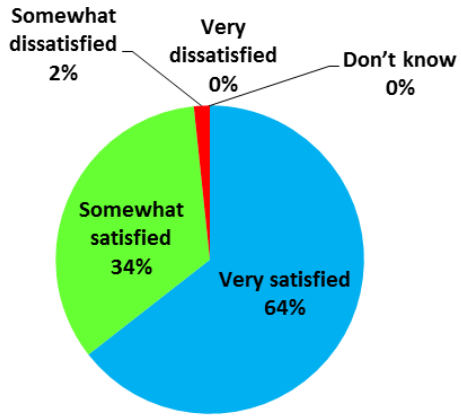
"Having read the catalogue, I gained valuable new knowledge"

5.7. The second citizen panel meeting

Citizens participating in CPM2 were generally quite satisfied with the event as evident from figure 12. Furthermore, a vast majority of the participants state that they believed it was important to involve citizens in the formulation of visions for future research and innovation funded by the EU. Also, most citizens responded that they would like to take part in future, similar projects.

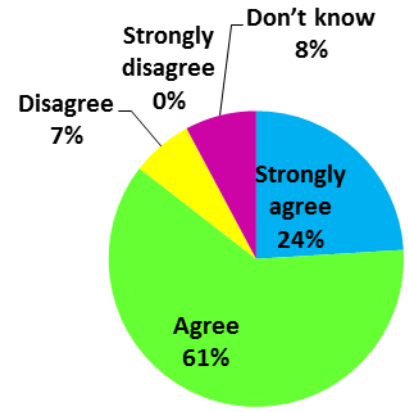
A very important evaluation result is the high level of satisfaction with the research priorities produced as seen on figure 13. This is yet another indication that citizens do in fact see the process as meaningful and productive.

Figure 12: The participants overall level of satisfaction with CPM2.
Source: Work package leader evaluation for the second citizen panel meeting (2015)

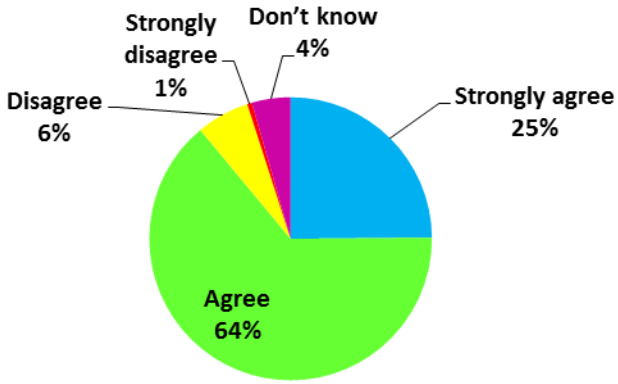


"Overall, how satisfied were you with the content of the event?"

Figure 13: The participating citizens' level of satisfaction with the research priorities.
Source: Work package leader evaluation for the second citizen panel meeting (2015)



"I'm satisfied with our national Top 10 of research priorities"



"I'm satisfied with the overall quality of the research priorities"

5.8. Additional observations

While the differences identified between citizens' and experts' preferences for research priorities offer new and interesting insights, they also question the degree to which citizens' visions are adequately "translated" into research priorities by experts. This issue has been addressed in the Horizon2020 project CIMULACT[15], in which face-to-face dialogues between citizens and experts have been introduced to the methodology described in this deliverable. This methodological modification could be considered for future productions of research priorities based on citizens' visions.

[15] For more information on CIRMULACT, please see www.www.cimulact.eu.

6. Policy Advice

The method used in Task 3.4 was first developed for the FP7 project CIVISTI[16], then used in Austria by the Federal Office for Food Safety, and currently further developed in CIMULACT. It has been adopted for the use of CASI in order to focus on sustainable innovation in general and Grand Societal Challenge 5 (GSC5) in particular. What is particular to CASI is the time invested in analysing the outcome, with further additional analyses to be made in future deliverables. Below is a set of key observations and advice which we think will be of interest to policy makers, stakeholders, experts, and civil servants:

1. More research topics should relate to social change and empower citizens

Citizens' research priorities differ to some extent from those of experts and the European Commission. Citizens favour research priorities with stronger emphasis on social change and solutions as well as those with the aim of empowering citizens to bring about themselves a more sustainable future. If citizens' priorities are to be taken seriously, research agendas should therefore focus more on social change and provide means for empowering citizens.

2. The research priorities should be used by the European Commission to define future research topics

The research priorities most favoured by the citizens should be developed into concrete research topics to be introduced in the Science With And For Society (SWAFS) and GSC5 research programmes. CASI consortium partners plan to make suggestions for how to do so exactly as part of coming project activities.

3. The method should be used for defining research topics for other research programmes as well

The method is well suited to define research topics in both European and national research programmes of all kinds. It is well tested, well documented, and produces what it promises to deliver, namely research priorities based on citizens' visions for a sustainable future. This may seem a trivial point to make, but scepticism about the ability of citizens to deliver meaningful input to research agendas is widespread. CASI demonstrates that it can be done, leaving sceptics with one less excuse not to engage citizens in setting priorities for future research agendas. The results also demonstrate that the engagement of citizens in setting research priorities will lead to different results than those reached by experts, policymakers and administrators. The method is there and the ability to use it is now present in many countries across Europe.

4. The method could be used to define research topics cutting across existing Horizon2020 work programmes

Considering the holistic cross-sectoral nature of the research priorities developed on the basis of citizens' visions, it should be considered to use the engagement of citizens as a method for defining research priorities that bridge existing research programmes, thus serving as a remedy for "silo thinking".

[16] http://www.civisti.org/

7. List of references

Andersen, I. & Jacobi, A (2011). CIVISTI - Deliverable 1.3: CIVISTI Methodology Manual. CIVISTI project.

Kaarakainen, M., Repo, P., Matschoss, K., Bedsted, B., Damianova, Z., Popper, R. & Rask, M. (2015). 50 Citizen Visions on Sustainable. The material is enclosed in the annex.

Matschoss, K., Repo, P., Kaarakainen, M., Kloppenborg, E., Ibsen-Jensen, J. & Kyhn, B. (2015). CASI – Citizen Assessment of Priorities for European Research – Report on the second citizen panel meeting (WP 3, Task 3.4). The material is enclosed in the annex.

Partner reports (2015). Reports submitted by the 12 consortium partners after CPM1 & 2. Internal documents.

Popper, R., Velasco, G. & Ravetz, J., with contributions from: Zoya Damianova, Ventseslav Kozarev, Monika Popper, Soizic Tsin, Alba Avarello, Lindsey Martin, David Morris (2016). Deliverable 2.1: STATE OF THE ART OF SUSTAINABLE INNOVATION: Climate action, environment, resource efficiency and raw materials.

Rask, M. & Damianova, Z. (2009). Citizen Visions – Preliminary Content Analysis Report. CIVISTI project.

Recruitment plans of CPM1 (2015): Reports submitted by the 12 consortium partners regarding recruitment of citizens for CPM1 & 2. Internal documents.

Repo, P., Kaarakainen, M. & Matschoss, K. (2015). European Research Priorities Based on Citizen Visions – Report on the CASI expert workshop held in Copenhagen 8.-9.6.2015 (WP 3, Task 3.4). The material is enclosed in the annex.

TIB Software (2015): Text Analytics Made Easy!
Available at: https://research.kapiche.com/

Work package leader evaluation for the experts workshop (2015). Summarised evaluation of the expert workshop. Internal document.

Work package leader evaluation for the first citizen panel meeting (2015). Summarised evaluation of CPM1. Internal document.

Work package leader evaluation for the second citizen panel meeting (2015). Summarised evaluation of CPM2. Internal document.

8. Annex

The following documents are enclosed in the annex:

1. **Inspiration Magazine: Making Visions for a Sustainable Future**
   2015
   Responsible editors: Askegaard, T.F. & Bedsted, B.
   Contributions: Repo, P., Matschoss, K., Popper, R., Popper, M., Askegaard, T.F. and the CASI project partners.
   Information material for the first citizen panel meetings. The material was translated into the native language of the participants at the citizen panel meeting.

2. **50 Citizen Visions on Sustainable Futures**
   2015
   Kaarakainen, M., Repo, P., Matschoss, K., Bedsted, B., Damianova, Z., Popper, R. & Rask, M.
   Report on the first citizen panel meetings and information material for the expert workshop

3. **Catalogue of Research Priorities for a Sustainable Future: Preparation material for the second CASI citizen panel meeting**
   2015
   Based on visions of a sustainable future made by citizens in 12 citizen panels in Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia, and UK. *Information material for the second citizen panel meetings. The material was translated into the native language of the participants at the citizen panel meeting.*

4. **European Research Priorities Based on Citizen Visions: Report on the CASI expert workshop held in Copenhagen 8.-9.6.2015 (WP 3, Task 3.4)**
   2015
   Repo, P., Kaarakainen, M. & Matschoss, K.
   Report on the expert workshop

5. **Citizen Assessment of Priorities for European Research: Report on the second citizen panel meetings (WP 3, Task 3.4)**
   2015 Matschoss, K., Repo, P., Kaarakainen, M., Kloppenborg, E., Ibsen-Jensen, J. & Kyhn, B.
   Report on the second citizen panel meetings

CASI

www.casi2020.eu

1: Inspiration Magazine: Making Visions for a Sustainable Future

2015

Responsible editors: Askegaard, T.F. & Bedsted, B.
Contributions: Repo, P., Matschoss, K., Popper, R., Popper, M., Askegaard, T.F. and the CASI project partners.

Information material for the first citizen panel meetings

Inspiration Magazine

Making Visions for a Sustainable Future

CASI citizen panel meetings

CASI

Inspiration Magazine

Making Visions for a Sustainable Future

INTRODUCTION

We all wonder about the future. We wonder at a personal level about how our life will turn out. And we also wonder about the world. What will the future look like for all of us? How will life be in the next century? We can search for the answers in our weekly horoscope or we can go to a fortune teller at the carnival - but actually nobody can really predict the future.

However, fortunately there is one thing that everybody can do and that is to think about the future and to formulate his or her visions on what we would like this future to be. This formulating of ideas and opinions is extremely important. It is exactly by discussing people's hopes and fears that policymakers can set out a path to realize them.
In CASI we are curious about your visions for a **sustainable future.** We are especially curious about your visions with regards to the future state of the environment with the themes of 'climate action, environment, resource efficiency and raw materials'. But we are curious about other dimensions of sustainability; like the economy and social wellbeing of people. This magazine would like to give you a glimpse of how to think about the future and sustainability, and inspire you to formulate your own dreams, wishes and desires for a sustainable future.

We wish you much reading and dreaming pleasure and look forward to see you soon and hear all about your visions about a sustainable future!

Read more about the CASI project on the last page of the magazine.

The CASI project team

Photos: ZSI partner archive and René Petersson

Front page: © Bradcalkins| Dreamstime.com, © Kav777 | Dreamstime.com

What are your thoughts on the future?

Citizens from different parts of the world tell us about their own thoughts on the future.

Finland - Helsinki
PIRJO - student
I think about how cities will be, how people will move around in them, who they will meet on the street and how neighbourhoods will look like, what their functions will be and how they will connect places and people.

Photo: René Petersson

Germany - Kriftel
PAUL - entrepreneur
The bicycle will survive and reach the future. It is always the simple solutions that make it.

Portugal - Porto
Marta - consultant
When thinking about the future, I can see that science, technology, research and development have made notorious progress in several sectors: in medicine, by finding the cure for AIDS and Cancer, in transports, by creating affordable non-pollutant vehicles (from airplanes to cars) and even in communications, bringing all people closer together.

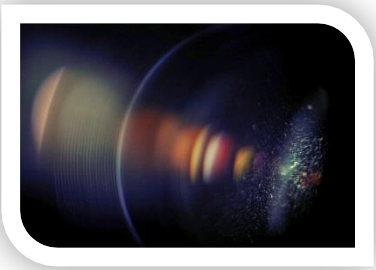


Photo: CASI archive

Slovenia - Koper
Katja Cergol - lawyer
When I imagine the future I think that due to digital technology, everyone will have the access to information and will have the same opportunities. It will make our lives easier and ease the burden of some of our everyday work. On the other side I hope that we will not become slaves of digital technology and a society with introverted people.

Sweden - Gothenburg
Lynx - teacher
It seems fairly evident that we are exhausting the earth's resources faster than stocks can be replenished. Soon there will be a time when we will not have the resources we have today. So maybe we should look back at a time when humans were very successful as a species, like when we were hunter-gatherers. There might be some wisdom to be learned from those savages.

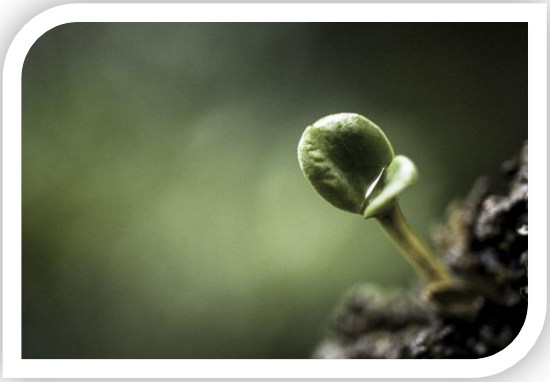


Photo: CASI archive

What is a vision?

In the CASI project a vision **is a picture or an imagination of a desirable future**. Your vision can be based upon hopes and dreams - but also upon concerns and fears in relation to problems or threats, which you do not want to become future reality. In the CASI project, we will formulate visions of a sustainable future 30 to 40 years from now.

Thoughts on visions…

Being a visionary is processes through which a number of images or visions of the future are created that are real and compelling enough to motivate and guide people to aim at a specific target.

World Future Society

Vision without action is a daydream. Action without vision is like a nightmare.

Japanese proverb

A vision is like a lighthouse which illuminates rather than limits, gives direction rather than destination.

James J. Mapes, Foresight First

What is sustainability?

You will all make visions for a sustainable future based on your hopes, dreams and fears
– but what is sustainability?

Sustainability means something different to people around the world, and it has been defined in many ways. The most frequently quoted definition is from **Our Common Future**, also known as the Brundtland Report from 1987:
Sustainable development is development that meets the needs of today without compromising the ability of future generations to meet their own needs.

The term 'sustainability' can be said to consist of th e presence of and balance between three dimensions: The environment, the economy and social wellbeing of people.

Environmental sustainability can be defined as meeting the needs for resource and services of current and future generations without compromising the health of the ecosystems that provide them.
Economic sustainability can be defined as using the assorted assets and resources of an organisation, region or nation efficiently to allow it to function cost-effectively over time.
Social sustainability is the least defined dimension, but it encompasses topics such as: Social equity, liveability, health, community development, social support, human rights, labour rights, social responsibility, social justice, and community resilience.

Some also suggest 'culture' and 'fairness' as other dimensions of sustainability.

What does 'sustainability' mean to you?

A vision of a sustainable future

CIRCULAR ECONOMY

Circular economy promises growth and jobs without adverse environmental impacts and may very well be on its way to large scale adoption. When an economic concept is embraced by businesses and policy, it bears the potential of great impacts. Economic growth without its adverse effects is a vision worth pursuing.

Circular economy relies on renewable energy, minimises the use of toxics, and eliminates waste. The concept of 'circular' economy challenges the conventional 'linear' economy that first exploits natural resources, then produces goods, and finally creates waste. Instead, circular economy is used for achieving economic growth by clever industrial design. Waste, for instance, is to be seen as a resource and a product- something that can be redesigned so that materials can be recycled and re-used. Experiences from China, where circular economy has gained ground, makes it possible to summarize the concept in three practical tenets: ***Reduce, reuse and recycle.***

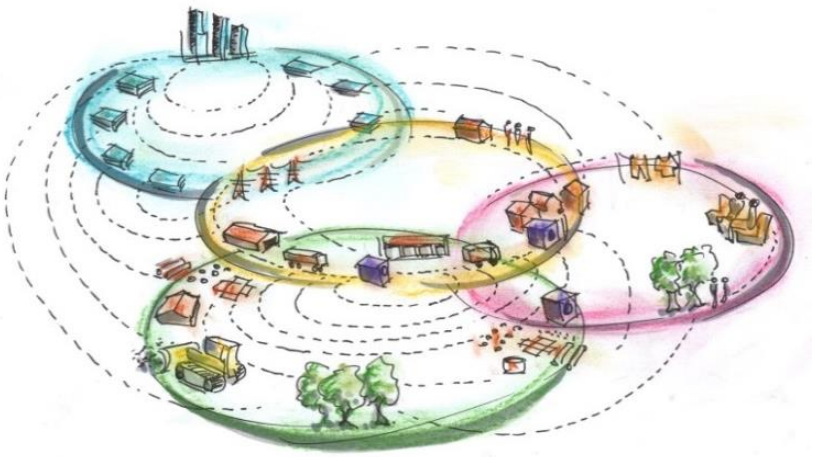


Illustration: Joe Ravetz

In a prominent business application of the concept, the Ellen MacArthur Foundation (a registered charity organization focused on circular economy) has launched the Circular Economy 100 programme bringing together 100 businesses to accelerate the transition to circular economy. Among the participants you will find for instance IKEA, Renault, IBM, Philips and The Coca Cola Company. This Circular Economy 100 programme aims to provide innovation, collaboration, capacity and opportunities in the realm of circular economy. Best practices, benchmarks, case studies, framework and tools are sought for in the short run. McKinsey consultants, on their part, estimate global savings in materials to top 1 trillion $ annually if the concept of circular economy is adopted.

In the European Union, the concept of circular economy has been applied by the European Commission in an effort to create jobs and economic growth, boost recycling, demonstrate solutions for approaching zero-waste, and reduce greenhouse emissions as well as environmental impacts. The Commission targets 180.000 new jobs and a number of environmental indicators such as increasing recycling and re-use of municipal waste to reach 70% by 2030, increasing packaging waste recycling and re-use to reach 90% of ferrous metal, aluminium and glass by 2030, and reducing food waste generation by 30% by 2025.

The sustainable future is in your head

An interview with **Professor Ian Miles**, Professor of Technological Innovation and Social Change at the Manchester Institute of Innovation Research (MIoIR) of The University of Manchester. His job often involves thinking about the future. We asked him to help us understand what 'the future' actually is and how to look at 'sustainable futures'. And hang on, because he says we have many futures and alternative futures. While what we talk about is all in our heads, what we want for it is in our hearts, and what it will become is in our hands.

What is 'the future'?

"When we talk about or plan for the future, it os obvious that we are talking and thinking about an 'imaginative construct' (meaning something that we simply imagine). The future is not here now in any tangible sense, though we may detect what people sometimes call seeds or symptoms of the future – which means these are things that may grow, or that tell us about some bigger phenomenon that may become important.

And there are seeds today of futures that will not come into being; they may not flourish, or they may be actively suppressed. Some efforts to create social change that we see today are reminiscent of approaches that have been tried often before – they may run into the inertia of large organised systems that are resistant to change. Some things may remain forever on the margins, while others may come to the fore. People often talk as if there is just one future – the future – and as if this is more than just an "imaginative construct". But, even then, when we imagine our responses to and experience of that particular envisioned future, there is a range of possible futures being considered. When we imagine our responses to and experience of that particular envisioned future, we are positing alternative ways we might cope with or act upon that world. Often we will be thinking of just one aspect of the future, too, and suspending our thinking about other aspects.

Often a vision is only partly realised, and very often we find that the things that have been the focus look very different when they have been brought into being.

Different people have different 'imaginative constructs' of possible futures. This reflects their knowledge – and all of us have only partial knowledge. People also have different viewpoints because of different interests and values. The futures that concern us most if we are focusing on (for example) healthy living or space exploration are likely to be quite different."

Illustration: © Remster | Dreamstime.com

And how can we look at 'sustainable futures'?

"Sustainability is most often used in the context of environmental sustainability, where we are in a situation of unprecedented strain on ecosystems through climate change, through habitat destruction, through pollution and resource use of various kinds. We may well be facing major challenges to the survivability of our civilization, if we cannot

confront and cope with these quite immediate problems.

The good news is that innovations oriented toward greater sustainability – renewable energy and energy conservation, waste minimisation, and many more – are typically innovations that can help us create more employment, more local economic linkages, and greater resilience against the vulnerabilities of large centralised systems. Thus 'imaginative constructions' of sustainable futures can involve a great deal more use and widespread implementation of tools and practices that are already available. They can also involve technological breakthroughs that might yield more efficiency in renewable energy or water purification (for example applications of nanotechnology, batteries, and water filtration).

Often the new high-tech responses to the grand challenges of sustainability attract a great deal more attention than the responses that are already available. This has a great deal to do with what I previously and rather lazily termed 'inertia'. The problem is that we live and work within highly complex systems, where changing one part of the system may yield little benefit unless we can change other parts in alignment with this. There may need to be protracted learning processes as we understand the interdependence of different parts of the system, ando we need to learn from experiences elsewhere.

Despite the damage we have been inflicting on ecosystems over the last few centuries, in particular, there is still plenty of scope for the human race to live and prosper on this finite – but so rich and diverse – planet. Sustainable futures require 'imaginative construction' of the frameworks for new systems that can allow us to do so. We need powerful appraisals of such future possibilities that can convince people that there is indeed reason for hope – and need for action."

Thoughts about the future...

The future belongs to those, who believe in the beauty of their dreams.

Eleanor Roosevelt - Diplomat, USA

Of course I'll take care of the future. I plan to spend the rest of my life in it.

Mark Twain - Author, USA

One should not seek to predict the future, but to make it happen.

Antoine de Saint-Exupery - Author, France

Questions for the future

What would be the best thing that could happen in your country in the next 40 years?

Photo: UP partner archive

Imagine yourself in the future 30-40 years ahead: How do you think your daily life will be?

What hopes do you have for your loved ones in the future?

What environmental challenges do you think people will face in daily life 30-40 years from now?

What do you think will be the major challenge facing society?

Photo: UP partner archive

What are your hopes and wishes for a sustainable future?

In 30 to 40 years, how do you think the environment has impacted the city where you live today?

How will future generations look at nature?

How do you think climate change might affect the people in your country 30 – 40 years from now?

How will the community where you live change in the future?

What would be the best thing that could happen in your life in the future?

What would be the worst thing that could happen in your country within the next 10 years?

How will people get to work in the future?

In 30 to 40 years what will people in your country do for fun and recreation?

What resources from the Earth will society need in the future?

Photo: © Xmasbaby | Dreamstime.com

Inspiration from the real world – examples from CASIPEDIA

In the CASI project we are creating a unique bank with over 500 sustainable innovation initiatives and ideas called CASIPEDIA, where activists, experts and supporters of sustainability agendas can find various initiatives combining the environmental, economic and social dimensions of sustainability. We invite you to explore CASIPEDIA to find out that innovative ideas can be many things, both novel products and services, new business and marketing strategies, interesting social and system developments, as well as emerging policies and regulations.

Below we share with you some examples of innovative ideas held in CASIPEDIA, which may potentially inspire the development of your own visions. Have you for instance heard of:

Solar taxi's operating at affordable rates in a small and least developed region of Austria where local people can get anywhere in the region for the price of 2 EUR?		Are you aware of the **vertical wind turbines** that can meet up to 75% of the UK Network Rail's electricity needs? In other words, 3/4 of the yearly 1.3 billion journeys by rail could be 'simply' powered by the wind!
Do you know that Slovakia and Portugal promote **participatory budgeting** through more democratic citizens engagement at various stages of decision-making regarding the spending of municipal budgets?	Every weekend four large Polish cities feed the stomachs and souls of their citizens by promoting local food products coupled with enjoyable workshops on sustainable topics in a friendly picnic atmosphere at the so-called outdoor **breakfast market**.	The concept of 'gift economy' is thriving across the globe – free items can be obtained or exchanged through **'Freecycle'** networks across Belgium and the UK instead of being disposed to landfill areas.
Would you like to visit the **Junk Food Café** in the Czech Republic or Slovakia where unsold food items are turned into delicious dishes so supermarket food waste is reduced to a minimum?	And if we think bigger, there are entire towns like the **Village of Hollerich** (Luxembourg) where an old derelict industrial area have been transformed into an eco-friendly village promoting various aspects of sustainability.	To find out more visit us at: **www.casi2020.eu** and register to access **CASIPEDIA.** (Note: The page is in English).

On the path towards a sustainable future

Two experts within sustainability tell us about their visions for a sustainable future

***Hans Bruyninckx**, Executive Director of the European Environment Agency, Former Professor of International Relations and Global Environmental Governance, Institute for International and European Policy; and Director, Research Institute for Work and Society, at the Katholieke Universiteit Leuven (KU Leuven).*

***Connie Hedegaard,** former European Commissioner for Climate Action (2010 – 2014) and currently chairwoman of KR foundations. She was Minister for The United Nations Climate Change Conference in Copenhagen (2009), Danish Minister of Climate and Energy (2007-2009), and Danish Minister for Environment (2004-2007).*

What kind of a society would you like to see evolving in the future?

Hans Bruyninckx: Most important would be to form a society worth living in. This means that sustainability needs to be reached simultaneously in all its dimensions: ecological, economic and societal. It is absolutely necessary to reorganise social systems - accepting the boundaries of natural systems as well as the limits of the planet and adjust all systems accordingly. The physical boundaries pose enormous challenges to the societal systems such as food supply, mobility or energy production.

Connie Hedegaard: I would like to see a society, where the true cost of the environment is taken into account and where each individual citizen has a co-responsibility for sustainability. The citizens must set the frame, but they should be given opportunities to make sustainable choices easily. For example, pricing should be correct and there should be clear labelling to enable better comparison of products.

What are your concerns in terms of sustainability?

Hans: The current path that we are taking is based on the old way of unsustainable production and consumption. We need to shift from fundamentally unsustainable systems into true sustainability within a couple of decades. The need to transform the fundamentals of the complete system in which we are living is a huge challenge. We must think, what it truly means to make our societies sustainable. We need to change the values and norms of people, the functioning logic of markets, design new technologies, create new roles of governments and companies, and change the practices of everyday life. This means a thorough change in all connected systems simultaneously and within decades, so actually a very short period of time.

> *"The real challenge is to rethink what it means to have a decent life with fully accepting the limits of the planet." - Hans*

Connie: We need to put more attention to where we are going. I am puzzled why citizens, CEO's and politicians still remain at the wrong path although we know what would be the right direction. There are alternatives, such as green growth, yet, we are not doing what we should be doing. Why don't we? We seem to have lost the more ethical point of view. A major problem is that we do not have limitless time. There are pressing environmental problems such as biodiversity loss or global climate warming that would require action to take place rather sooner than later.

Who are the actors that should be the primary actors in the transition towards a sustainable future?

Hans: The transition is not possible without a clear commitment of state governments, companies at the top of core systems, such as energy, mobility or food production, but also of civil society and engaged citizens, who understand their role in societal change. Although governments and companies are important, the bottom-up approach cannot be ignored. However, there is a clear danger that the responsibility will be shifted to individual consumers, which is highly problematic: What is the potential of the citizens to change complete systems? Can we expect individuals to make the food system more sustainable, when adding sugar, fat and salt to nearly all processed foods is the norm? Where is then the real responsibility? I do not think, however, that out-of-the-box thinkers, young, creative minds, those who come with unexpected new ideas and solutions, will play a significant role.

> *"I am concerned that we are not good enough to be inspired by each other or to take the right path, and we are running out of time."*
>
> *-Connie*

Connie: I think all of us must take responsibility. The voters for example need to accept that we need to think further than to here and now. Currently, the long-term perspective is missing. Politicians certainly also have a role but we do not want to make a totalitarian system where politicians would think for us. Also business has a huge responsibility in taking the right path. Politicians could help by getting the price right, to give incentives for e.g. recycling or encourage the development of circular economy. For example, economic structures need to make it possible that, if you waste, it should have a price.

Is there something else that you would like to bring up?

Hans: The most important would be investments in sustainable technologies and in research and development. This would be extremely important in core areas of sustainability, such as energy and mobility. It would be absolutely essential that the money presently invested, would be focused to much more sustainable innovations. Public funding for innovation has a huge importance. There is an enormous potential in people, who can create new solutions and, therefore, it would be absolutely necessary to create space for these people.

Connie: We cannot insist that short term thinking can solve long term challenges and therefore longer time frame for decisions is necessary. We also need to get away from the 'siloes' where administration, politicians and business currently all are. We would need cross-cutting solutions and new ways of cooperation.

Illustration: © Kav777 | Dreamstime.com

See you at the first citizen panel meeting!

[*Insert the dates and venue here if you wish*]

CASI FACTS

CASI is an EU-funded research project, which aims at developing a methodological framework for assessing and managing sustainable innovation within the scope of 'Climate action, environment, resource efficiency and raw materials' (one of the grand societal challenges defined by EU). The project also focuses on creating and enhancing public engagement in European research and innovation, and inclusion of different social stakeholders, including industry, policy-makers, research organisations and academia, civil society organisations and citizens.

CASI stands for "Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation".

CASI has 19 partners in 12 European countries: Bulgaria, United Kingdom, Denmark, Finland, Germany, Slovenia, Poland, Portugal, Italy, Austria, Belgium, and the Czech Republic.

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CASI

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2: 50 Citizen Visions on Sustainable Futures

2015

Kaarakainen, M., Repo, P., Matschoss, K., Bedsted, B., Damianova, Z., Popper, R. & Rask, M.

Report on the first citizen panel meetings and information material for the expert workshop

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for Assessment and Management of Sustainable Innovation

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CASI

50 CITIZEN VISIONS ON SUSTAINABLE FUTURES

Organisation responsible for the report
University of Helsinki

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Contents

1. Background and introduction

The European CASI research project organizes an event for high-level experts on sustainable innovation and public participation in Copenhagen, June 8th-9th. CASI – "Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation" is a research project that responses to one of the Grand Challenges set out in the Horizon 2020 programme of the European Union, namely "Climate action, environment, resource efficiency and raw materials".

Funded by the European Union's framework programme FP7, the CASI project represents an EU-wide cross-sectoral partnership on innovation-related challenges and considers the impacts of social and technological innovation, as well as the types of actors involved and their inherent interests. It thus effectively integrates the perspectives of civil society, SMEs, industry, policy stakeholders, and leading academics. This collaboration investigates the scope of sustainable innovation as a societal phenomenon and enables the elaboration of an assessment framework of sustainable innovation practices, whose application can be successfully integrated into public policy developments. CASI project's main objective is to develop a methodological framework for assessing and managing sustainable innovation through wider public engagement in the RTDI system by ensuring the commitment of a broad spectrum of societal stakeholders, including industry, research organisations, policy-makers, academia and science institutes, civil society organisations, media and the general public.

Contributing to CASI's aim to develop a framework for assessing and managing sustainable innovation, the project organizes an expert workshop, which is based on visions formed by citizens in 12 European countries. This report presents 50 citizen visions that were produced in citizen panels organized in Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and in United Kingdom in April 2015.

The overall aim of the expert workshop is to translate the citizen visions into research priorities and policy recommendations in the field of sustainable innovation by environmental, innovation research and policy research experts. The carefully selected European experts are stakeholders and policymakers as well as scientists and policy analysts, as well as representatives from the private sector, non-governmental organizations and governmental bodies. Following the expert workshop, the citizens will be consulted again to validate and prioritise the new priorities and recommendations. The result will be a set of sustainable innovation issues and recommendations, which the citizens find most important for their future, and which can directly be fed into processes defining future European policy.

This approach to public and expert engagement described above follows the CIVISTI methodology (Rask and Damianova 2009). It builds on the interplay of foresight and participatory technology assessment, where citizens describe their visions of the future following a normative approach, while stakeholders and experts have the challenging task to translate these visions in research priorities and policy recommendations. These will relate to scientific disciplines and technological developments, and/or complex trans-disciplinary challenges. This will result in an identification of relevant areas for research priorities and policy recommendations. The CASI project applies the CIVISTI methodology focusing on sustainable innovation.

The upcoming section clusters the visions according to the topics coming forth in them. The clustering of visions in topics is indicative and aims to introduce better the large number of visions to the reader. Many visions indeed concern a number of topics and many issues brought up in the visions do even more so. A complete listing of the visions is available in the annex of this document.

2. Objectives

The expected results of the CASI expert workshop are to produce, elaborate and evaluate research priorities and policy recommendations for the future of sustainable development.

Firstly, the workshop participants discuss the 50 sustainability visions produced in the citizen panels in 12 countries. As an inspiration, they can also use the thematic clustering of visions that is presented later in this report. Clustering the 50 citizen visions has attempted to make them more easily approachable, provide an overall view of the visions and show that visions and clusters of visions are interconnected. Therefore, the clustering of visions serves as an introduction to the 50 citizen visions which can be found in Annex 1 and are used as the main data on which research priorities and policy recommendations are drawn.

Secondly, the workshop participants will turn these visions into research priorities and policy recommendations for sustainable innovation and public participation in Europe. The main result of the expert workshop is a list of up to 30 elaborated research priorities and policy recommendations.

Thirdly, the experts will give a quantitative scoring to the recommendations so that prioritised lists can be used for the second round of citizen consultations. After this stage is complete, the policy recommendations receiving the highest scores resulting from the expert workshop will be prioritised by the second round of citizen consultations in October 2015.

In summary, the experts are thus expected to produce a prioritised list of research priorities and policy recommendations. The citizens have the role of validating expert contributions through their own priorities and comments in a second citizen consultation. These research priorities will then be compiled into a summary document.

3. Description of visions and clustering methodology

3.1. Data

The data of the report consists of 50 visions of the future produced in spring of 2015 in twelve CASI partner countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and in United Kingdom (see Figure 1).

Altogether 50 visions on sustainable futures were formulated by the citizen panels. While all panels operated in a structured and standardized way, the panels were free to express themselves in their visions as they best saw fit. Accordingly, the visions reflecting varying degrees of transformative change as well as outreach in terms of sustainable goals. For instance, the vision on a distributive justice of essential resources implies significant transformation of society and reaches out to a great number of goals while the vision on sustainable electronics can be considered to relate to a future more similar to that of today. The visions also bring forth changes, alarms, suggestions and intentions as brought up by citizens.

The visions relate to a number of shared topics yet are remarkably original as only one vision comes forth twice (urban farming). All other visions are distinct, showcasing the diversity and multitude of citizen envisioning. Some visions focus on describing the future while others focus more on steps for reaching that future. The visions also differ in that some target change through a critique of today while others build a more self-containing vision of the future.

Each vision consists of a short and a long description of which the short introduction can be followed by a more detailed description. The long and more detailed description includes a review of the benefits and possible negative consequences of the vision as well as of what is required for achieving this future

(knowledge, policies, resources, skills, etc.). The panels were free to formulate and structure their visions as long as they considered these reviews.

Figure 1 Visions were formulated in citizen panels un 12 countries

The visions originate from the citizen panels and have been formulated and approved by the panels. Translation to English by project partners is the only development in content that has taken place after the panels. Accordingly, an analysis of the visions relate more to key issues and their relations rather than to a close examination of used terminology.

Originally, the visions were written in the native languages of the partner countries, and later translated into English. All visions are available both in English and native languages at the CASI website, http://www.CASI2020.eu.

3.2. Methodology

The CASI project applies the methodology of participatory technology assessment and foresight created in a European CIVISTI-project in 2009, which builds on the interplay of citizens, experts and stakeholders (cf. Rask and Damianova 2009). Citizens are included in a role of providing guiding visions of the future, whereas experts and stakeholders transform the visions to research priorities and policy recommendations. Finally, citizens evaluate the authenticity of the process by commenting how the contributions by the experts and stakeholders reflect their original visions of future.

Vision, as defined in the CASI project, is a picture or an imagination of a desirable future. A vision can be based upon hopes and dreams - but also upon concerns and fears in relation to problems or imagined threats, which are not desirable. In CASI, the time span of the vision is 30-40 years from now. The visions of the CASI project result from the deliberations of citizen panels. Each vision has been structured according to a common template even though different styles and narrative formats have been used in the writing of the visions.

In this report, we present the preliminary findings of a content analysis of the 50 citizen visions. These are next visualised and clustered to make them more easily approachable and to better portray the overall picture they form and their internal relationships.

For the purposes of the applied CIVISTI methodology, visions are clustered according to topics to become more approachable to experts and therefore support the formulation of research priorities. Participating experts are welcome to carry out formulation in ways they best see fit and according to the procedure and template they are provided. If experts so wish, they may use conceptual constructs developed and used in the CASI project: 1) transformation and outreach, 2) changes, alarms, suggestions and intentions as brought up by citizens, and 3) economic, ecological and social sustainability. In the methodology, expert assessments of visions have a prominent role while clustering of visions and provision of constructs play a supportive role.

The analytical clustering and visualisation is carried out using TIB software, which is available online at www.textisbeautiful.net. TIB makes use of statistical analysis, merges words into topics (cf. taxonomies or thesaurus) and expresses relationships between topics. The idea of this approach is to base the analysis on data rather than apply any predefined concepts or categories to the analysis.

After clustering the data thematically, the CASi research team at the University of Helsinki consulted partnering teams and classified the 50 citizen visions into thematically appropriate clusters. The results are presented in the next section and the visions are presented at the end of this report.

4. Eight topic clusters of visions

The visions are clustered according to topics emerging in them. In the first analytical step, it is distinguished what kinds of topics emerge in the visions and how these topics form clusters (Figure 1). Next, it is distinguished how these clusters relate to each other (Figure 2). Then a closer look at the clusters, topics and their relationships are looked at from the perspective of correlation analysis (Figure 3). Following this three step argumentation and making use of triangulation, each of the citizen visions is finally categorized according to emerging clusters in Table 1. Table 1 presents the categorization of citizen visions that is used in the CASI expert panel work groups.

The visions were prepared for clustering and visualisation by removing the instructive headings provided by the project so that they would not affect results. Similarly, selected binding words (a, an, of, is, the, that, and this) were omitted to make the data fit the limits of the analysis software (100.000 characters). This latter procedure does not affect the results of the analysis of the topics.

Figure 2 *Topic cloud of citizen visions*

Figure 2 shows the most frequent topics in relative proportions in a topic cloud, bringing together topics addressed across the visions. For instance, education receives much attention both as a topic of visions as well as a subtopic within visions. The size of a topic represents its relevance in the visions and colour expresses the relatedness of topics. Eight cloud clusters of visions emerge in the topic cloud, which are named for convenience according to their main topics:

1. *Energy and production* (in blue: production, energy, use)
2. *Social development and people* (in orange: development, people, social)
3. *System resources* (in red: resources, system, possible)
4. *Local needs and support* (in brown: needs, local, support)
5. *Change for the future* (in green: change, future, economic)
6. *Values and politics* (in purple: vision, political, values)
7. *Living and spaces* (in pink: living, spaces, market)
8. *Urban life* (in grey: city, farming, urb(an))

Additionally, *companies* form an outlier in this clustering analysis.

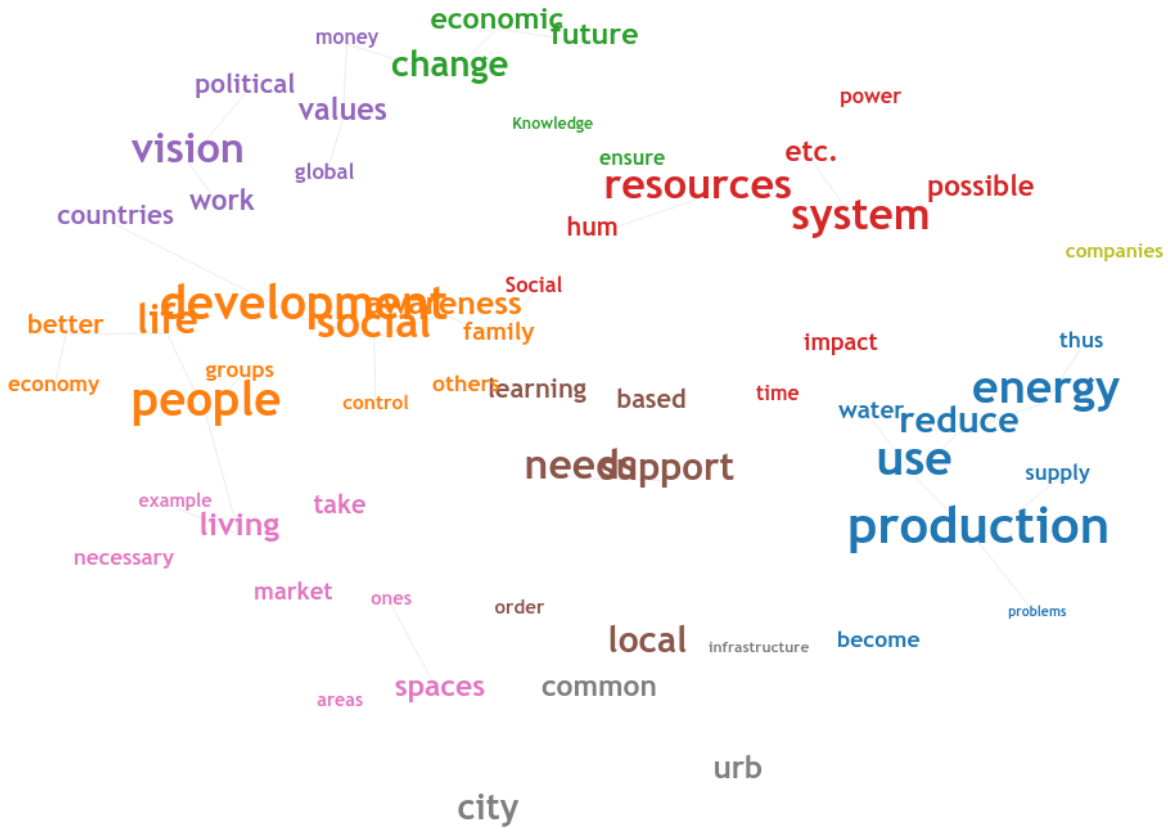


Figure 3 *Topic web of citizen visions*

The topic web (Figure 3) distinguishes how the topic clusters relate to each other. Relative sizes of and distances between clusters and topics explain their relationships.

Figure 2 shows that although *local needs and support* (brown: need, local and support) forms a small topic cluster, it is very centrally positioned and serves as a good node for other clusters. The large cluster on *social development and people* (orange: development, people and social) is also centrally positioned between *values and politics* (purple: vision, political, values) as well as *living and spaces* (pink: living, spaces, market), *system resources* (red: resources, system, possible) and the aforementioned l*ocal needs and support* (brown).

While *energy and production* (blue: production, energy and use) forms a large topic cluster, it is less centrally positioned and relates most closely to *system resources* (red), *local needs and support* (brown), and *urban life* (grey: city, farming, urb(an)).

Finally, *companies* (yellow-green) serve as a small outlier in the analysis, showcasing that companies are infrequently considered in the visions and when they are, they relate most closely to *energy and production* (blue) and *system resources* (red).

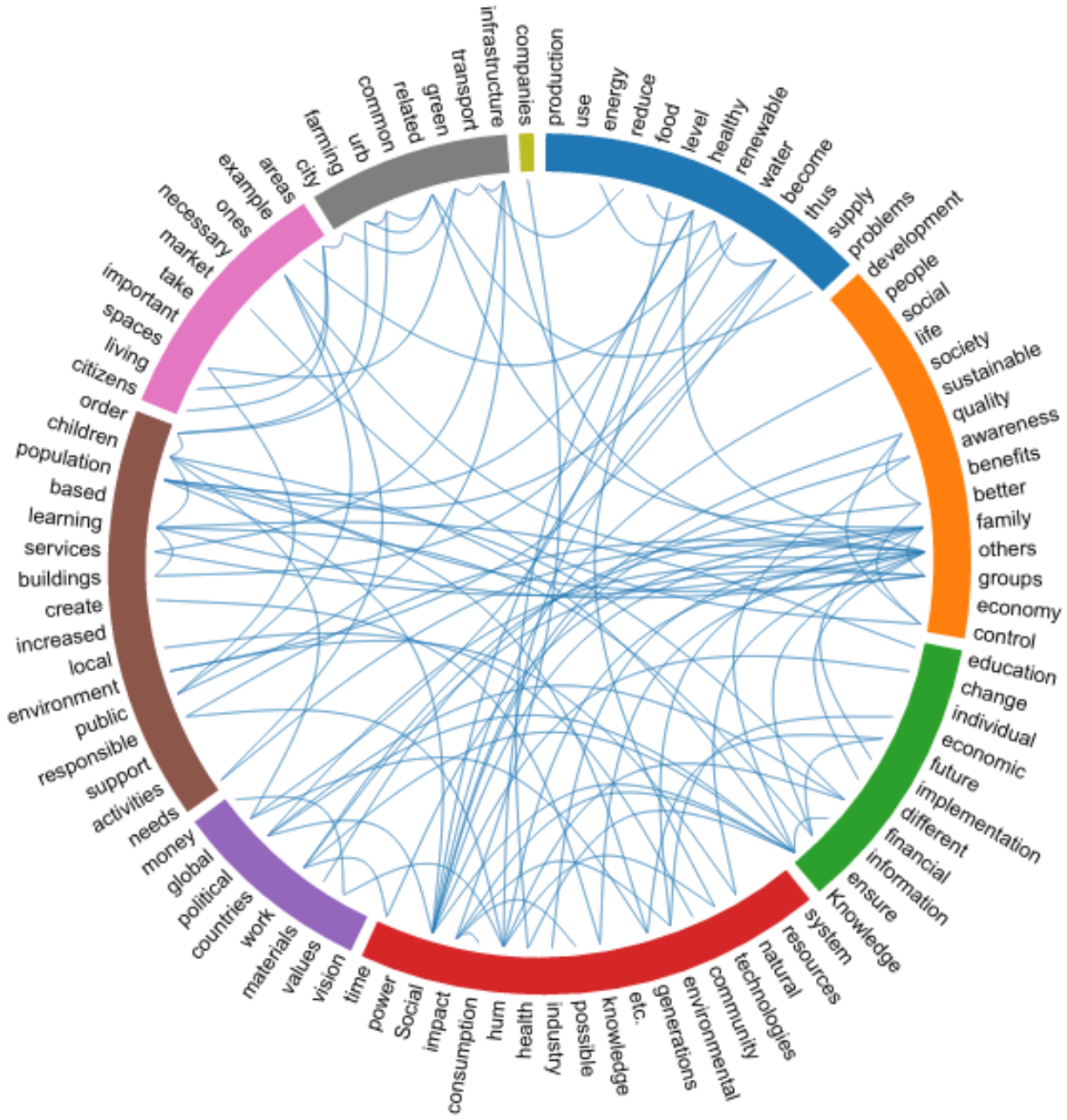


Figure 4 *Correlation wheel of citizen visions*

Figure 4 shows that there indeed are correlations between clusters and topics in these clusters. In particular *social development and people* (orange: family, others, groups) correlates much with other clusters and being a large cluster itself, it has many connections to other clusters. *Local needs and support* (brown: population, learning, children) also correlates much with other clusters as does *system resources* (red: social, hum(an)). Similarly, *values and politics* (purple: political, work, global) correlates much with other clusters. The outlier of *companies* correlates with impact is *social development and people* (red).

Additionally, Figure 4 shows a number of detailed topics which relate to the topic clusters. These detailed topics as well as insights from all three analytical visualisations are brought together in Table 1 which categorizes all 50 citizen visions on sustainable futures according to clustered topics.

5. Conclusions

Table 1 lists the 50 citizen visions according to identified topic clusters.

Table 1 List of citizen visions according to clustered topic and title

1. Energy and production (6)	2. Social development and people (10)
Distributed small-scale energy generation in mainstream within 30-40 years Energy for humanity and ecosystems preservation Insects – the dish of the future New sustainable energy economy Self-supply with healthy food Sharengy – Sharing renewable energy sources	Eco^{2}Social Industry in 2050 Facing immigration of nations Food for all Homo Faber Human world Living in community Recognition, rethinking and responsible governance / action Societal reset Society of understanding (empathic) The happy life. Healthy and contending life as the driver of a holistically sustainable development.
3. System resources (8)	**4. Local needs and support (2)**
Cannabis utopia Clean nature for a better quality of life Conflict free distributive justice Development of new technologies and improvements of the existing in harmony with nature and society Distributive justice of essential resources Healthy living Sustainable agriculture Sustainable electronics Outlier topic: companies	Eco-preneurship – Sustainable business for the future The sustainable construction of buildings
5. Change for the future (8)	**6. Values and politics (7)**
Assets of the planet on the school curriculum Eco credits Education - a path to spiritual and sustainable future Education=aware citizen=aware society=sustainability EUCRES - EU collaboration for recycle systems New ways for sustainable education Think coloured Vision of quality	1⁄2 day labour Active civil society for sustainable development Beauty will save the world Global solidarity based on volunteering, technological development and regulated distribution of resources Society of potential capacities Sustainable living environment, sustainable values Union of the earth – World without the borders
7. Living and spaces (5)	**8. Urban life (4)**
From physical activity to electricity More green in the city Network for a world as home	Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational spaces.

Optimal living together in the city and surrounding areas Supporter of body and mind [IPHA – intelligent personal health adviser]	The city my home / home in the city Urban farm Urban farming

Energy and production includes six comparatively similar visions on on energy and production of food. *Social development and people* invites the greatest number of visions (10) on social communities, working life and humanity. *System resources* involves visions on nature, and sustainability. *Local resources*, while being central as a cluster and connected to other clusters, merits only two distinct visions.

Change for the future is concerned with visions relating to education and change processes. *Values and politics* embraces a wide variety of topics ranging from civil society to sustainability. *Living and spaces* both visions on cities and personal activities, and closely related to *Urban life*, which looks at cities and urban farming from a parallel perspective.

As the citizen visions touch a number of topics at the same time, it is difficult to draw unequivocal categorizations of visions. This is itself, a strength of the used approach in cluster analysis, making connections between topics yet recognizing that the clusters they form need not be based on pre-selected dimensions or observed objects.

For instance, visions relating to food are arguably interconnected, but do also belong to different visions clusters based on the ways they describe food. The vision concerned with a *self-supply with healthy food* belongs to the cluster of production (blue: energy and production), *sustainable agriculture* to use of resources (red: system resources), *urban farming* to an urban context (gray: urban life), and *food for all* to the distribution of food (orange: social development and people). Categorizing food in only one cluster would, accordingly, have discarded much contextual information. Similarly, while *local needs and support* (brown) lists only two visions, the topic merits attention as it is an essential part of other topics.

Clustering the 50 citizen visions has attempted to make them more easily approachable, provide an overall view of the visions and show that visions and clusters of visions are interconnected. In this respect, clustering serves as an introduction to the 50 citizen visions which can be found in Appendix 1 and are used as the main data on which research priorities and policy recommendations are drawn.

6. Next steps

As the next step, research priorities and policy recommendations will be drafted for each of the 50 citizen visions. Up to 30 of these will be elaborated on and prioritized. In a second citizen consultations, the citizens will be consulted again to validate the research priorities and policy recommendations produced by the expert workshop participants.

This will result in an elaborated set of sustainable innovation research priorities and policy recommendations, which the citizens find most important for their future, and which can directly be fed into processes of defining future European policy on sustainable innovation.

After the citizen and expert involvement process, CASI research teams will report on insights from each phase of the process and draw additional conclusions based on a careful content analysis of the citizen visions. The involvement process will also be integrated in a Common framework for assessment and management of sustainable innovation (CFAMSI) framework which the CASI project is developing.

References

Rask, M. & Damianova, Z. (2009). Citizen Visions – Preliminary Content Report. CIVISTI project. http://www.civisti.org/files/images/Preliminary_content_analysis_FINAL_CORR.pdf

Annex 1: 50 Citizen Visions

1. Energy and production

Distributed small-scale energy generation in mainstream within 30-40 years

Energy for humanity and ecosystems preservation

Insects – the dish of the future

New sustainable energy economy

Self-supply with healthy food

Sharengy – Sharing renewable energy sources

2. Social development and people

Eco2Social Industry in 2050

Facing immigration of nations

Food for all

Homo Faber

Human world

Living in community

Recognition, rethinking and responsible governance / action

Societal reset

Society of understanding (empathic)

The happy life. Healthy and contending life as the driver of a holistically sustainable development

3. System resources

Cannabis utopia

Clean nature for a better quality of life

Conflict free distributive justice

Development of new technologies and improvements of the existing in harmony with nature and society

Distributive justice of essential resources

Healthy living

Sustainable agriculture

Sustainable electronics

Outlier topic: companies

4. Local needs and support

Eco-preneurship – Sustainable business for the future

The sustainable construction of buildings

5. Change for the future

Assets of the planet on the school curriculum

Eco credits

Education - a path to spiritual and sustainable future

Education=aware citizen=aware society=sustainability

EUCRES - EU collaboration for recycle systems

New ways for sustainable education

Think coloured

Vision of quality

6. Values and politics

1⁄2 day labour

Active civil society for sustainable development

Beauty will save the world

Global solidarity based on volunteering, technological development and regulated distribution of resources

Society of potential capacities

Sustainable living environment, sustainable values

Union of the earth – World without the borders

7. Living and spaces

From physical activity to electricity

More green in the city

Network for a world as home

Optimal living together in the city and surrounding areas

Supporter of body and mind [IPHA – intelligent personal health adviser]

8. Urban life

Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational spaces.

The city my home / home in the city

Urban farm

Urban farming

ENERGY AND PRODUCTION

Distributed small-scale energy generation in mainstream within 30-40 years 1FI

Short description:

Local small-scale energy production develops into mainstream away from the niche status. The public sector supports the small-scale energy production including improvements in energy efficiency. Small-scale energy production creates optimism and enthusiasm into the society, because citizens can be actors in the energy sectors and feel themselves successful in their endeavour, which enables the development of increased common good. The removal of bureaucratic barriers enables the growth of small-scale energy production. The support of the public sector is also needed through advice, information dissemination about available options and financial support.

Long description:

Local small-scale energy production develops into mainstream away from the niche status in single-family homes, apartment buildings and farmhouses as well as in industrial, municipal and business buildings. Technical solutions include e.g. solar heat collectors, PVs, ground and air heat pumps, mini wind turbines, biogas, wave energy and algae energy plants as well as other developing small scale energy production units complemented with energy efficiency improvements. The requirement is the support of the society to small-scale energy production in form of removal on bureaucratic barriers, financial public support, supply of advice and information.

Small-scale energy production spreads enthusiasm and optimism into the society because all citizens can take part into the production of energy and gain experiences of success, which supports the increased development of common good into the society. The citizens have a very positive attitude towards small-scale energy production in any case already now and even a small saving in their energy costs would motivate them to become small scale energy producers.

Concrete ideas:

- Leveraging the consumption peaks of industry, shifting of loads between areas temporarily, which could be reached by offering cheaper energy when there is more renewable energy available and constraining from industrial consumption when there is less energy available by making it more expensive
- Biogas is the great opportunity of the future, because the constantly growing large cow houses produce a lot of biogas, which should be extracted from dung. That would benefit the farmer by bringing extra income through sales of biogas. In addition, the protection of drainage system would be easier, because through processing of the dung it would be easier to extract e.g. phosphor.
- Extract energy from the landfills.

Future generations, people with asthma and the environment (such as the water system) will be the beneficiaries as well as the owners of buildings. In a key position are the public authorities in undoing the bureaucratic barriers and providing public support.

Distributed small-scale energy production is close to nontoxic form of energy production and it would reduce also small particle emissions. The units are so small that the societal risks are minor. The business activities emerging around small scale energy production and energy efficiency increases the employment

locally and creates SME's to install, maintain and to produce the equipment for micro production. A conglomerate Energy-Company could emerge to support the Finnish national economy.

Negative sides are the possible capacity problems, oversized dreams, unfair winnings, strong opposition from the incumbent energy industry. However, the energy industry would still have a role, because the 30-40 years' timeframe is too short that self-sufficiency could be reached. So far, the barrier has been formed by the fact that the energy producers are large companies, which is due to the pursuit of great efficiency and security of supply. There is also uncertainty how much does the energy production of small-scale producer-consumers really influence on the system level. Easier would be therefore to focus support on large industrial buildings (such as rooftops for PV).

Challenge is the fact that some of the energy sources in Finland are seasonal (such as solar energy or wind energy), which requires optimization in the system level like e.g. connect areas large enough. The requirement is thus the establishment of a smart energy system that utilises all opportunities the technology can offer.

Requirements for the realisation of the vision:

- Supply of financial support
- Further advancements in wave energy, so that it could be utilised also in the Baltic sea
- Industry operates throughout the year, so the extra energy (e.g. heat) could act as energy source in the winter
- The state needs to support the change, because people have a strong resistance to change if it is something that they do not know. Change is frightening.
- Correct and honest information needs to be distributed also about negative aspects.
- An honest risk-benefit analysis needs to be delivered relating to individual solutions.
- Removal of bureaucratic barriers.
- The architecture of solar panels needs to be developed
- The education of architects to learn to take into account the micro-generation solutions in buildings
- Produce more information about the existing barriers, because the removal of barriers makes the solutions less expensive
- Provide information about how to reduce stakeholder and citizen opposition to change
- Proved experiences of use from other users or other countries.
- Support to businesses that supply and install equipment or systems.
- Ensure political will to realise the vision

About the need to financial support:

- Support courageousness, know-how and knowledge
- Support education, teaching and architecture with more resources.

Energy for humanity and ecosystems preservation 4PT

Short description

Ensure steady energy supply for humanity through smart-utilization of renewable energies, the preservation of ecosystems and maintaining resources for future generations.

Long description

This vision focuses on the identification and utilization of renewable energies at global level, assuring its rational use while also preserving all living things and their ecosystems. It also tackles the concept of Humanity as a whole from a cross-generation perspective, which ensures that future generations have enough resources to share.

What are the benefits of the vision? For whom?

The vision promotes ecosystems and planet preservation, rationalization of resources, and continuous identification of alternative energy sources.

What are the negative repercussions of the vision? On whom?

High cost could limit the access to renewable energies; in addition, some regions, with little exploration of natural resources, could suffer some differences in access to alternative energy sources in comparison with other regions; and last but not least, poverty could increase in countries dependents of non-renewable energies.

What will be necessary for "this" future in terms of knowledge, politics, resources, competences, etc.?

A technological development (R&D and qualified HR) will be necessary to reduce the expenses associated with renewable energies, and awareness campaigns among the citizens to rationalize the use of resources.

Insects – the dish of the future 2CZ

Inspired by the fear of lack of food security and malnutrition

Short description: Replacing costly and often inadequate diet with nutritious insects.

What are the benefits of this vision? For whom?

Economic

- Breeding and producing insect-based food may offer new job opportunities, while reducing imports of food and other related activities
- Financial savings from reduced import of meat products
- Insects are easy to breed as they feed on debris andwaste
- There are plenty of insects, which can be found throughout the planet and in any country

Environmental

- Breeding of insects does not produce CO2 as part of livestock production and therefore do not
- contribute to global warming
- Achieving government emission target
- Decrease in meat production and consumption

Social

- Insects are healthy and contain large amounts of protein, while reducing the incidence of cardiovascular disease and other chronic conditions that are induced by red meat consumption
- There are possibilities of various modifications such as the consumption of insects in the form of nutritional cocktails, which are more visually attractive
- People can capture, keep and cook insects themselves, thus being self-sufficient
- Protection and respect for animals; reducing animal cruelty

What are possible negative consequences of this vision?

- Large number of insects needed to feed a person
- Potential fear and uncertainty towards novel products
- Low demand for meat products affecting meat production sector and international trade

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

Policies

- Promote standards and legislation for breeding and consumption of insects in the EU
- Develop regulations for the safe breeding and processing technologies
- Develop effective monitoring and quality control

Knowledge and skills

- Marketing and familiarization with insect-based products and services
- Thorough research on the impact of insects' consumption
- A cookbook with attractive recipes and images
- Societal reassurance and cultural/behavioural change

Resources

- Build a complete new infrastructure for breeding, storing, trading and consuming insects
- Develop human resources, i.e. a new workforce dealing with the supply and demand of insectbased products and services

New sustainable energy economy 2DE

Aim of this vision is to develop visions and ideas for the necessary rapid implementation of the energy transition.

Ways to reach the aim: The existing fossil energy sources should be consequently reduced. The use of nuclear energy should be completely renounced on an international level. Instead, renewable energy sources will be supported by politics and their expansion and technological development should be accelerated. If the vision is implemented, only renewable energy will still be used.

As a part of the restructuring process national energy production and supply is decentralized and new decentralized storage technologies are developed. Renewable energies are connected with each other so that they build together with new storage technologies the “virtual power plant”. Through this technology the renewable energies from sun, wind and water are stable in a network and are able to secure the base load. The conventional energy sources, which were essential for energy supply until now, are no longer required. Big, monopolistic energy suppliers are no longer necessary and disappear from the market. Accompanying to this energy transition, comprehensive procedures for risk analysis as a part of development for the use of all energy sources are to be implemented by law.

Results from the above named measures: A result from the above named measures is the significant reduction of CO^2 emissions and substantially lower use of natural landscape. Also the tectonic problems by the use black coal and problems with ground water (fracking) will disappear. All in all, it means a clean environment.

Benefit: Benefits are stable and low energy prices, no blackmailability of policy by major corporations anymore. Also, establishment of social peace while safeguarding the economic necessary conditions are guaranteed.

Side-effects: Temporary job losses are a side-effect, which could be compensated in medium-term through the transformation of the economy (conversion).

Requirements: Another side-effect is the effective citizen involvement on political scale. Wide financial contributions from the citizens under private investments will be reached through corporative models. There will be a transformation from the recent energy fees to private capital structures (along the lines of asset-creating capacities by employees and citizens). Big companies must be committed to save energy and to ensure a self-sufficient energy supply.

Conclusion – Towards a people’s energy: Energy production and energy supply is in the responsibilities of citizens (democratized). The necessary energy transformation is stable and low-priced without being ecologically damaging.

Self-supply with healthy food 2SI

Short vision description:

- In 30 years, the share of self-supply with food increased from 40 to 80 percent in Slovenia.
- High standards of eco production have been introduced. Technological solutions of bio pesticides and fertilisers have eliminated the problem of yield per hectare.
- Small plots have been joined in many cases; there has been a common agreement on the production and processing of food between smaller producers.
- Indigenous species have been significantly represented in the market.
- A large proportion of the offer is based on integrated and seasonal production.
- The peony system and "zero waste" principle have been developed and implemented at the level of large production and family variants.
- The "basket-to-home" system and local supply points have been established; schools, kindergartens, hospitals and homes are regular customers of local production (fruit and vegetables). The cooperation with hotels and restaurants is carried out smoothly.
- Through the e-marketplace, the customers are provided with the information about the nearest certified producer where they can buy fresh vegetables from the field.
- The 48-hours system has been introduced (from the production on the field/orchard to the final consumer).
- The seeds are from local production and biologically unobjectionable.
- Consequently, the production of meat and dairy products achieves a much higher quality level.
- The system is supported by the public water supply which is among the best in Europe. The reduction of the pesticides usage and the use of bio pesticides has significantly influenced the quality of groundwater.
- High public awareness eliminates poor quality suppliers.
- Consumers are oriented to the consumption of seasonal food.
- In the school system, the education and raising awareness about healthy nutrition has been established; the concept of healthy nutrition has become a value of the youths.
- Local communities offer support to socially disadvantaged families by offering them plots (allotment holders) and social packets of local food.
- The production has also been established in urban environments (vertical production, flat roofs, balconies etc.).
- High environmental standards for agricultural machinery have been unified with the road traffic. Small producers have established common use of agricultural machinery.
- Local marketplaces and healthy food sales are provided with attractive locations in towns; adequate dispersion of locations in bigger cities is considered. Locations have the same quality as big shopping centres; parking for the customers is connected with minimal expense. The transport logistic system is adapted to the system and takes into account the connections between the locations of sale and customers' residences; common use of transportation resources and storage capacities has reduced the public infrastructure load and the pollution of the environment.
- Higher productions costs have been compensated by reducing the number of intermediaries in the retail chain and direct participation of the producers in the sale system.
- Greenhouses and use of geothermal energy have become an established system of food production.

- The facilities are based on the zero energy construction principle.
- The system of healthy nutrition has significantly improved the health status of the population; savings in the public financing of the health care system have been observed.
- Slovenia has achieved a significant increase in tourism as a tourist destination with healthy, tasty and affordable food.

What are the benefits of this vision?

- More jobs - production, processing, tourism, R&D support system, supporting branches of trade and industry.
- Rise of the standard of living.
- Improvement of the health level.
- Self-support.
- Reduced environmental burden (pesticides, common use of machinery and transport etc.).
- More efficient use of land.
- Improved foreign trade balance.

What are possible negative consequences of this vision?

- Higher price.
- More difficult traceability due to small producers.
- Negative pressures of multinationals and mass producers.

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

- Relevant legislation and strategic documentation that support the production/processing.
- Transition from local to national level of increasing the self-supply.
- Knowledge for development/production, processing; improvement of the educational system.
- Raising awareness of the consumers.
- New technologies available to smaller producers also; they enable the processing of fruit and vegetables which retains useful substances/vitamins.
- Bio ecological pesticides and fertilisers.

Sharengy – Sharing renewable energy sources 4SI

Short vision description:

To replace traditional energy sources with renewable ones. Individual states can hardly cover their needs for energy with their own renewable sources. If they connect with neighbouring countries to a network, there will be enough energy for all.

Infrastructure will be a public property. The rationalisation of energy use will be a common interest.

What are the benefits of this vision?

The use of renewable energy sources will replace traditional sources and contribute to the reduction of the environment pollution. Infrastructure will be a public property and thus under the same conditions available to anyone participating in the system.

The system would include the following power plants: wind, solar, hydro, geothermal, tide. E.g.: North Africa is rich in sun, north Europe in wind. In one part of the year there is a surplus of wind energy; in another part of the year there is a surplus of solar energy. If the regions were connected to a network, they could share the surpluses. Participation in the system and interdependence will ensure optimum and uniform use of natural sources. At the same time, it will also guarantee the avoidance of conflicts and wars.

What are possible negative consequences of this vision?

Dangers for this vision are potential violations of the agreement on the equitable sharing and e.g. sale of energy on the black market.

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

The realization of the vision will require political agreement, powerful and efficient infrastructure (e.g. development of energy transfer by air).

Every state provides the infrastructure in its country. In case that the construction of infrastructure is financially impossible, another state can fund it. The investment is returned in energy and the infrastructure remains the property of the state in which it is located.

Every citizen is an owner of the infrastructure; everybody participates in management. Ownership is obtained in such a manner that the state distributes the certificates after the establishment of the system. Certificates are not transferable. The management body is a global electricate. The representatives of individual countries participate in it. The number of representatives of a country depends on the number of inhabitants of this country. Representatives are selected by lot every 4 years. The master document is not a contract but an e-agreement (ethical agreement). Participation of an individual in the system increases individual responsibility and engagement.

SOCIAL DEVELOPMENT AND PEOPLE

Eco^{2}Social Industry in 2050 3PT

Short description

An industry social responsible, eco-friendly, innovative and efficient.

Long description

In 2050 we have an industry that is socially responsible, eco-friendly, innovative and efficient which:

- Participates in the community concerns and needs;
- Integrates underprivileged public workers;
- Promotes workers' qualification;
- Cares about the family and social structure of the work force;
- Promotes equal salaries between genders;
- Favors natural raw materials and endogenous resources;
- Decreases waste, resorting to optimized fabrication processes that use fewer resources and
- energy;
- Analyse products´ duration in order to make choices accordingly;
- Uses and develops innovation with less environmental impact upstream and downstream.

What are the benefits of the vision? For whom?

The vision promotes competitiveness coupled with environmental and social responsibility, forming a more inclusive society which will stimulate a better economy and an efficient management of resources, such as raw materials, human and financial.

What are the negative repercussions of the vision? On whom?

We see these more as difficulties than negative effects, but on the one hand a change of people's mindset would be required, and on the other hand, we would have to endure an eventual tardiness in the organizational culture modification and deal with the present economic and political interests.

What will be necessary for "this" future in terms of knowledge, politics, resources, competences, etc.?

It will be necessary to be open to change, and to have an ongoing training of people. We need to create support mechanisms and to invest in technology, as well as encourage the openness of industry, which will allow a close partnership with the local community.

Facing immigration of nations 5SI

Short vision description:
The vision describes the integration of immigrants in society. The vision addresses the tolerance to all participants, respect, co-existence, acceptance of diversity and adaptation. It touches the solving of problems and appeals to institutions which encounter the problems to approach actively and seek for more appropriate solutions.

What are the benefits of this vision?
- Exchange and supplementation of knowledge, know-how, experience (QUIET KNOWLEDGE).
- Preserving peace and contentment.
- Preservation of traditions and exchange and use of best practices (e.g. alternative medicine, cuisine, etc.).
- Getting accustomed to diversity and accepting it.
- Communication with countries and with life on other planets where the immigrants come from, especially finding causes of migration and making agreements.
- Immigrants' aspect of environmental problems and acquiring positive related aspects and search of the same aspects on conservation and sustainable development of it and applying it into practice and exchange of good practices which connect us with the countries of immigrants (economy).

What are possible negative consequences of this vision?
- Brain drain; migration paralyses the country and the planet from which these people are fleeing.
- Intolerance towards immigrants (labelling and stigmatising).
- Threat to the citizens of the host country or planet (stereotypes).

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)
- Reason and knowledge: knowledge about immigrants (about their culture, their view of the host country, etc.) induces rational behaviour.
- To transmit, familiarize creators, designers, operators, decision makers of the host country (economy, law, education, health, social services) with the problems of immigrants, to appeal for more appropriate solving and implementation of these on a national and international level, including planetary, by which we think mainly on the search for adequate solutions together with the country and the planet from which the immigrants come from.
- Migration policies - particularly in relation to marginalized groups (women, children, concept of family, considering ethnicity, religion and sexual orientation, etc.) should be open and tolerant.
- To consider opinions, fears, stereotypes, visions of the citizens in relation to the problems since only so can we influence or form appropriate policies.
- Systematic education in kindergartens and schools about multiculturalism and multiplanetarism. Virtual classroom would enable a direct experience of other countries and planets, discovering the environment of extra-terrestrial life, natural resources, culture and traditions.
- Virtual travel/integration of foreign cultures, best practices and habits into the classroom.
- By forming virtual classroom, Slovenia would be placed on a global and planetary scale as an inventor. The example of its good practice is being transmitted through the political system paths.
- Virtual classroom encourages new multicultural and multiplanetary acquaintances and friendships. The awareness about Slovenia is being spread in other countries and planets in this way. What is it, where is it located, how do we live and what are our traditions.

- Students who accept and are the most successful in understanding and respecting other cultures are rewarded with a residential travel and exchange of home with a "virtual" classmate from the selected country or planet.
- The classroom will be built from natural sources and heated by new energy sources (laughter, voice, shaking hands/touch, hugs, through positive vibrations, etc.) that accumulate in the classroom.
- Language and communication barriers will be overcome by telepathic communication, automatic thoughts translator (which exists in the brain chip, etc.).
- OUR VISION SIGNIFICANTLY IMPACTS THE ENVIRONMENT AND THE ATTITUDE TOWARD IT SINCE EVERYTHING AROUND US IS CREATED BY PEOPLE AND INHABITANTS OF OTHER PLANETS, WHETHER WE ARE WHITE OR BLACK, TALL OR SMALL, RICH OR POOR

Food for all 3UK

Short description

The vision is to have sufficient nutritious, culturally appropriate and acceptable food for an active and healthy life. Which includes access to food for all including land, raw materials, transport, markets and finance as locally appropriate. This will bedone by tackling waste at all parts in the supply chain eg storage, transport, supermarket (e.g BOGOFF, sell by dates, cosmetic standards) and domestic; access to knowledge of food, to grow, cook, store, eat, etc (eg school, community interventions); encourage environmentally sensitive production eg reduce use of artificial fertilizer and pesticides; and reduce food miles and encourage local produce.

Long description

BENEFITS:

- Better health
- Better education
- Better energy (employment)
- Better community cohesion
- Better parenting
- Preservation of natural resources: biodiversity, reduce pollution, healthy waterways
- Reducing waste relieve pressure on production and landfill
- Less conflict in the world

NEGATIVES:

- Tensions between environmental concerns and maintaining yields
- Increased costs of implementation
- Food prices
- Water – Food – Energy (NEXUS) are so interconnected interventions on food may impact negatively on water/energy security.

WE NEED:

- THE INTERNATIONAL WILL TO DO IT
- Knowledge:
    - Access to knowledge
    - Sharing knowledge
    - Avoiding IP for seeds and data
- Understanding the interconnections between elements of the food system
- Valuing different types of knowledge e.g. scientific, indigenous
- Review of international trade agreements (TTIP – Transatlantic Trade Investment Partnership)

Homo Faber 3IT

Short desription

Promotion of a different scale of values, focusing on human beings as individuals with collective needs, undertaking a role of drivers of change, by excluding the support of technologies in this case. Indeed, now days everything is driven by the profit (or by the power that could be interpreted as a synonym to the profit) and an individual vision and perspective, rather than collective, where individuals are not considered as actors responsible for actions that may be of a benefit to the entire community, rather than concentrating to the personal gains instead.

Long description

What are the benefits of the vision? For whom?

The research is no longer an end in itself (or subservient to profit) but it as an answer to the need ensuring a different and better future for all; different in the sense that there is an awareness of the need for the change (transition). Actions that affect cultural patterns (content and the educational methods) from the outset, allow creation of awareness and the capacity to act. This means that an investment in education contributes to the developing of skills of Homo Faber, the maker and creator. Each person per say is stimulated to work, to contribute to the prospects of the better future, which is not driven by consumption or the material concept of the well-being. The role of the driver of the change shall not be influenced by any type of a philosophy, religion or a technology. Greater investment in access and the distribution of wealth and natural resources is needed. If each individual would be acting for the value of community, this would contribute to reducing of conflicts that are often generated by the unequal distribution of wealth (natural goods, money and knowledge).

What are the negative repercussions of the vision? On whom?

Excess of individualism if the vision is not interpreted correctly. The individualism shall be properly translated into the added values of community and sustainability otherwise there is a threat that the wrong interpretation will contribute to the possibility of overlooking the needs of the future generations).

A need for pursuing the long-term actions, based on the cultural change. For this to achieve, the short-term impact shall be overcome (e.g. possible reduction of jobs) in favour of a benefit in the long run.

A need to highlight the benefits of the "sharing" as the result of a firm commitment on behalf of an individual, with an aim to overcome separation.

What is necessary for this future? (knowledge, policies, resources, skills etc)?

Education that would be based on the above noted, managed at global level, focused on practical not theoretical examples and actions.

Investing in the promotion of new businesses, new type of entrepreneurship and new business knowledge models (eg. shared economy).

Investing in scientific and academic research that identifies new models that go beyond the concept of "homo economicus," presenting the example of the first action towards greater sustainability of future options, taking into account the environmental issues.

Replace the term "solidarity" with the "subsidiarity" (where as giving money to satisfy a need of today is not an option-the purpose is to generate a change, meaning-invest in stocks that enables the individual to generate it).

Human world 3PL

Short description: The world in which the value of the person is who he/she is, not what he/she possess. World in which money is a mean, not the objective itself. World where money is gained through good life, life in which work is a value. World in which human and nature is the subject, not the object.

What are the benefits associated with vision? For whom?

Respect for every job. Opportunity to self-fulfillment and self-completion. Democratic society. Making profit without harm to other people. Creation of apolitical society.

What are the negative repercussions of this future? – on whom?

Slowing down the velocity of development and closing ourselves in „glass bubble". The complete fulfillment of the vision may have negative repercussions. Deformation and manipulation of idealistic view. Rising the demanding society (full of social claims).

What is necessary for this future (knowledge, policies, resources, skills)?

Education of citizens. Concerns about natural resources and environment. Common and general access to jobs for everyone. Salary adequate to efforts. Fiscal ease for charity. General preparation for performing different roles and jobs. Capital should be reinvested for growth and further improving quality of citizens life (not accumulated). Education, valuable, ethical individuals, pragmatic education. Professional administration and management ("silent service"). Direct democracy. Simple, clear law.

Living in community 2PT

Short description

Equality as a common denominator for all citizens, enhancing free access to education, health, justice and opportunities.

Long description

This vision consists in the idea of equality among all citizens boosting the free access to education, health services, justice, freedom and opportunities. Respect each other's differences, promoting the social and economic interaction of everybody, enhancing a personal and social balance and adopt a healthy lifestyle.

What are the benefits of the vision? For whom?

The vision promotes social cohesion and equality, which may help maintain peace and harmony between people. This has an effect on social, economic and environmental sustainability.

What are the negative repercussions of the vision? On whom?

If we focus too much on the social aspect, we may neglect technology and other important factors, which will cause an economic and environmental imbalance.

What will be necessary for "this" future in terms of knowledge, politics, resources, competences, etc.?

It will be necessary to dismantle prejudices and involve everyone all kinds of people in this project. Another thing we need is a strong leadership which focuses on the greater good, and an efficient management of resources.

Recognition, rethinking and responsible governance / action 4DE

It is necessary to take over responsibility for a sustainable European development as a paradigm for the global world in 30 to 40 years ahead. Objectives are a social balanced society and the protection of the quality of life for future generations. Focal points are the social aspects, not material facets. The benefit of this vision is a better life for all the people.

Side-effects: To realise this aim people have to rethink their life and behavior. But rethinking or changing one's life is also eliciting anxiety.

Requirements: To make this vision happen the *citizens* have to get an increased awareness of sustainability and they have to be enlightened for it. All in all the citizens have to foster this development slow and steady, perseverance and power of endurance will be necessary to fulfill this vision.

Policy and economy will have a leading function and have to show their willingness for this vision by example. To achieve the vision there has to be transparency about the policies and the objectives and activities of the economy. Education and social competence have to be provided to foster the process of fulfilling the vision. Institutions, frameworks and sanctions have to be build / set up to ensure the objectives, the process and the results.

Conclusion: Necessary changes have to effectuate generally binding rules and regulations. Policy and economy have to act responsibly and sustainable, if they fail they have to be sanctioned.

Societal reset 4CZ

Inspired by the fear of overgrowing and unsustainable moral crisis in Europe

Short description:

Back to nature and traditional values; move away from individualism. People consider planet as a social heritage and contribute to a common good of the entire planet and its population.

What are the benefits of this vision? For whom?

Economic

- The use of environmental technologies
- Limiting the economic impact of multinational companies

Environmental

- Respect towards nature and animals

Social

- Improved the quality of life
- Moving away from individualism and selfishness
- Focus on improving interpersonal relationships and communication
- A shift in values (respect for life, the emphasis on moral values)
- Changing attitude towards money and accumulation of material goods in general
- Intuitive sustainability in all aspects of live
- No more citizen panels needed!!!

What are possible negative consequences of this vision?

- Loss of privacy as we move towards community living and improved interpersonal relationships
- Resistance from multinational companies

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

Policies

- Establish programmes and policies that support compassion and other values
- Elaborate laws to protect animals
- Eliminate casinos and gambling businesses
- Transform zoos into animal sanctuaries and ecosystems rather entertainment places
- Forbid and criminalise the manufacturing of weapons of all kinds (including toy ones)
- Promote new/different governance principles with increased public engagement
- Support environmental projects in the community

Knowledge and skill

- Ethical education of children
- Health, ecological and financial literacy of the population – taught at school from the early stages
- Enhance public awareness (through media)
- Compassion as a compulsory subject taught from nursery onwards
- Green/educational/ethical PC games for children
- Connectedness and continuity
- Increased political accountability of individuals

Resources

- Reduce environmental degradation and natural resources use
- Promote ethical consumerism

Society of understanding (empathic) 1PL

Short description: Vision is about the open civil society, where we respect our differences. They are our assets which can inspire us, not threats. Different stakeholders collaborate and create efficient partnerships (e.g. NGOs with the health sector). The important element of the vision is high level of public participation – leaving out the NIMB approach and carrying for the common welfare. The legislation is pro-entrepreneurial and oriented on citizens welfare.

Long description

What are the benefits associated with vision? For whom?

- Openness towards and from others
- Peaceful social life
- Sensibility towards needs of others
- Shared responsibility
- Motivation for charity actions
- Satisfaction because of having helped somebody
- Using human potential
- Carrying for public space (environment)
- Clear communication of one's needs
- Sensibilisation for common needs (e.g. recycling, dogs pups)

What are the negative repercussions of this future? – on whom?

- A threat that somebody can take advantage of empathy of others (egoists benefitting from others)
- Huge budget needed for realisation of the vision
- Threat of overstatement, absurd of neglecting one's needs for the benefit of others
- Forgetting one's individual needs
- Threat of limiting liberties in the name of empathy

What is necessary for this future (knowledge, policies, resources, skills?)

- Education since the childhood focused on sensibilisation to other people's needs
- Provided, protected the basic necessities of life (social minimum must be available for everyone – a pre-condition to make in place the empathy)
- Creation and implementation of pro-social legislation (e.g. social clause in public tenders)
- Preventing the social discrepancies and creation of ghettos
- Supporting/enhancing awareness of belonging to local community (building the awareness basing historical elements should guarantee the sustainability of linkages and shared needs)
- Creating spaces for joint activities of local communities
- Presence (supporting the emergency) of leaders of local communities
- Creation and support for the local community "secretariat"
- Carrying for the public space as if it was my own and respecting neighbour's back yard
- Openness to new "green" technologies
- Empathy towards natural environment
- Empathy towards animals (even as a first step on a way to empathy towards people)
- Empathic functionaries of public services (trainings and good will)
- Openness to critical opinions of customers of public sector
- Overcoming the obstacles between handicapped and healthy people

- Ability to articulate one's needs and expectations towards others without aggression and hostility
- Emphatic society does not tolerated aggression in internal relations or coming from outside
- Respecting common/ public space
- Awareness of social interactions mechanisms
- Creating platforms for dialogue (infrastructure, e.g. local places of worship)
- Creating spaces for understanding/ agreements (e.g. mediations)
- New triple helix partnerships (administration responsible e.g. for education, health care; entrepreneurs and society
- Collaboration of local communities with different institutions, e.g. churches, for the development of local society
- Moving the avalanche of positive activities starting with small acts motivated by the care for well-boing of the others
- Care and interest towards other people should have its emanation in ability to show emotions
- Motivation for empathy (prize, appreciation)

The happy life. Healthy and contending life as the driver of a holistically sustainable development 5AT

Short description

Consuming, owning, climbing social ladders, or craving for recognition is not what makes us happy, but rather a healthy and contending life. We realise the world we live in as a holistic system evenly containing the good and the bad. Success means living a life in balance between the two poles and not the accumulation and exploitation of resources.

Long Description

What are the benefits of this vision? For whom?

We live a happy and contending life in a circular flow economy based on:

- self-fulfilment
- happiness
- deceleration / a pace of grace

Content citizens lower costs for the society, live healthier, and work more productive. More transparency brings with it distributive justice. Interdependencies are in focus. We do not complain but instead take action ourselves. In our economy many more people feel themselves appropriate in their jobs, are more motivated, and thus create better results at work. This all leads to a better environment/surroundings. In our society the livelihoods are improved in many ways. Changed values lead to a sustainable environment and society through market mechanisms and changed behaviour of people. Limited resources are being less exploited. This helps future generations (human capital) and the exploited resources.

What are the negative repercussions of the vision? On whom?

- It is unclear, what happiness means to the individual person and what measures need to be taken.
- Not all people can live up to the expectations of the happy and contending life.
- Yesterday's institutions and lobbies needed to be forced to give up their influence and power (consumerism and money).
- Established structures (our consumption focus in society) need lots of time to be changed.
- Short-term welfare decrease through value shift/change.

What is necessary for this future?

Knowledge:

- indicating/monitoring through science
- facilitation of self-responsibility and self-fulfilment

Policies:

- legal implementation
- education initiatives
- include ethics and moral reasoning into education and political thinking
- we have established the economy for the common good
- we have change the educational system towards the happy life vision
- we have established the happiness index

- individualised framework structures

Resources:

- socialisation processes
- education towards self-responsibility

Skills:

- perspective of the raison d'être instead of pre-cooked measures
- apprehensive education and intense focus on ethical and moral education (social behaviour).

SYSTEM RESOURCES

Cannabis utopia 3CZ

Inspired by the fear of pharmaceutical companies controlling health and social care systems

Short description:

The use of cannabis plant would become widespread across healthcare industry and all sectors of economy. Its use for medical or other purposes would be determined according to the composition and content of THC (tetrahydrocannabinol).

What are the benefits of this vision? For whom?

Economic

- Links to other industries (agriculture, health, entertainment)
- Tax revenues from retail sales of cannabis-based products
- Eliminating prohibition enforcement costs
- Generating new jobs

Environmental

- Greener cities with cannabis plantations both outdoors and indoors
- Collectively maintained eco-systems due to effective and responsible use of cannabis plants
- Stimulating the alternative energy industry to support the power intensive indoor growing of marihuana plants
- Producing paper from cannabis instead of cutting down trees thus protecting forests and wildlife inhabitants
- Cannabis plant does not attract many insects thus its cultivation does not require intensive use of pesticides
- Most hemp-derived products are renewable and biodegradable
- Clean and renewable energy source used in biomass production

Social

- Natural medication used to suppress cancer, reduce blood pressure, inhibit HIV, as a painkiller, and many more.
- Natural food ingredient – cannabis provides nutritious proteins
- Combating depression and anxiety thus improving mental state of the population
- Individual utilization of cannabis, according to personal needs
- Access to regulated and safe cannabis-based products

This vision is good for all people who want to help the environment, themselves and at least partially reduce the dependency on large pharmaceutical corporations.

What are possible negative consequences of this vision?

- Reducing profit and influence of large companies in textile, paper, petroleum, pharmaceuticals, and other industries.

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

Policies

- Formulate and adopt supporting legislation
- Support for farmers who grow cannabis
- Distribute cannabis for medical and other purposes

Knowledge and skill

- Social awareness and political will
- Behavioural change towards cannabis (i.e. recognising its benefits)
- Research into health and other socio-economic benefits of cannabis

Resources

- Establish reasonable quotas of public land and space use for cannabis production

Clean nature for a better quality of life 1BG

Protected animal and plant species (biodiversity)

Use of alternative energy sources – no energy which pollutes; using only renewable energy sources; use of hybrids and environmentally friendly vehicles.

People take care of nature

More forests, clean water sources, clean soil

Bio-food and developed bio-agriculture

Global coordinated policies between countries in the field of environment

What are the benefits associated with it? For whom?

- Healthy people, increasing the length of life
- Cleaner air
- Preventing climate change
- Species conservation, biodiversity conservation worldwide
- Less natural disasters
- Sustainable future

What are the negative repercussions of this future? For whom?

- Reduction of profits of some businesses (e.g. skiing)
- Some large corporations
- Unemployment in the short term

What is necessary for this future (knowledge, policies, resources, skills)?

- With regard to unemployment – re-qualification;
- Effective implementation of laws in the field of environment;
- Improvement of the legislative framework in terms of ecology – on national, European and global level; clear criteria for industrial production; tougher penalties for offenders;
- Subsidizing bio-production and reducing bureaucracy in the field;
- Highly developed civil society as a control mechanism for compliance with laws;
- Changes in people's thinking in terms of environmental protection (sanctions, fostering values in the family, the role of the education system);
- Establishing waste recycling plants, waste processing, composting;
- Development of new technologies for the production of biodegradable products;
- Investments and development of new technologies;
- Investing in biotechnology (e.g. food, agriculture);
- Programmes stimulating the engagement of young people in agriculture;
- Science: focused on practice; not be an end in itself; to link research institutions with industry; transfer of knowledge and shared practices;
- Encouraging corporate social responsibility and promoting environmental initiatives in the business sector and the field of NGOs.

Conflict free distributive justice 3DE

The worldwide limited resources (peak oil and water, food, education, and others) have to be made accessible, distributed and sustainably and responsibly used in a fair way.

The aim of the vision is

- to create a peaceful cooperation of mankind,
- to exchange knowledge, competences and skills in an intercultural way
- to reduce the dependence on absolute monopolies.

Side-effects: This will infect the profiteers and beneficiaries of recent producing and distribution systems and reduce their profit.

Requirements: The vision will become true with more mutual tolerance and respect, collaboration and trusting each other. Sustainable and responsible consuming as well as a recycling and circular flow economy are the framework, the ground for this vision. Pure play and financial speculations without any creation of a productive value should be forbidden. There should be a harmonized international framework for tax, law and social systems. Non-ecological subsidies should be cut; normed food, mono-culture and mass production should be reduced.

The basis is also collaboration and coming together of the different individual strengths.

Development of new technologies and improvements of the existing in harmony with nature and society 3SI

Short vision description:

To find new technologies or improvements of the existing technologies that would have as small negative impact on nature (use of the raw materials that burden the environment as little as possible) and society (environmentally oriented mind-set of the society) as possible. With the objective to reduce the use of substances which are harmful for the human being, use of renewable raw materials for reuse in the production cycle.

The objective of the vision is an ecologically oriented society which would contribute to ecologically oriented production of goods and thus lower environmental burden, climate change and increasing energy efficiency.

What are the benefits of this vision?

- Social: awareness about the real needs for technologies/products, prevention of apathy due to excessive use of technologies, awareness about prudent and needed consumerism; raising the quality of life.
- Environmental aspect: reduced environment pollution, smaller climate changes, more efficient use of energy and use of natural sources; recycling of waste (technological, household).

What are possible negative consequences of this vision?

- Inhibition of development and creativity of individuals in society due to the dominance of multinationals.
- Favouring of certain products (producers).

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

- To create a social movement that will be the driving these social changes and impact political decisions (decision-makers) and society as a whole.
- State strategy on the establishment of ecologically oriented society (e.g. raising awareness about negative consequences of the use of equipment and devices produced in contravention of the vision).
- Action plan for the implementation of this strategy:
  - Raising awareness of the population: throughout the whole educational system and the life-cycle of an individual and thus the entire society (e.g. raising awareness of adults by an add-on that turns off an electronic device, if it is being used too long; warning about excessively long usage; warning about harmfulness of excessive usage when turning on and off; interferers of the electronic devices operation, etc.).
  - Legislative changes: preparation of legal guidelines for stimulus measures for the use of ecologically produced machinery and equipment; limiting the excessive use of "negative" marketing which encourages the use of devices and equipment which do not follow the use of ecologically unobjectionable production and in addition to unnecessary products (e.g. like for tobacco products, etc.).

- Financial incentives: affordability of devices that are produced in terms of minimum burdensome impact on nature and society; promoting individual user to use the equipment and devices produced in accordance with this vision; rewarding individuals, companies and industrial entities that use/produce devices that are as energy efficient as possible (with the lowest possible power consumption); tax incentives for manufacturers to use the most ecological production.

Examples:

- Program that automatically turns on-off TV, radio, mobile phone, dishwasher - washing - drying machine when just looking at them.
- A program that a motivational inscription of a certain vision appears when e.g. turning telephone on or off.
- Virtual boards in public places and e.g. one's own home (an individual can set the desired or current vision that he/she supports).
- Reward for help in raising awareness about certain vision.
- Reward for reducing the use of e.g. electricity.
- Stimulus for agriculture within an individual company.

Distributive justice of essential resources 2AT

Short description

The just distribution of resources considered essentials of life, supplying basic needs, is a human right.

Long description

The just distribution of resources is about the access to and use of e. g. water, healthy nutrition, housing, clothing, energy, education and knowledge, mobility, health care (both physical and mental), financial minimal living standards. These resources must not be supplied by profit-oriented companies.

What are the benefits of this vision? For whom?

- no more existential fears
- securing of social freedom instead of social unrest and war(s)
- improved personal freedom of choice and personal satisfaction, e. g. through more time for family, associations, hobbies, honorary posts
- family-friendly living conditions
- facilitates personal talents and fosters innovation long-term
- reduction of environmental stress from traffic through less work related traffic. What are the negative repercussions of the vision? On whom?
- misuse of power by other hard-to-grasp reprisals
- significant changes of laws
- collapse of the known economic and social system: change may trigger fear among people/organisations currently profiting or potentially threatened by the change, e. g. fear of (individual) negative consequences. What is necessary for this future?

Knowledge: promotion of the human right to life-long distributive justice: raising awareness and responsibility to claim this human right, to point out deficits, and to participate in the development of distributive justice

Policies: allocation of subsidies along the principles of distributive justice: o no subsidies for conglomerates

Skills:

- abolition of lobbying if against the principles of distributive justice, disempowerment of profit-oriented enterprises: no speculation businesses
- democratic and professional controlling institutions, decision-makers may be recalled anytime by citizens if their actions have been against the principles of distributive justice
- destruction of current power system leads to resistance from beneficiaries and decision- makers of the current, unfair system.

Healthy living 1 PT

Short description

Advances in the health sector in terms of new medicines and treatments strongly improves the quality of live, decreases the mortality rate (i.e. infant mortality, infectious diseases, etc.).

Long description

The vision “Healthy Living” concerns to the development of the health sector, by finding advanced cures and treatments for mortal diseases, and promoting the research of new medicine techniques / treatments in order to have quality of life and in particular “end-of-life” even when one is suffering from an illness. It also addresses the decrease the infant mortality rate and the deaths by infectious diseases and plagues.

What are the benefits of the vision? For whom?

The main advantage is to improve the quality of life and guarantee the equal access to healthcare with fewer expenses. We will have more disease control and prevention, more hygiene and more healthy people, who can contribute for the society.

What are the negative repercussions of the vision? On whom?

We may face the risk of overpopulation, too elderly population, and pharmaceutical industry domination.

What will be necessary for “this” future in terms of knowledge, politics, resources, competences, etc.?

We will need an increase in the investigation field to develop innovative treatments, which will make sure that everyone has the same access to healthcare. An education system that teaches people to lead healthier lives will be necessary, for instance an education system that enhances and explain the importance of exercise and promotes better eating habits. We expect the more developed countries to help the rest of the world’s healthcare.

Sustainable agriculture 4AT

Short description

Sustainable agriculture is an agriculture using resources in such way that future generations will not face disadvantages. It secures the healthy growing and production of food for the EU's population. Other aspects are the preservation of the countryside and the improvement of animal welfare.

Long Description

What are the benefits of this vision? For whom?

Benefits for the environment:

- better soil through humus texture
- biological pest control
- enhancing bio-diversity
- climate protection
- animal welfare
- preservation of the countryside
- no groundwater contamination
- no food speculation Benefits for farmers:
- quality & uniqueness of products
- biological pest control -> less chemical products needed, therefore less harm for health
- fair equalisation of (market) competition
- more jobs
- less dependence
- alternative distribution models
- no groundwater contamination
- no food speculation
- decreased bureaucracy

Benefits for consumers:

- better soil
- quality & uniqueness of products
- fair equalisation of (market) competition -> fair pricing
- cost transparency
- less dependence on imports and industrial food products
- alternative distribution models
- preservation of the countryside
- no groundwater contamination
- no food speculation

Benefits for industry:

- adaption and specialisation on high-quality products

What are the negative repercussions of the vision? On whom?

Negative consequences for industry: sales decrease of

- chemical fertilisers
- pesticides
- antibiotics
- genetically modified plants & animals
- hybrid seeds
- patented seeds
- hormones

Negative consequences for consumers:

- supply shortfalls possible
- risk of increased prices for certain products What is necessary for this future?

Knowledge (transfer):

- kindergartens
- schools
- public relations
- families
- (internet) discussion boards
- social networks

Policies:

- framework
- decrease of bureaucracy
- revaluation of the job “farmer”
- fair equalisation of (market) competition

Resources:

- fair equalisation of (market) competition
- education
- free internet
- Skills:
    - self-responsibility (farmers, consumers)

Sustainable electronics 1DK

Short description

It is our vision that all electronics will be sustainable in the three following areas:

- Economically: For instance support for technological (sustainable) R&D
- Environmental: For instance reuse, materials, logistics
- Socially: For instance improved working conditions, improved working force

➔ This shall be implemented as a standard that producers, suppliers and sub suppliers commit to.

Long description

It is our vision that all electronics will be sustainable. For example, a producer of cell phones will be responsible for:

- Increasing and improving the working force and working conditions
- Sufficient protection when working with chemicals
- Products must be reusable, possible to repair and materials must be replaceable
- A return system must be available and applicable for both consumer and producer
- Dangerous materials must be handled with proper caution

Advantages: Minimizing the strain on ecosystems, creating a new market for sustainable development and products, increasing social responsibility and knowledge. Elimination of non-sustainable products.

Consequences: A large transition of markets leads to risk for less flexibility. It is costly.

Realisation requires: A demand for political will and regulation. A step-by-step implementation geographically and concerning products.

LOCAL NEEDS AND SUPPORT

Eco-preneurship – Sustainable business for the future 2UK

Short description

Creating sustainable small businesses to make a positive contribution to the local economy which provide a resilient low carbon economy and will engender a local circular economy.

Long description

BENEFITS:

- Small businesses in one area closed loop, interlinking
- Generating new skills and training
- New lending models (crowd funding, local investment...)
- Competition within cooperation
- Profits circulating in the local economy
- Favour low carbon operation

WE NEED:

- Long term thinking
- Linking to academic institutions for local training (new models to be developed)
- Legislation and tax reform
- Rebalancing disparity of wealth in society

The sustainable construction of buildings 3DK

Short description

The sustainable construction of buildings must be built on recyclable materials, and zero-energy houses with integration of technological solutions for the utilisation of bio-waste and wastewater with the possibility of multi-user facilities.

Long description

Advantages: Zero-energy houses – they might generate energy. Reuse of resources leads to savings of resources. Utilisation of bio-waste and waste water integrated in the construction of buildings reduces the need for transportation of waste. Common facilities and sharing/swap systems reduces the use of resources.

Consequences: Less production requires a restructuring of the economic systems.

Requirements: Technology that enables utilisation of resources in construction of buildings.

Legislation. Investment in research and development.

CHANGE FOR THE FUTURE

Assets of the planet on the school curriculum 2DK

Short description

"World Education Foundation" is the owner of or responsible for the programme (that receives support from UN, WHO, ILO etc.). All children receive at least seven years of education. To preserve the assets of the world for the future. Access to information for everybody – webpage on all languages.

Long description

Advantages: It is an advantage that knowledge creates opinions/action and provides a platform for common understanding. By investing in global education and worldwide information in the shape of a defined curriculum for school children (adapted to different levels). Accessible, uniform material on national language for EVERYONE. A positive side effect is better common understanding among people.

Consequences: The negative consequences by wanting all nations on board is that it might lead to dominance of the lowest common denominator. The danger is that the wrong actors might seek to infiltrate WEF (World Education Foundation).

Requirements: To realise the vision WEF must create a charter of rules for those who shall implement the programme and provide the education. Since the material will be provided for them, it might be received positively.

Eco credits 1UK

Short description

Establishing an ecological grading system to provide clear indication of environmental impact of products/services/buildings. This will provide a life cycle/ecological grading system that will engender an Eco tax on products that cause unfavourable environmental impacts.

For the order of implementation firstly a scoring system or point system will be developed followed by a labelling for consumers then the taxation system and finally the removal of worst offenders will be applied. The main incentivise for adoption of the system is a Circular Economy process planning via cost benefit strategies.

Long description

BENEFITS:

- Conservation
- Localisation/employment (local economy)
- Less environment damage
- Tax-funding for sustainable environmental innovation

NEGATIVES:

- Business resentment
- Consumer cost (perceived)

WE NEED:

- EU tax
- Uniformed scoring system

Education - a path to spiritual and sustainable future 3BG

Short description

Education in the future is considered a value for all people and representatives of various social and ethnic groups. It is a prerequisite for the full development and realization of the economic, political and social life, and is also the main priority in government policy. Education is accessible and free for all from a very early age.

Education system includes beautiful, bright, spacious, colorful, clean buildings and gardens, technologically advanced equipment, various sports facilities, allowing the development of comprehensive interests. Teaching and learning by doing are equally supported and resalised, including through interactive forms, games, etc. Teachers are competent and motivated with vocation and love for the profession, respected and well rewarded by society. At the same time, the education system is based on the balance between theory and practice, and includes a variety of specialties responding to the needs of society, allowing for deployment of human potential and fulfillment in life. Curricula are tailored to the biological development of human beings, the peculiarities of the age and maturity. The arts and the relationship to nature are heavily represented. Objectives include to build spirituality, values, abilities and attitudes that promote social responsibility and concern for others and for the future. Citizens have an attitude for lifelong learning.

What are the benefits associated with it? For whom?

- Spiritually developed and highly educated society, united by moral values.
- Utilization of the economic potential for increasing GDP, integration of minority groups in political, social and economic life.
- Everyone is useful for himself/herself and for all in a cohesive society.
- Understanding and acceptance of differences.
- Creating a spirit of cooperation – “you AND me”.
- Nurturing reasonable and responsible consumption of scarce resources with a thought for the future generations.
- Creating innovations with a thought of the effects of their use.
- Developing skills related to extracting knowledge from information and to making decisions.

What are the negative repercussions of this future? For whom?

Limiting the possibility for manipulation by businesses and politicians.

What is necessary for this future (knowledge, policies, resources, skills)?

- Changes in the legal system.
- Funding.
- Change in public attitude towards education, educated people and those who are different.
- Respect for teachers and the whole educational community.
- Knowing and respecting the laws of nature.

Education=aware citizen=aware society=sustainability 4PL

Short description: Our vision presents civil society where EDUCATION plays the main role. Educated society is aware of the consequences of own activities. Given a broad knowledge the society is ready to elaborate the optimal sustainability plan/strategy. This vision is a search for a "golden measure" - equilibrating quality of life and exploitation of resources.

Long description

What are the benefits associated with vision?

- Increased awareness
- Mobilisation for taking action
- Change of attitudes
- Know-how regarding procedures for taking activities
- Social integration
- Technological development – progress
- Strengthened family relations
- Less manipulation among people
- Solidification of tradition through coming back to roots
- Reintroduction of forgotten traditions
- Reasonable economy management
- Improvement of cost-quality relation
- Environment protection
- Improvement of life quality
- Improved tidiness
- Large scale cooperation
- Openness to other opinions
- Improvement of health
- Reduction of social disparities

For whom?

- Family
- Minorities
- Children
- Elderly people
- Animals
- Eco-industry
- Local communities
- Teachers

What are the negative repercussions of this future? – on whom?

- Our destiny will be saving/economising
- Decline of the industry sector
- Polarisation of opinions
- Ecological fanaticism
- Individuals perceive lowering quality of life
- Technology development can bring unpredictable and undesirable outcomes
- Decomposition of family

- Education fanaticism, loose of freedom, rigid schemes
- Social conflicts in the process of implementing vision
- Necessity to up-date/ change the qualifications of staff in education sector
- Violation of tradition, culture
- Weaker position of the country which applies such a system in front of more aggressive countries
- Inflation

For whom?

- Family
- People earning on unsustainable development
- Political parties
- Redundant
- Teachers

What is necessary for this future (knowledge, policies, resources, skills?)

- Social organisations being carrier for social change – change must be bottom-up
- Motivation to learn
- Smooth information flow
- Openness for change
- Politicians must know the causes and consequences of their decisions
- The right people on the right places (positions) – experts
- People must think in cause and consequence categories
- Capability to work with other people
- Change in the way of thinking to long term thinking
- Novel vision of schools – discussion on what is it for and why children should learn
- Transparency of politicians' activities
- Maintaining of political pluralism
- Knowledge on the successive stages of learning
- Knowledge on specific groups needs
- Capability to discover resources to meet the needs
- Communication suitable to customers
- Revolution or step-by-step changes

EUCRES - EU collaboration for recycle systems 4DK

Short description

EU's internal recycling market secures that all (waste) resources is optimally integrated in new production without loss of finite resources.

Long description

Advantages: By recycling our finite resources we will increasingly be able to sustain our current lifestyle for the future. The collaboration will make it profitable to recycle. It will create jobs and new markets.

Challenges: Requirements for products will inhibit the free market and create problems in relation to export.

Requirements: A political collaboration must secure:

- The quality of the output from recycling through certification of raw materials
- Requirements for product design so it is easier to separate and recycle
- There must be sorting systems that are simple and accessible for consumers and industry. The systems must secure uniform sorting-standards in the whole of EU (implementation shall be adapted to cultural differences).
- Development of technology: Technology that improves the percentage of recycled materials and the quality. Technology for better sorting/separation shall make it cheaper to recycle than to produce new things.
- There must be a system in place in relation to collection, sorting, transportation and the destination of the sorted materials in order to obtain the biggest possible rate of recycling.

New ways for sustainable education 1DE

Aim of the vision is to create frameworks and possibilities for lifelong sustainable education and learning combined with knowledge management on European and international scale.

One opportunity to fulfill this aim is to transfer and integrate education modules for sustainability into the formal education system (from projects to systems), becoming compulsory educational objectives. The mandatory adoption as a school subject in courses and curriculum, coordinated at all levels and educational institutions, should follow. Schools, universities and other educational institutions should not be exclusively stationary educational units but rather combine different "media routes" or channels like virtual class rooms, blended learning, coaching and lectures so that the knowledge transfer occurs parallel through various cannels.

Besides the transfer of the basics and competences for learning designs practical approaches and other creativity supporting measures (like urban gardening, repair cafes, etc.) will be integrated in the education curriculum to fulfill the aim of integral learning. Family centers, parent schools and community centers should be established to ensure lifelong sustainable learning for all ages and to facilitate exchange throughout educational institutions. To simplify the communication at European and global level a systematic multilingual education should be established.

The parents should be integrated in educational process of their children through binding "contracts for parents". Also companies should be aware of their responsibilities to take over sustainable education in (further) vocational education and training.

Requirements: An adequate governmental framework should be established which integrates experts and citizens to define aims and elements in sustainable education. The education of trainers, teachers and coaches should be reformed. An exchange on European and international scale (worldwide learning) should be guaranteed through committees for the coordination of sustainable education.

Side-effects and risks: The power of interpretation by politics (of political parties) in forms of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder (regional governments) could be a threat in case of extensive influence of the educational officers and representatives of the parents.

Conclusion: Sustainable education is accepted and implemented as a welfare-oriented element.

Think coloured 1IT

Short description

This vision represents a world more open towards different ideas and towards sustainability.

Long description

A place where anyone can feel free to express themselves and engage with different ideas. To get in touch with yourself and to remember that the rights and freedom we enjoy today are the result of years of suffering, mistakes but also commitment of the brave ones who aspired to be the change that you wish to see in the world (eg. Gandhi, the Resistance, the "Masters"). A place were personality shall be brought up and that personality shall "colour" the present and improve the future through the choices made that are ensuring environmental, economic and social sustainability.

What are the benefits of the vision? For whom?

- Creation of space allowing confrontation that values the diversity of approaches and diversity in terms of points of view;
- Revision of political and social models that govern the civil coexistence;
- Reduction of discriminatory phenomena and feeling of insecurity / threat;
- Diversity among people as complementary element and not a threat or a fear.

What are the negative repercussions of the vision? On whom?

- Risk of relativism or subjectivism of the absolute;
- Difficulty of defining the limits and boundaries of the individual freedom.

What is necessary for this future? (knowledge, policies, resources, skills etc.)?

- Create spaces for a process of listening that is "bottom up" oriented;
- Revision of the education system and strengthening of training activities that aim at developing of the civil skills;
- Formulate values that are not exclusive only to some of the European Member States and that the preconditions for accepting the candidatures of New Member States are transparent to all.

Vision of quality 3FI

Short description

All activities are of high quality. Consumers should actively demand quality and buy quality goods and services or not buy at all. In response, retailing should offer quality products. High quality offerings would encourage to reduce unnecessary consumption, be more environmentally friendly and a more economical choice in the long run. Committing to quality can be difficult for consumers and retailing alike as it would transform consuming practices. Independent testing, reporting of its results and sanctions encourage to sell and buy quality.

Long description

All activities are of high quality. Consumers should actively demand quality and buy quality goods and services or not buy at all. In response, retailing should offer quality products. High quality offerings would encourage to reduce unnecessary consumption, be more environmentally friendly and a more economical choice in the long run.

For the most part of high-quality products, consumers can afford to wait for their price reductions or make second hand purchases. Higher quality requirements would mean that it would be easier for stores to sell both new and second hand products, which in turn would require guaranteeing the reliability of product information.

The importance of quality is highlighted at the individual level, enhancing positive values such as satisfaction and well-being.

Committing to quality can be difficult for consumers and retailing alike as it would transform consuming practices. High-quality products cost more, which reduces the demand and sales of new products, which in turn is apt to slow down economic growth. When buying products of high quality, there is less money to be spent on other purchases and one then has to buy of lesser quality or simply less.

Quality products are not willingly thrown away, so things pile up which inhibits recycling. The piling up of quality products is still a better thing than the building up of trash, because quality products can better be designed for recycling, reuse and serviceability.

Quality would be improved as a result of product development. Product development must aim for better quality, of which renewable and updatable parts make a criteria. Independent testing, reporting of its results and sanctions encourage to sell and buy quality. Regulation is needed to support development and maintainance of high quality on the European markets.

As the life cycles of products become longer, the markets for second hand products grow. Demand for spare parts and maintenance services also increases, although prices for maintenance services should be lowered through taxation, for instance. It is important to pursue activities of high quality also on service markets and not just on markets for goods.

VALUES AND POLITICS

1⁄2 day labour 1AT

Short description

Standardised work hours/labour time will be 4 hours per day or 20 hours per week on average, depending type of labour and person.

Any other work/labour regulations etc. remain as they are today.

By avoiding harmful work/labour we as a society gain lots of potential for worthwhile work/labour. More than 70 % of the earlier work/labour time was not to the benefit of the society.

Long description

What are the benefits of this vision? For whom?

- more life time for personally fulfilling activities, more time for self-fulfilment
- stronger family ties
- people have more time to be politically active
- better psychological/mental and physical health
- better working morale
- more efficient work through more intense arrangement
- more meaningful work, because it is less harming

What are the negative repercussions of the vision? On whom?

- companies leave Europe
- business plan needed (this may cost)
- potentially more organisation needed (co-ordination, enrolment, etc.)
- less social interaction in day-work context What is necessary for this future?

Politics:

- general acknowledgment and understanding of the vision and why it is so urgent/important
- laws and regulation for the new working situation: e. g. maximum work time (so people do not work double the time to earn double the money)
- a plan to interest companies in the regulations change to avoid a corporate run (increased productivity = decreased labour costs, economics of ALL companies change by the same proportions, change of prices along customer needs)

Resources (a rough estimation):

Presupposition: at an employment rate of 20% and an increased productivity by 20% and parallel reduction of weekly labour time to 20 hours around 44% of workplaces will be missing.

1. We can either decrease the input by a) technological innovation, b) methodological innovation (co-operation and joint resource use of all companies in an administrative district)
2. Or we can increase the output by a) increasing sales quantity (new customers or new markets), b) specialisation (missing workplaces can be covered by work programmes to ensure EU-wide full employment across all member states)

Another possibility is to reduce workplaces to just the needed, not harmful, and purposeful ones insofar needed to cover all needed labour.

Skills: We need the general understanding that a 4-hour work day is a lot more pleasant and long-term more productive and pleasing than an 8-hour work day. Regardless of how much virtual capital is being produced by senseless labour.

Active civil society for sustainable development 4BG

Short description:

Sustainable development is a product of an efficient society. Society focuses on the universal and essential. There is considerable emphasis on civic education, which must pursue results rather than norms. In order to foster the development of civil society, independent thinking is taught through interactive teaching methods. It is in the school where learning about environment and natural way of living is fostered. Increasing the role of "non-teachers" who are the main driver in civic education. During the learning process, students participate in extracurricular courses (according to their interests) which are managed by NGOs.

Effective forms of civil control over the government and parliament activities are gradually introduced. Sustainability is based on continuity in the transmission of knowledge between generations. Decision making is based on citizen consultation, starting from the local level, and is subsequently developed and introduced as bills in parliament. This happens most effectively through online/ technology platforms. The state allocates responsibilities to NGOs, thus sharing responsibility and making its administration more effective. Young people participate in civic processes by various methods, particularly regarding the environment.

What are the benefits associated with it? For whom?

- Mannered and educated young generation that is active and informed
- Increasing public confidence in the institutions - would contribute to more effective public participation
- Bulgaria will be more attractive for talented, knowledgeable and active young people
- A policy that meets much more the true interests of citizens
- Tolerance for diversity

What are the negative repercussions of this future? For whom?

- Risk of concentration of power in a particular area – lobbying
- More difficult decision-making
- Impossibility for people who prefer not to participate, to take advantage of the existing opportunities
- Difficulties in institutional adaptation

What is necessary for this future (knowledge, policies, resources, skills)?

- Presence of political will for a change
- Immediate change in the education system
- Specialist experts are demanded
- Enthusiastic and capable human resources
- Access to information
- Access to financial resources

Beauty will save the world 2IT

Short description

The assumption is that the beauty is not just an aesthetic element, but a universal value that applies to every human being. The assumption is that the beauty is an essence and the emotional demonstration of the highest human values; or in other words, what is ethic is aesthetic. The assumption is that beautiful cities generate beautiful people. The each action is having an impact on the territory the actions was taken. Human beings are responsible as both, individuals and as a group obliged to safeguard the resources used, taking into account the social, economic and environmental consequences that apply. Beauty is a need for all human beings.

Long description

What are the benefits of the vision? For whom?

In view of a sustainable development, the assumption is that the anthropological value of a single person looked from the perspective of an element chained into a complex system (urban-natural-cultural) is to be safeguard.

What are the negative repercussions of the vision? On whom?

The beauty shall never come to a risk of reaching an end in itself: beauty needs to be preserved and nurtured by all human beings, always in a role of a keeper but never as owner.

What is necessary for this future? (knowledge, policies, resources, skills etc.)?

Each person has the right to be educated about beauty, its universal values. The assumption is that the economic resources have to be safeguarded in terms of the allocation of funds, by eliminating all the intermediary organization coming in between the beneficiaries and providers.

To position the advanced technologies against the empowerment, towards the recovery of the environmental resources.

Global solidarity based on volunteering, technological development and regulated distribution of resources 2BG

Short description

Solidarity is a "super good" - commitment of many countries wishing to improve living standards. The richer and more advanced to assist the poorer and needy. Unity in setting common goals and in addressing common global problems. Volunteering develops to high levels - desire and free choice to carry and support activities for the common good, without financial incentives. Mutual assistance will be commonplace - we will not be indifferent to problems that do not influence us directly and we will be ready to help.

In the economy, it is mostly small business that are being stimulated in order to develop entrepreneurship. Responsible business and economic actors proliferate, and are committed to global development. At the same time, the importance of the financial resource for global development is being reduced at the expense of other resources – human, natural and technical, so that it is not money that is above all, but people (including nature) and their values instead.

Global mobility is a reality - groups of people from all countries visit freely the current conflict zones (such as Iran, Iraq, Afghanistan), work there, boost their personal development. Treatment to many diseases is available and people are coping with them.

There is a serious boost in the development of technology (such as 3D and 4D printers) and innovations.

What are the benefits associated with it? For whom?

- Equality between people around the world – global society.
- Quality and length of life will increase, while mortality will decrease.
- Access to food and various other goods will make people less prone to conflicts. In other words, security will increase, conflicts and terrorism will be reduced, etc.
- Efficient use and allocation of resources is a key factor with both economic and environmental benefits.

What are the negative repercussions of this future? For whom?

- The risks are that certain richer and educated societies such as the US and EU will conquer territories and exploit resources at the expense of local populations. Subsequently the population will be also exploited.
- Manipulation of the ignorant and the less educated.
- Green washing and false campaigns.
- Issues and imbalances with birth rates – over birth rate in Asia and low birth rate in the EU.

What is necessary for this future (knowledge, policies, resources, skills)?

We defy the assumption that currently resources are scarce and we are all competing for food, water, energy, money, etc.:

- Human resources – education and access to information should be developed.
- Natural resources – water, oil, air – more technologies for the efficient use of these resources to be developed. For example, to process salt water from the sea and use it for irrigation of agricultural areas.
- Innovations are not only technological, but social. New models of learning, working and spending free time will be invented/developed.

Regulation of certain sectors or resources – resources to be used and disseminated to the population not only on market principles, but also on solidarity principles.

UN and other international organizations to be more active in making policies and to have principles for following these policies. To have more incentives for individual countries to participate in the formulation of these policies.

More effective systems for education and development of key skills should be developed – based on volunteering.

The exploitation of resources (such as deposits of precious metals, oil, diamonds) should be regulated globally – rules of reinvesting a certain % of the profit generated through the sale of these resources in the respective country to be introduced. Thus, to focus on the regional development – training and development of the population, healthcare, etc.

Society of potential capacities 3AT

Short description

Empowering people to enable self-responsibility and fostering their potential capacities for a participation in society built upon one's own initiative.

Long Description

What are the benefits of this vision? For whom?

- The emancipation/self-empowerment of people strengthens their responsibility towards society. This includes increased motivation for important tasks. The promotion of one-self and one-selves potentials is important.
- Through the strengthening of self-esteem individuals dare to live up to their potentials and to claim their rights.
- Interdependencies face more just agreements because people can now deal at eye-level.
- Unattractive jobs will be paid better.

What are the negative repercussions of the vision? On whom?

- The economic sectors has no more submissive servants at hand.
- The elites/better-off/upper class loses its hegemony.

What is necessary for this future?

- An empowerment of to date un-powered people. The abolishment of class-specific devaluation/depreciation of labour/work important for the community/society.

Knowledge:

- availability of good, free methods for analysis of competencies
- no more information deficits, e. g. in the case of human rights

Policies:

- a change of the educational system by fostering talents and strengths opportunities to find one owns potentials
- open schooling system (no classes in primary schools)

Resources: socio-economic security (e. g. basic income)

Sustainable living environment, sustainable values 4FI

Short description

Large part of people supports sustainable development, but cannot always realise it in practise. The political view of continuous economic growth created by business, excessive consumption, over emphasising the ideology of competitiveness and the crumbling of the sense of community in society is preventing the realisation of sustainable development. All people should be guaranteed a possibility to have sustainable environment and lifestyle. The change requires the shift in attitudes that can be supported by education.

Long description

A better quality of water and air benefits all people. The sustainable development on earth simply requires more sustainable lifestyles than the current ones. Large part of people supports sustainable development, but cannot always realise it in practise. The political view of continuous economic growth created by business, excessive consumption, over emphasising the ideology of competitiveness and the crumbling of the sense of community in society is preventing the realisation of sustainable development. All people should be guaranteed a possibility to have sustainable environment and lifestyle. The change requires the shift in attitudes that can be supported by education.

Ecological innovations:

- Streets can no longer be light through the night. Ecological innovations are required, for example street lighting that function with motion detectors.
- Earth heat should be utilised more efficiently.
- A more efficient utilisation and development of solar energy.
- Regulation of water, for example drinking water would not be used to flushing the toilet.
- The showers would go out automatically in swimming pools, in public saunas and in sauna's of housing associations.
- Water meters would be obligatory in new apartments.
- Waste management would be organised with pipes, there would be pipes from houses into centralised waste facilities.
- Public transport would be supported, the vehicles of public transport would have a traffic light and lane advantage, pricing should be competitive.
- Motorways should have a use charge (month-, kilometre- and work-related-use –pricing).
- There should be bee nests, trees, branches, small gardens etc. in the cities.

Regulation should reach all activities, for example in building electricity lines and water pipes should be easily reparable without the whole house to need renovation simultaneously (cable and pipe channels).

The benefits emerging from this vision is a better quality of life and an improved mental wellbeing of people. A confortable, safe and beautiful living environment supports the growth and wellbeing of children, families and communities. There are possibilities for hobbies (such as children's hobby clubs in schools) and activities that increase comfort.

A problem in the realisation of the vision is that it does not necessarily support economic growth. A barrier in the realisation could also be the giving up of material values and wellbeing. The vision can also be seen as treating all people too much alike regardless of situation.

The vision could be brought forth for example with the following means: the wasting of raw materials and energy should be more regulated (laws, acts, taxation, control, sanctioning, incentives). The companies offering sustainable solutions should be supported through e.g. tax redemptions or grants. The society must support new innovation, that target energy saving and its efficient use. For example, if there is no well-functioning regulation in construction, the companies can decide what kinds of buildings will be built.

Value education: we should be get rid of the ideology of competition and the values of materialism and voraciousness. The basis of value education is laid at home. Also in schools children should be taught the way, how to treat other people. Justice should be valued and bullying in schools should be stopped. Responsibility should also be increased – what should one do that people would take care of their lives without the social workers needing to interfere. Why do we need life style coaching for our everyday life?

Production logic: the politicians are the prisoners of business life. The production logic is emphasising new and change instead of quality and recycling. The necessary competition forces one to choose the cheapest option, which can be more expensive if the quality is bad.

Union of the earth – World without the borders 2PL

A short description

- Abolishment of borders and barriers between states and nations
- World without the borders
- Common economic policy
- Unity in diversity and tolerance
- Smart ecology and wise use of resources
- Policy of small steps

A long description

What are the benefits associated with it?

- Equal opportunities (standard of living) - sustainable economic development
- Reasonable with long term perspective use of resources– ecology
- Life without wars
- Feeling of safety, justice, joy of life, fulfilment
- Assurances of better future for us and next generations

For whom?

For us and future generations

What are the negative repercussions of this future?

- Adaptive problems In the beginning
- Different levels of readiness to consolidation
- Own benefit searching
- Wrong understanding of the idea (including other cultures and religions – Lack of tolerance)
- Protest against lost of power and domination

For whom?

For all who are tolerant , willing to compromise and ready for consolidation

What is necessary for this future (knowledge, policies, resources, skills?)

- Proper school and home education focused on tolerance, understanding of other people and cooperation,
- Human capital (individual and social)
- Selfishness elimination
- Long term thinking
- Step by step vision implementation

LIVING AND SPACES

From physical activity to electricity 1CZ

Inspired by hope of better quality, healthier and active lifestyle + fear of resource scarcity

Short description:

In the future people will be much more physically active, which will result in higher physical and psychological resistance. Additionally, the kinetic energy generated by people would be harnessed and used for electricity production, thus becoming the next generation of renewable energy source.

What are the benefits of this vision? For whom?

Economic

- Energy savings through people's efforts to support energy production
- Captured energy can be fed back to national grid, traded (sold or exchanged) or used for individual needs to generate financial benefits
- Emergence of novel green technologies to capture energy from human activity
- Revitalization of agriculture thanks to widespread promotion of healthy diets for a more physically active population
- Increasing country's energy self-sufficiency and resource efficiency

Environmental

- Saving scarce non-renewable energy resources
- Supporting government in reaching CO2 emission targets

Social

- Physical and psychological endurance – increasing the happiness index of the population
- Strong socio-cultural incentives to become physically active
- Group activities would result in more energy being produced while improving the social life of the population
- Tackling obesity and chronic diseases

What are possible negative consequences of this vision?

- Overpopulation – people will live healthier for longer; decrease in death toll
- Loss of profits for pharmaceutical industries
- Low number of medical visits/appointments (unemployment of health practitioners)
- Less focus on educational/intellectual and cultural activities (reading, theatre, exhibitions, etc.)
- People devoted mainly to sport activities

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

Policies

- Develop public and community sport clubs; equivalent to Czech TJ Sokol
- Orient government investments and subsidies towards the development and deployment of relevant infrastructure (e.g. interconnecting sport facilities into an integrated power grid)
- Promote incentives from gyms and sport clubs – e.g. collecting credits per watt of energy produced and paying your subscription with the credits or selling it to national grid, etc.

Knowledge and skills

- Increased awareness of the health benefits of physical activities (through advertisements, 24/7
- TV channels/series, etc.)
- Nurturing and encouraging sport and physical activities in schools (from early childhood)

Resources

- Fund research and technology development on kinetic and vibration power generation
- Invest on innovative technologies and devices that support harnessing of kinetic energy

More green in the city 2BE

Short description

More green in the city. More green in the city enables a **livable and harmonious society**. Moreover, it brings citizens closer together.

Long description

The largest part of our population lives in cities or urban areas. Current cities are characterized by too much concrete, which negatively impacts the **wellbeing** of citizens and the **gross local happiness**. More green in the city that is visible and accessible for all citizens improves the quality of life in the city in multiple ways:

- More **open and public spaces** accessible for all citizens. **Parks** and **fallow land** are utilized by citizens. The city administration is responsible to make an inventory of all fallow land and investigates through a **participatory method** that involves all citizens the ideal new (green) function for every piece of fallow land.
- More **trees** and other **plantation and vegetation** that is **nearby and accessible** for every citizen
- Green **roofs**
- More green in the **streets**
  - Pleasant and green house fronts with climbing plants, other plants or painted house fronts
  - Smaller streets with less motorized vehicles so that there is space for front gardens. Citizens are encouraged to take care of their front garden by a competition organized by the city administration.
- **Water**: the 'Dijle' is visible and accessible for citizens through promenades. Citizens can enjoy the water in the city.
- Less road transport in the city center to decrease greenhouse gas (GHG) emissions and **air pollution.**

What are the benefits associated with the vision?

More green in the city has many advantages. The most important advantage is that multiple green **meeting places** that are nearby and accessible to all citizens boost the **community spirit**. The city will also become more attractive and therefore boost **tourism**. A third important benefit is the creation of **local employment** because local citizens design, build and maintain the green public places.

What are the negative repercussions of this vision?

Besides advantages, more green in the city also has a number of disadvantages. The first disadvantage is the possibility of **freeriding**. Second, storms can **damage** trees and houses. An ex ante investigation will shed light on where it is recommended to plant trees and where it is recommended to plant lower vegetation. Third, if citizens will not be held responsible to purchase, cultivate and maintain the green public spaces, the city administration needs to provide a **budget and resources**.

What is necessary for this future?

- **Behavior**: the mentality of citizens has changed. Citizens attach importance to the green open and public spaces and respect common goods. This aspect becomes an important element in children's **education**. Besides respecting and valuing green open and public spaces.
- **Knowledge**: citizens know how to maintain nature.

Network for a world as home 4IT

Short description

The aim of this vision if to create a network that can create connections among citizens. This network can be composed of organizations and informal groups already active in the promotion of low energy consumption, circular economy, ethical purchase and other groups active in the field of sustainability.

The benefit of this network is to foster the exchange of competences among groups, creating a system of mutual aid where each group can be supported and complementary to the other. Sustainability has to be included in the organization values and daily activities. This is why inside the network there will be a system for sharing goods and tools.

The network has an inclusive approach, especially towards newcomers, both groups and individuals. They have to feel the network and at a later stage, in general, the environment as their own. The network has to be open and resilient.

Long description

What are the benefits of the vision? For whom?

The benefit of this vision is that supports the mutual aid among citizens. The mission of the network is the optimization of resources through the daily job activities. This approach shall generate the economic as well as pollution saving. The sharing of knowledge is the most important outcome of the network and allows starting of the new experience, improving the one already in place and building the brand new one. In addition, the network will help to reduce the risk of social marginality, to promote the respect to the territory and to put pressure on politicians and administrators.

What are the negative repercussions of the vision? On whom?

The risk of this network is the threat of misinterpreting the objectives due to the lack of availability of the members and the institutions involved to invest in a long-term perspective. The results of such a project are not immediate, and this can be a problem when funding is in question.

What is necessary for this future? (knowledge, policies, resources, skills etc)?

In order to implement such a network, it is needed to have a change of the cultural vision towards nature and environment in general, as well as towards the cooperation among citizens and associations.

It is needed to have facilitators or community builders (already available or to be trained) that can support, simplify and speed the building of such a network. Finally yet importantly, it is needed to have technological as well as societal tools to share and to spread the knowledge.

Optimal living together in the city and surrounding areas 1 BE

Short description:

The vision 'optimal living together in the city and surrounding areas' puts emphasis on people and the physical setting of people.

Long description:

What are the benefits associated with the vision?

The vision contains a number of **components** that when combined and realized result in ideally living together. The citizens of the city and surrounded areas benefit from:

- Renovated houses, energy-saving houses, social housing projects, low and high-rise buildings
- Education system in which all schools located in Leuven participate bases upon the principle
- of education for everyone and lifelong learning
- Investments in the local middle class
- Investments in local agriculture
- Efficient and affordable healthcare system
- Production and sale of goods and services for and by the local level
- Public spaces, parks, community gardens, community farms
- Efficient mobility (less cars where possible)

All these components result in a society with a good quality of life, where there is room and space for both young and old citizens and diversity from all kinds. The benefits are self-evident and for all citizens that live in the city and its surrounding areas.

The most important results or consequences of optimal living together are **self-development** and **commonality**. Citizens are able to **develop their own personalities** through acceptance by other citizens of the city and its surrounding areas. Citizens are stimulated to be **creative**. **Experiments** are not prohibited or discouraged ex ante but allowed and evaluated ex post. Citizens are allowed to do what they like to do – carry out activities based **upon their capabilities and interests** – and practice it **locally**. Production and sales are held locally after an investigation of what the city really needs. Creative experiments carried out by the citizens based upon their capabilities and interests in a city and surrounding areas where production and distribution is held locally have a positive effect on the environment and the people living in the city and surrounding areas.

What is necessary for this future?

The members of our group do not share the same opinion about what is necessary to realize the vision. We did not come to a consensus. In the following paragraphs we therefore talk about two sub- visions when it comes to requirements or conditions for this vision. In the first sub-vision much emphasis is put on money and financial means. Citizens need to be encouraged to work more conform to people's own capacities. To encourage people **to work**, the unemployment allowances decreases. In the second sub-vision good practices like citizen budgets, community budgets, Rescoop (an initiative launched by the Federation of groups and cooperatives for renewable energy), Landgenoten (a cooperative that purchases land that is rent to bio-farmers), community land trust and local money are scaled up. To ensure those **good practices become more widespread**, regulation and laws are adapted. Currently, regulation and laws hinder the possibility to upscale those good practices. **Adjusted regulation** facilitates initiators of new ideas and innovations. With the help of, for example, multi-stakeholder-cooperatives that attract (**not bank related) money**, citizens' initiatives that improve the well-being of citizens or that tackle climate change are enabled. By enabling the **upscaling of citizens' initiatives**, **complementary systems** are established next to

market-driven systems. Such non market-driven systems remove valuable goods like nature, farmland and knowledge among others, from the market system to ensure the **value benefits the community** instead of businesses or individuals. That way, the community both pays for and benefits from the value.

Supporter of body and mind [IPHA – intelligent personal health adviser] 1SI

Short vision description:

Emphasising the importance of physical activity is not a sufficient motivation therefore we are considering the systematic introduction of exercise to the working environments (based on educational institutions).

We will form a "virtual personal trainer" that will be installed on nearly all electronic devices. It will look like a virtual 3D window that will appear in front of you. It will be accessible everywhere; it will be interactive and very intelligent (possibility of a conversation on a personal level). It will adjust the exercise and the menu according to the needs and abilities of an individual. The former will be connected with the health system.

It can be used in any room; an individual can choose individual or group exercise. In case of a group exercise, every individual can be in the chosen room where also other group members will appear virtually. They even can talk to one another.

The virtual personal trainer is in a "cloud" and thus not bound to a single device.

What are the benefits of this vision?

- Good psychophysical fitness, health improvement.
- Increased working efficiency over time.
- The virtual trainer system can be adapted to the psychophysical state and needs of an individual.
- The personal trainer system is connected with the health system: the more you exercise more health system benefits you get (free health services, spa, rehabilitation etc.).
- Furthermore, the virtual trainer is introduced to the business environment system and becomes the system part of working tasks. Every employee who exercises is rewarded (finance, length of leave etc.) by the organization.

What are possible negative consequences of this vision?

- In group exercise, the personal contact is not necessarily present (mostly).
- The lack of other sport activities.
- Emotional numbness.

What is required for achieving this future? (knowledge, policies, resources, skills, etc.)

- Clearly defined system.
- Integration of social, environmental and economic systems.
- The present knowledge about technology already enables the development of this system.

Connection with environment:

- Reduction of environmental pollution due to the reduced usage of means of transport.
- Energy generated by physical activity can be converted to (electrical) energy by sensors; thus the energy is recycled reduced consumption.
- Besides, in case of illness it will direct the individual to natural environment corresponding to the type of illness: e.g. in case of gingivitis it will recommend the individual to go picking sage. In the case of psychological tensions, respiratory diseases... it will recommend visiting the seaside thus the expenses for health services and consequently the pharmaceutical industry pollution will be reduced.
- Due to the increased psychophysical fitness, the individuals will use less medicine which would be discharged into the environment and further affect animals.

Example: an individual with hormonal disorders excretes the substances which are in hormonal pills by excretion (urine). Through the water flow, these substances are discharged into the sea and affect fish reproduction.

URBAN LIFE

Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational spaces 4UK

Short description

The project prioritises the creation of an integrated green transport environment that actively supports a reduction in vehicle carbon emissions and increases the provision of open spaces.

Long description

BENEFITS

- An integrated network of green transport corridors would provide an alternative to fossil fuelled transport which would promote exercise and healthy lifestyles whilst reducing carbon emissions.
- The corridors could produce visually attractive environments which could support biodiversity and recreational areas.

NEGATIVES

- It is perceived that green transportation does not have a sufficiently high priority in the design of housing and industrial development.
- Where they are created, green corridors and cycle routes do not always integrate and this reduces their effectiveness as transport networks.

NEEDS

- Where necessary the corridors could be supplemented by electric or fuel cell trams to support the walking and cycle ways.
- The network would connect adjacent settlements and towns; corridors could be used to link the green spaces within urban spaces.
- The proposal is essential to provide a sustainable alternative for local transport reducing our dependency on fossil fuelled vehicles and dramatically easing congestion.

The city my home / home in the city 3BE

Short description

The city belongs to the citizens. The city is a **unity of multiple villages**. All necessary functions are nearby and within reach for all citizens. Consequently, the environment is impacted to a minimum extent.

Long description

The city expands: more and more people come from the country side to the city to live in the city. Accordingly, the area of the city provides the increasing number of citizens with their (basic) needs. In order to do so, the city is **nearby** and **accessible** for all citizens.

With regards to **nearness**, the city contains a number of villages. The metaphor of villages in a city implies that the following **functions and services** are only 15 minutes away from citizens' houses via the use of sustainable transport:

- Shops: bakery, butcher, vegetable and fruit stall
- Elementary school
- Doctor
- Park
- Bar
- Neighborhood center
- Municipal services
- Intersection of public transport

With regard to **accessibility**, the city contains a number of city functions. The following **functions and services** are only 1 hour away from citizens' houses via the use of sustainable public transport:

- Work
- Hospital
- Secondary school and higher education
- Shopping
- Specialized services
- Cultural activities
- HoReCa
- Sports infrastructure and competition
- Graveyard
- Assisted care centres

What are the benefits associated with the vision?

The closeness and accessibility of all those functions and services has a number of advantages. First, the **distance** to all services decreases. Second and consequently, the use of fossil fuels and other types of **energy for transport** decreases. Third, **ribbon development** is avoided and stopped. Fourth, **living together** is stimulated. Fifth, **more green** in the city. Six, **local** economic activities are stimulated. Seven, social **cohesiveness** is strengthened.

What are the negative repercussions of this vision?

Besides advantages, the closeness and accessibility of all those functions and services also has a number of disadvantages or consequences. First, it is very difficult to change **spatial planning** from one day to another. The functions and services mentioned above are not so easy transferable to other locations due to the path dependency of current spatial planning. Especially with regard to transform a city center into a

village is difficult because of that reason. Creating villages around the city is therefore more feasible. Second, **money and other resources** are needed.

What is necessary for this future?

We identified five important elements that are need for our vision. The first element is **room for experiments**. Unoccupied buildings, such as the space above shops in the city center, could provide the room necessary for experiments. **Effective public transport** is the second element. The third element relates to the importance of a **leader** (the mayor). The leader is inspiring, enthusiast and convincing, someone who facilitates and supports the policy. Fourth, city villages take up city functions, functions cannot be concentrated out of the city. Fifth, **public support** among citizens and policy-makers is the final important element.

Urban farm 4BE

Short description

The urban farm(s) bring people together to do organic farming. Inhabitants and students of the city, all are welcome to cooperate in the urban farm(s).

Long description

What are the benefits associated with the vision?

In and around the city students, children and inhabitants of the city come together in public urban farms to **farm organic products** in order to fulfil their own needs of vegetables and fruits. Besides farming organic vegetables and fruits, the urban farm(s) have other functions. It is a place where inhabitants, students and children can **meet**, where they can **learn** about and **practice** organic farming and healthy food. The land of the urban farm(s) is the property of the city. It is up to the inhabitants and students to decide whether to become a member of the urban farm. A **member** of the urban farm pays a rent for the land where he or she can farm organically. A member is responsible for maintaining and farming his/her piece of land or garden. A member has the freedom to choose what type of vegetables, fruit, herbs or others he/she plants. A member is responsible to purchase seeds or plants him/herself.

What is necessary for this future?

Other **materials** like a well to catch and store rain, a conservatory or a fence are provided by the city administration.

For each urban farm, a **coach or gardener** is appointed by the city and/or by the members of the urban farm. The gardener instructs the members about organic farming in the common garden and ensures every member follows the rules. The gardener is also responsible for keeping away pests. Besides a common vegetable garden, other common pieces of land are used for planting fruit trees or for keeping chickens. Depending on the rules agreed upon by every member of the city garden, the harvest of all the gardens is for everyone and distributed among members in one case, or only the harvest of one piece of land is for the member that rents that piece of land in the other case. In case the harvest of all gardens is a common good, the gardener sets up a **communication system**, e.g. colored banners, to inform the members about the harvesting process. A red banner, for example shows that the vegetables are still growing; a yellow banner shows that members can harvest but only the ripe pieces; a green banner shows that members can harvest all vegetables in that garden. Another communication system, e.g. an app or mailbox, will be used by the gardener to inform members about what could be improved in their garden, when lessons will be organized in the common garden, etc. When members abandon their garden and did not respond to the warnings given by the gardener, the lease agreements will be stopped.

What are the negative repercussions of this vision?

A possible negative outcome is the increasing **pressure on available land** in and around the city. It might be a good solution to set up decentralized and different big and small urban farms. That way an urban farm will also be reachable for every citizen. Another issue is time. Organic farming and organizing urban farms is **time demanding**. Other issues that need to be carefully looked at in advance are how the urban farm will deal with **risks** such as weather and students that leave the city during the summer. In the long term, the development of urban farms might impact **farmers and supermarkets.** Part of their sales will disappear when citizens will cover their own basis needs in terms of food products.

Urban farming 2FI

Short description:

Urban farming means farming on the roofs, balconies and gardens of urban cities. This would bring all spaces of cities into beneficial use. For houses with flat roofs, solar panels could be used as roofs and the greenhouses would be situated underneath them. Urban farming would bring more verdancy and nature into urban environments. In addition, urban farming would create carbon sinks which are needed in urban environments, it would contribute to local food production, and commit people to communal local activity which transcends generations.

Long description:

Urban farming means farming on the roofs, balconies and gardens of urban cities. This would bring all spaces of cities into beneficial use. For houses with flat roofs, solar panels could be used as roofs and the greenhouses would be situated underneath them. Urban farming would bring more verdancy and nature into urban environments. In addition, urban farming would create carbon sinks which are needed in urban environments, it would contribute to local food production, and commit people to communal local activity which transcends generations. In order to get the needed energy for farming, composts and geothermal heating would be utilised. Communal farming would increase sense of responsibility of common issues at the local level and it would create sense of 'we are together' -spirit, for example, in housing cooperatives and urban neighbourhoods. Farming would also have an important learning aspect, because it would bring issues related to nature and food production into the awareness of children and other groups living in cities and into their use. Efficient promotion of urban farming is related to dismantling of unnecessary regulation ('bureaucracy') at the level of municipalities. Urban farming should be taken into account in construction planning, regulations and new construction production. The needed resources would be secured by selling the products of farming.

The benefits include decrease in dust and pollution, decrease of shortness of breath (incl. asthma symptoms), and protection of immunity (as a result of 'playing with soil'). This would be beneficial for all and it would decrease the costs of health care. The benefits include also increase in local food production (incl. beehives resulting in honey). The products would be genuine local food, which could be sold to kindergartens, elderly people's centres and schools. Children would become familiar with plans and herbs (e.g., by studying and tasting them). Urban farming would result in increase in social activity and sense of community at the local level. Farming would be relatively easy to organise, because in a densely populated city there would always be someone with time to take care of the farming.

Farming wouldn't require new spaces. They would be accessible for different groups such as elderly people, families and physically disabled people. Urban farming would decrease costs and emissions related to transport – local food production wouldn't require movement to hypermarkets located far away, but would in contrast decrease needs to make groceries far away from one's home. Urban farming would not require commitment to regulation related to organic farming.

We did not find any evident negative repercussions of this future. There are some problems related to organising sufficient supervision. It is a risk that somebody destroys the farming plants, if supervision is not sufficient.

Efficient promotion of urban farming is related to dismantling of unnecessary regulation ('bureaucracy') at the level of municipalities. The opportunities for urban farming should be taken into account in construction planning, regulations and new construction production.

Urban farming requires that people are together responsible for common, local issues: e.g., that no one destroys the products of farming. Farming also requires active citizens and voluntary organisations who are interested in farming. Incentives for urban farming include opportunities to employ people to activities

related to farming, e.g., companies could rent out more space for farming. Residents and shareholders of housing cooperatives could be required to participate in active farming in order to be able to receive benefits related to it.

If activity is based on voluntariness, enough attention should be paid to maintain continuity. It may problematic to maintain people's enthusiasm to participate in urban farming. Continuity and enthusiasm would be, however, important in order to raise children to take into account sustainable development. On the other hand, not all plants require active care – these kinds of plants could be located at the gardens and balconies of more passive citizens. A coordinator who is responsible for the urban farming in a city would also be necessary.

CASI

www.casi2020.eu

3: Catalogue of Research Priorities for a Sustainable Future: Preparation material for the second CASI citizen panel meeting

2015

Based on visions of a sustainable future made by citizens in 12 citizen panels in Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia, and UK.

Information material for the second citizen panel meetings

CATALOGUE OF RESEARCH PRIORITIES FOR A SUSTAINABLE FUTURE

Preparation material for the second CASI citizen panel meeting

Based on visions of a sustainable future made by citizens in 12 citizen panels in Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia, and UK.

CASI

Introduction

In CASI we focus on wider public engagement in research and innovation policy making in the thematic area of climate action, environment, resource efficiency and raw materials, as well as public participation in the assessment and management of sustainable innovation. Why participation from the public? Research and innovation is one area where the path to a sustainable future is carved out. Citizens across Europe should have a say in deciding the direction for the European society. So your vision of a sustainable future is important.

In the CASI project the visions that you made have now been transformed into priorities for future research. 22 experts from all over Europe spent two days in Copenhagen in June 2015 to develop **research priorities for a sustainable future**. They looked through all 50 visions (from Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia, and UK) and made drafts for research priorities. They then chose 27 of these drafts to elaborate. It is these 27 elaborated research priorities that you see in this catalogue. Now, we look forward to hearing what you think - which research topics do you personally consider most important for a sustainable future?

We ask you to read through this catalogue since it will be the basis for our work at the second panel meeting. What does the catalogue contain? **The first section** shows the research priorities that were developed from visions from your own panel. We have also included the original visions. **The second section** of this catalogue is a full list of the 27 research priorities. In this section we only ask you to read the parts in the green boxes (the rest is completely optional).
Both sections begin with a short reading guide.

1. Research priorities developed from visions from your panel

In this section you see those research priority or priorities that were developed from visions stemming from your national panel. Some research priorities are based on more than one vision.

Your first task when we meet again is to validate these research priorities by answering two questions:

1. *To what degree does the research priority reflect the original vision?*
2. *To what degree do you find this type of research relevant if we want a more sustainable future?*

Please have these questions in mind when you read the following.

Research priority 1: Understanding and implementing sustainable electronics

The research priority is the application of the concept of circular economy* to the electronics industry. For instance leasing as a new consumption model and developing supply chain monitoring systems in order to assess the social and environmental impact of production. Research should focus on new models for the application of circular economy and the different value chains* in electronics production.

Additional comments from the experts:

- Additional focus could be service design: Developing sustainable design with users. This will inform citizens and stakeholders and make products that citizens and stakeholders can actually use.
- Development of new product strategies based on upgrading of products, product leasing etc. is necessary to suggest a more circular economy within electronics and other products as well.

From the vision: Sustainable electronics

Vision: Sustainable electronics

Short description

It is our vision that all electronics will be sustainable in the three following areas:

- Economically: For instance support for technological (sustainable) R&D
- Environmental: For instance reuse, materials, logistics
- Socially: For instance improved working conditions, improved working force

➔ This shall be implemented as a standard that producers, suppliers and sub suppliers commit to.

Long description

It is our vision that all electronics will be sustainable. For example, a producer of cell phones will be responsible for:

- Increasing and improving the working force and working conditions
- Sufficient protection when working with chemicals
- Products must be reusable, possible to repair and materials must be replaceable
- A return system must be available and applicable for both consumer and producer
- Dangerous materials must be handled with proper caution

Advantages: Minimizing the strain on ecosystems, creating a new market for sustainable development and products, increasing social responsibility and knowledge. Elimination of non-sustainable products.

Consequences: A large transition of markets leads to risk for less flexibility. It is costly.

Realisation requires: A demand for political will and regulation. A step-by-step implementation geographically and concerning products.

Research priority 2: Sustainable construction of buildings

The goal is to be able to build and retrofit* even more in ways that are carbon-neutral. To this end research should be done to identify materials that last longer, or that are made of recyclable materials.

There is a need for continued development of new technologies and new materials. However, even more, there is a need for business models, incentives, and understanding of what can ensure large-scale changes in the building sector, faster than currently.

Research should be directed at how can public procurement be a driver in this process, what kind of new innovative service designs can spur further dissemination and how to minimize all environmental costs – whether transport of materials or the materials themselves, that is, taking into account the recycling of buildings after the life span of buildings.

Research should also study the role of standardisation and interchangeability, as a means to ensuring easy upgrade of retrofit level.

Additional comments from the experts:

- Political will is needed to support the implementation of the latest technology to have the most sustainable building and to take into account the recycling of buildings after their life span. In addition, it is suggested to focus on energy consumption of buildings and development of common facilities in buildings.

From the vision: The sustainable construction of buildings

Vision: The sustainable construction of buildings

Short description

The sustainable construction of buildings must be built on recyclable materials, and zero-energy houses with integration of technological solutions for the utilisation of bio-waste and wastewater with the possibility of multi-user facilities.

Long description

Advantages: Zero-energy houses – they might generate energy. Reuse of resources leads to savings of resources. Utilisation of bio-waste and waste water integrated in the construction of buildings reduces the need for transportation of waste. Common facilities and sharing/swap systems reduces the use of resources.

Consequences: Less production requires a restructuring of the economic systems.

Requirements: Technology that enables utilisation of resources in construction of buildings.

Legislation. Investment in research and development.

Research priority 3: Collaboration through shared space

Research of market-oriented platforms to enable recycling markets to function more efficiently in business collaboration by involving different stakeholders and actors and being aware of their offers. The approach will make information about reusing and recycling products, components and industrial byproducts available over the Internet to facilitate business trading and collaborating. The platform should also be usable for end users. Development of a more advanced value creation models and material flows for components and industrial byproducts is also called for.

Additional comments from the experts:

- It is recommended to start in each country in order to avoid transportation of materials.
- Support for circular economy is an answer.
- It is reminded that something like this already exists, like in Finland e.g. mpankki.
- Research should look at if there are already examples/case studies.
- Important would be to pay attention to how this platform would avoid the export of hazardous waste to poorer regions.

From the vision: EUCRES - EU collaboration for recycle systems

Vision: EUCRES - EU collaboration for recycle systems

Short description

EU's internal recycling market secures that all (waste) resources is optimally integrated in new production without loss of finite resources.

Long description

Advantages: By recycling our finite resources we will increasingly be able to sustain our current lifestyle for the future. The collaboration will make it profitable to recycle. It will create jobs and new markets.

Challenges: Requirements for products will inhibit the free market and create problems in relation to export.

Requirements: A political collaboration must secure:

- The quality of the output from recycling through certification of raw materials
- Requirements for product design so it is easier to separate and recycle
- There must be sorting systems that are simple and accessible for consumers and industry. The systems must secure uniform sorting-standards in the whole of EU (implementation shall be adapted to cultural differences).
- Development of technology: Technology that improves the percentage of recycled materials and the quality. Technology for better sorting/separation shall make it cheaper to recycle than to produce new things.
- There must be a system in place in relation to collection, sorting, transportation and the destination of the sorted materials in order to obtain the biggest possible rate of recycling.

2. All research priorities for a sustainable future

In this section you see the full list of the research priorities for a sustainable future that were developed by the experts. We have organised the priorities under 8 simple themes to help you get an overview: *Energy, food/consumption, fair distribution, economy, technology, regulation for sustainability, social and cities.* Some research priorities have a secondary theme attached.

Please, read the sections marked in green.

These parts will give you a good overview of the priorities. The rest of the text is optional reading.

Your second task when we meet again in October will be to vote for those 10 research priorities which you find most important for a sustainable future, and which you would like to share with European policy makers. So when you read through the research priorities below, please **think about which 10 your find most important**. You can write notes in the note field under each research priority to keep track of your thoughts.

1. Supporting people to become producers of renewable energy

The main research priority is how to support people to become producers of renewable energy. The following questions should be considered as well: How do we make citizens actors and which barriers currently inhibit this? The focus should be on how to integrate and support smart grids* around Europe as well as how to make people aware of the possibilities of smart grid and self-production. Encouraging people to work together with energy production should be considered.

Further research should be made on the possibilities of mechanisms to increase bargaining power of small scale energy producers and how to give them more market power. It is about improving the collective organizing of energy producers (for instance several households with solar panels).

Additional comments from the experts:

- There is already research on how to include people/individuals in the energy systems and different systems of energy cooperation.
- There is a need to be aware of data security and control of energy supply.
- Self-production is difficult in urban areas with dense population like multi-store housing
- We should remember also the professional roles of people
- How are the current energy production plants related to the flexible system*? Are there new business models opportunities?

From the vision: Distributed small-scale energy generation in mainstream within 30-40 years

How important is this research priority for a sustainable future?

***Smart grids** = A modernized electrical grid that uses information and communications technology to gather and act on information – for example about the behaviour of suppliers and consumers - to improve the efficiency, reliability, economics, and sustainability of the production and distribution of electricity.
***Flexible systems** = Energy systems that include renewable energy sources such as solar and wind power. These systems must be flexible because solar and wind supply is sporadic and cannot be planned for ahead. Likewise, truly flexible energy systems introduce flexible energy *consumption*, that is, mechanisms that give especially large energy consumers (or a great number of smaller energy consumers) incentives to momentarily stop or significantly decrease their energy consumption when the demand for energy is high (e.g. cutting off the freezer in large industrial freezing systems for approx.. 15 min. when the demand for energy is high).

2. Research on business models and changing institutions related to sustainable energy economy

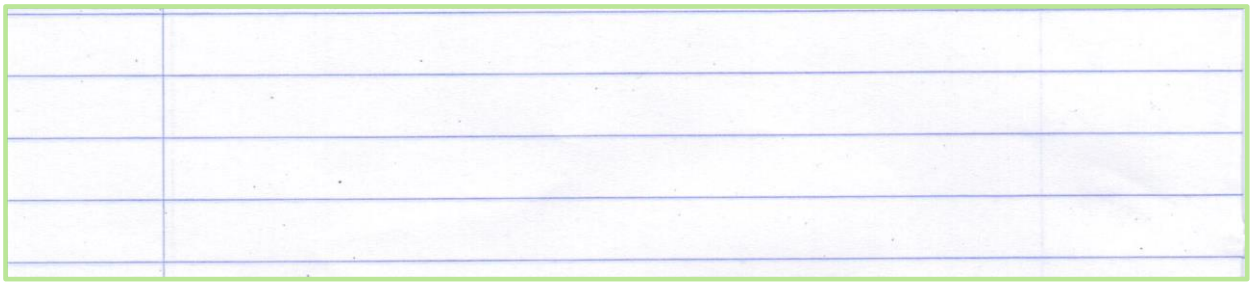
The research priority is to study the change in the roles of market actors and institutions especially in order to connect small scale energy producers. Research topics include the development of a stable energy market system, risk management, security of the grid, energy storage, prosumerism*, energy democracy, and data privacy concerns. Similarly, the transition from a centralized into a decentralized market structure merits research.

Additional comments from the experts:

- Physics should be included.

From the vision: New sustainable energy economy

How important is this research priority for a sustainable future?



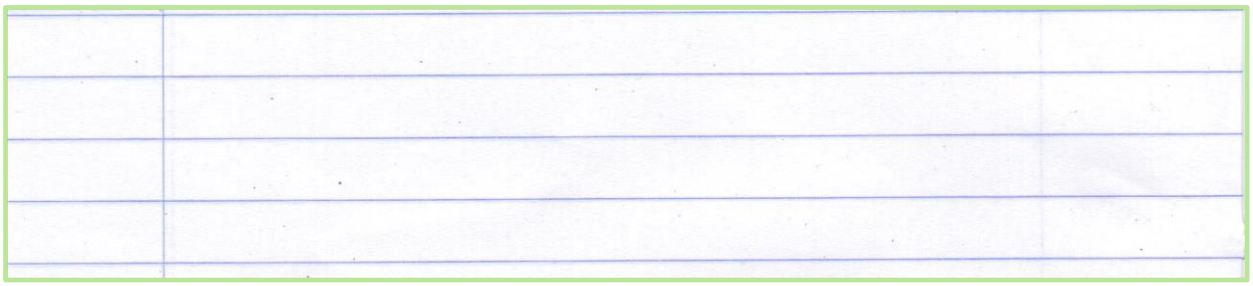
***Prosumerism =** Production by consumers.

3. Improvement of European electricity transmission to increase renewable energy production

Research about how to improve the interconnectedness of the European countries when it comes to energy transmission. Study on the implications of meshed networks to energy security in national countries. Research on future directions for energy system development, technologies, storage and barriers. Research on how to include citizens into the decision making in order to identify the issues of acceptance for new infrastructure projects.

From the vision: Sharengy – Sharing renewable energy sources

How important is this research priority for a sustainable future?



4. Enhanced physical activity for better quality and energy efficiency

Research should concentrate on how to exploit the kinetic and thermal energy of people, how to capture it, transform the energy, store it and distribute it. Technologies to do this already exist (such as charging of mobile phones from bodies' movement), but they are currently more like gadgets, focused on single person use. What is needed is a better understanding of business models, political will to support it, both single person and crowd sources of energy, dissemination strategies and cultural uptake of the technologies.

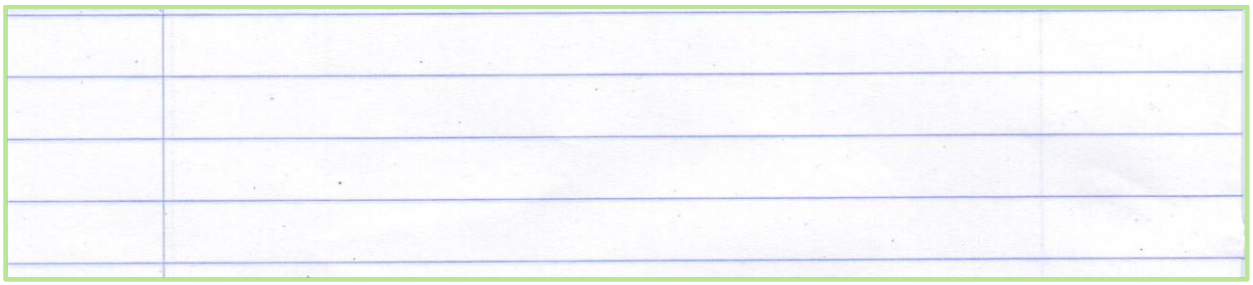
As an example: Gym's where people work out and produce a lot of energy. That energy should be captured – and the gym could claim, and actually be, self-sufficient in terms of energy production and consumption.

Additional comments from the experts:

- Study the political will to support this, e.g. support eco-entrepreneurs, who want to develop this?

From the vision: From physical activity to electricity

How important is this research priority for a sustainable future?



5. Exploring the introduction of insect food

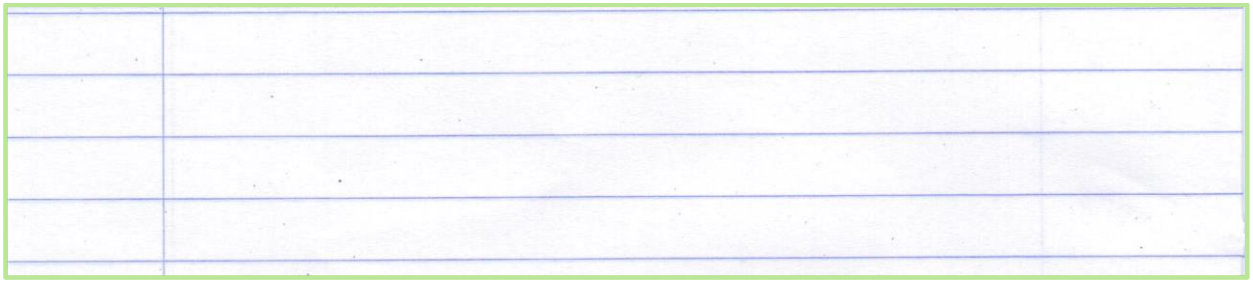
This research priority concentrates on how to raise an initial awareness in the public on the issue of insect food. The following should be assessed: a) Environmental impacts of mass production of insects as food compared to meat production and b) legal issues of insect production, selling of insect food and experiments with insect food. Research on consumption and production of insect food in countries where insects are part of the diet is essential as well. We need a scenario research: What would happen with a switch from meat to either 1. vegetables or 2. insects regarding environmental and health impacts?

Additional comments from the experts:

- Single cell protein can be synthesized so this could be another option.
- Is insect food ethically acceptable for vegetarians?

From the vision: Insects – the dish of the future

How important is this research priority for a sustainable future?



6. Supporting local/regional agricultural production, distribution and consumption system

There should be research on a) how to encourage local producers and local suppliers to support each other as well as b) how to support the creation of less polluting, alternative market production, distribution and consumption – both locally and regionally. As a research priority, it should be studied how to ensure that local production is prioritized and substitute part of the super market supply and how to encourage the local communities to identify their local ethnical, traditional and seasonal products and dishes. How to give tools to create functioning business models, quality and labeling should be studied also.

A specific research suggestion could be to map the existing or emerging cases of community-supported agriculture (CSA), and learn from their experiences: understand what the conditions of emergence and success are. What is the role of public procurement, and how can it become a driver in the process? Does EU legislation hinder the prioritization of local production and supply?

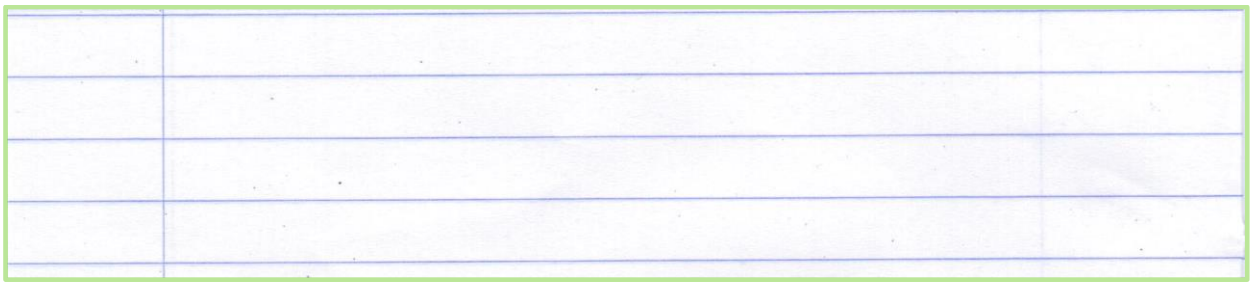
Another specific research suggestion is to map and understand the role of the municipalities, such as in protecting local water resources, and how that links with local agricultural form: How and when do municipalities support the conversion of conventional agriculture into more sustainable agriculture (e.g. organic farming).

Additional comments from the experts:

- Some few experiences with community-supported agriculture should be important to draw on.
- Is delivery and some kind of pre-handling of goods (egg, veggie, butcher) included? Could it be "crowdsourced"?

From the vision: Self-supply with healthy food

How important is this research priority for a sustainable future?



7. A new European food culture

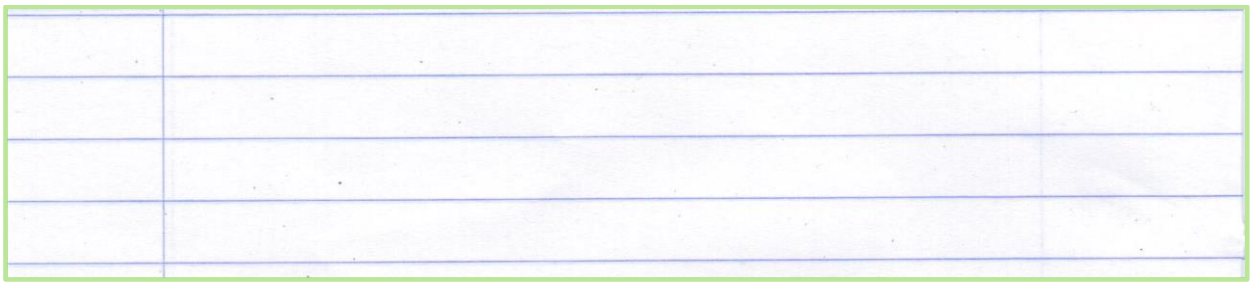
The research priority is to find ways to persuade people to eat more sustainably. This would require critical research into food cultures and food habits, and their role in the entire food value chain as well as a look at the consequences of the current habits. Measurements of ecological impacts should be developed. Attention should be paid also to economic (healthy food, for instance) and social sustainability (possibility for everyone to eat in healthy ways). Food cultures should be better adapted to climate concerns and seasonality.

Additional comments from the experts:

- We should think about limits and finding ways to help the market correct its course.
- How to enable culture change – when/how did it become attractive to change eating habits?

From the vision: Food for all

How important is this research priority for a sustainable future?



8. Innovating agriculture: the sustainability option

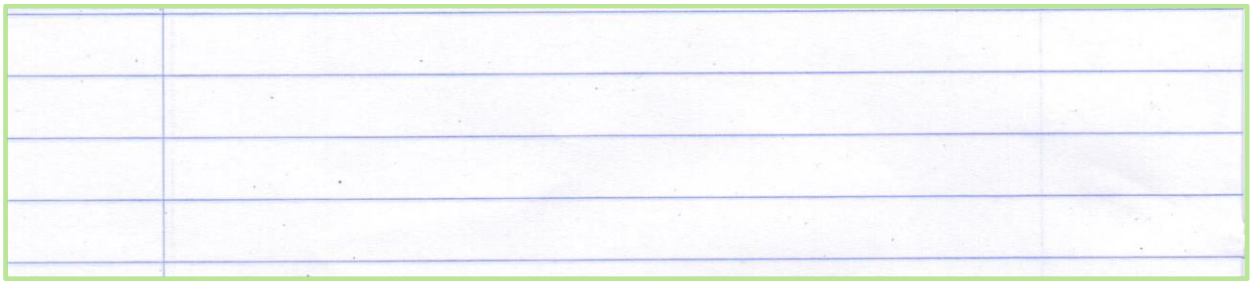
The research priorities are to make comparative studies of experiences with public regulation to increase organic food production and consumption, for example in the EU-countries with 'current' high-levels of organic farming as models (Austria, Sweden, Slovenia, Denmark, Germany).
Study should focus on experiences with changes in diets in households and catering towards less consumption of animal products in connection to use of organic food. Research should be done of green jobs and how to create new employment opportunities in the (agricultural) sector. Also, the subsidies that are reforming the Common Agricultural Policy in the European Union (keep the same level of subsidies for farmers who convert to organic farming) should be studied as well as how to increase the share of organic farms in the EU.

Additional comments from the experts:

- There is a need for long-term sustainability (ecology) as the final aim for agricultural production.
- There are very different approaches to sustainable agriculture. Conventional agriculture promotes integrated agriculture*, but organic agriculture is a real sustainable alternative.

From the vision: Sustainable agriculture

How important is this research priority for a sustainable future?



Integrated agriculture = a farm management system which aims to deliver more sustainable agriculture. It involves attention to detail and continuous improvement in all areas of a farming business through informed management processes.

9. Sustainable economics

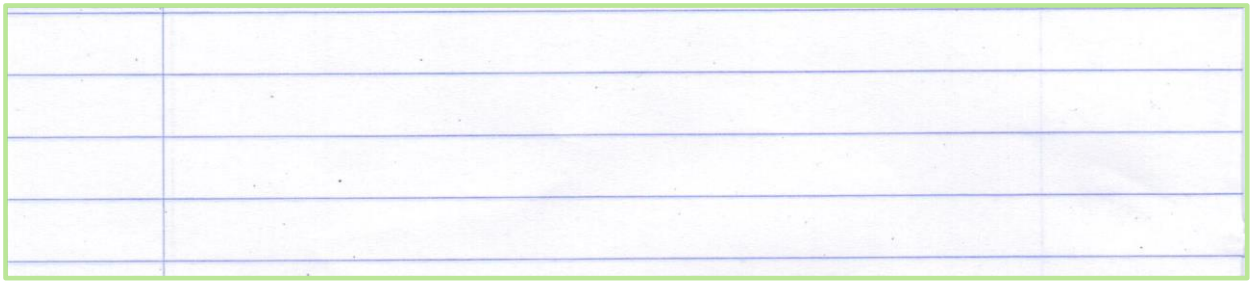
Research on how and whether alternative economic models deliver better knowledge than conventional ones concerning sustainable innovation or climate action. That is, models that take the externalities* properly into account. The key challenge is to develop economic knowledge and models that build on the principles of sustainable development. Taking the need for sustainable innovation as a starting point, the knowledge gap concerns the theory development and modelling that will examine and discuss why the conventional economic thinking fails, and most importantly what must be added or changed to enable more sustainable innovation.

Additional comments from the experts:

- Listen to alternatives to the mainstream economic at theoretical level, but also, look at alternative projects, that is, not only hard core economic research, but also projects that are based on current experimenting in social life such as those based on sharing economy, community economy. It is important to learn from both successes and failures already out there.
- Europe as a frontrunner in sustainable economy (cf. China put 'circular economy' in its latest five years' plan).

From the vision: Eco2social industries in 2050 and Recognition, rethinking and responsible governance / action

How important is this research priority for a sustainable future?



***Externalities** = In economics, an externality is the cost or benefit that affects a party who did not choose to incur that cost or benefit. For example pollution of the air by a factory can affect citizens in the nearby city even though they have nothing to do with the factory. The pollution is then called a negative externality of the factoru production.

ECONOMY/ WASTE

10. Collaboration through shared space

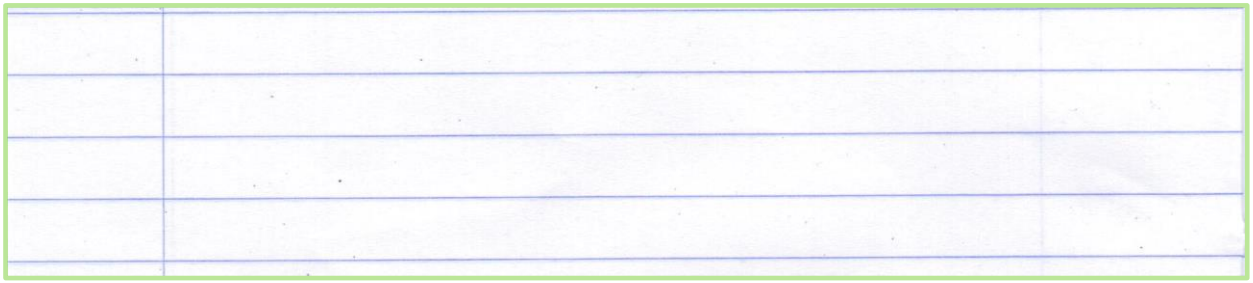
Research of market-oriented platforms to enable recycling markets to function more efficiently in business collaboration by involving different stakeholders and actors and being aware of their offers. The approach will make information about reusing and recycling products, components and industrial byproducts available over the Internet to facilitate business trading and collaborating. The platform should also be usable for end users. Development of a more advanced value creation models and material flows for components and industrial byproducts is also called for.

Additional comments from the experts:

- It is recommended to start in each country in order to avoid transportation of materials.
- Support for circular economy is an answer.
- It is reminded that something like this already exists, like in Finland e.g. mpankki.
- Research should look at if there are already examples/case studies.
- Important would be to pay attention to how this platform would avoid the export of hazardous waste to poorer regions.

From the vision: EUCRES - EU collaboration for recycle systems

How important is this research priority for a sustainable future?



11. New working models – new economics

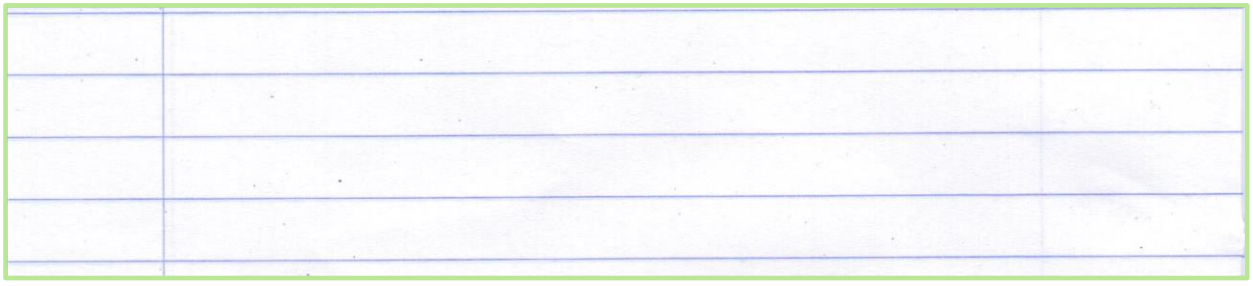
The research priority focuses on new economic models of value creation as well as formal and informal economies. One could look at existing companies or cases with reduced working time and look at the social, economic and environmental impacts and their transferability. Interaction between regulation, labour market, social infrastructure and the public sector should be examined. Similarly, it should be explored who would be interested in ½ day labour. Development of alternative economic models and their dynamics and underlying discourses is required.

Additional comments from the experts:

- Some experts reminded that the idea actually is not novel, but still very essential.
- It was suggested to not have a ½ day labour, but a "slight" reduction of working time, which would lead to less unemployment.
- Study the impact of labour time on pensions and for social security in old age. Focus research also on immigrants, young people and the economy as a whole.

From the vision: ½ day labour

How important is this research priority for a sustainable future?



12. Supporting the eco-preneurship

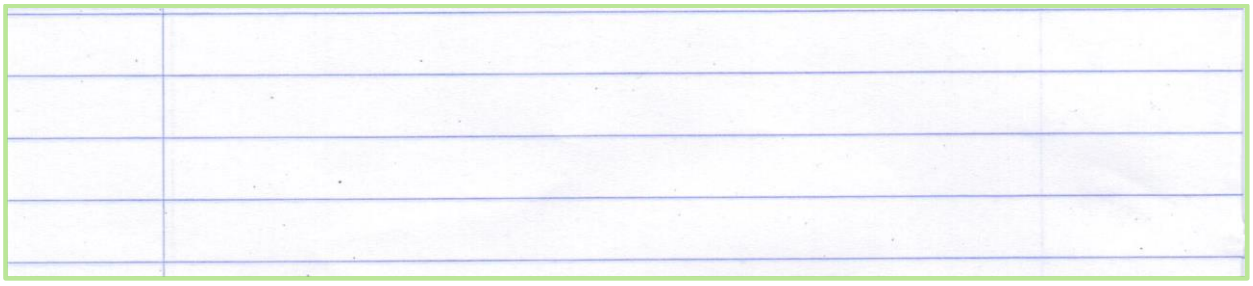
Eco-preneurship is an important research priority as it relates to transformation and hybrid new forms of enterprises in local economies. The research priority includes issues such as identification of required skill sets and specialization in eco-preneurship, developing business infrastructure such as citizen ownership and crowdfunding as well as mapping financial, social and human capital in eco-preneurship. The research priority relates to sustainable innovation and development.

Additional comments from the experts:

- There are outcomes to consider such as economic impact, "too much" of free time and the question on how to use that time. It is also recommended to conduct research on business models, how to develop eco-preneurs into SME's, "consumer cleantech" and services to business.
- It is further suggested that physicist of electricity should be embedded in this vision.
- In addition, there should be support to community based eco-entrepreneurship as alternative to individual entrepreneurship and support social-economic as well as non-profit ideas of organisations as well.

From the vision: Eco-preneurship – sustainable business for the future

How important is this research priority for a sustainable future?



***Eco-preneuership** = An **eco-preneur** is an environmental entrepreneur. Principles of eco-preneurship help guide sustainable businesses.

13. Fair and participatory access to limited resources

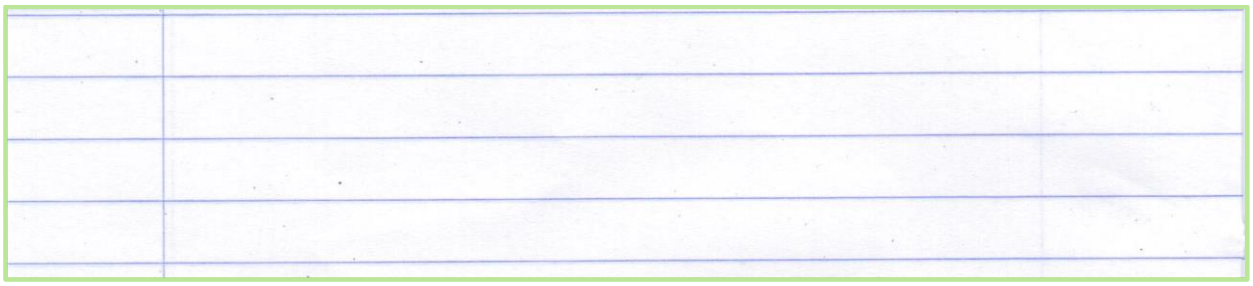
Research should focus on the excuses for different actors for not acting on the problems of limited resources. Participatory scenario building (done by different kinds of stakeholders: local people, scientists, politicians, NGOs, civil society organisations) should be done: On the consequences for different countries and different people in a world with limited resources. All major intended and unintended consequences should be included. A concept analysis should be done: of different arguments and definitions of fairness. We also need more information about who the gatekeepers* of change and drivers* with veto-powers are.

Additional comments from the experts:

- Cities and economies are very important. They are very interlinked and dependent on each other.

From the vision: Conflict free distributive justice

How important is this research priority for a sustainable future?



Gatekeeper= A **gatekeeper** is a human who controls access to something, for example a person who controls or have a very great influence on how laws or regulation are made.
Drivers= In this context a **driver** is a person who has the power to "drive" legislation forward or to inhibit it completely.

14. Access to natural resources as a human right

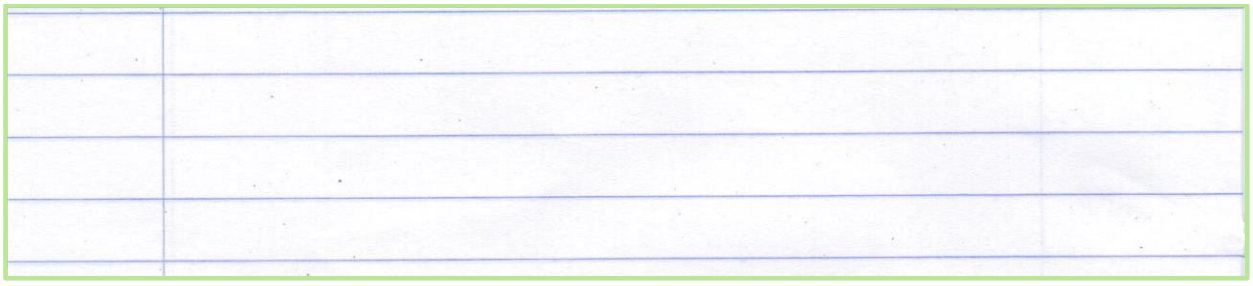
The focus for research should be: What is the role of human rights in the distribution of natural resources? Can the access to natural resources be considered a common good*? Or should access to natural resources be a human right? Would that support a more even and fair distribution of resources, both within and among countries?
More specifically, what is needed is both a legal and a structural analysis of the global distribution of world-wide limited resources with specific attention to the role of human rights. What is the needed legal framework to support, monitor and evaluate current practices? And what is the impact of privatisation (of natural resources) on the possibility of equal access to and exploitation of natural resources? What are the dominant power structures and economic frameworks?

Additional comments from the experts on the research priority and policy recommendation:

- These issues should be taken into consideration when developing the UN sustainable development goals.
- Philosophical and normative analysis is needed as well as discussion of income and inequality. Also, the role of companies' should be discussed including the role/abuse of companies exploiting resources and its impacts on human rights.

From the vision: Distributive justice of essential resources

How important is this research priority for a sustainable future?



***A common good** = a specific "good" that is shared and beneficial for all or most members of a given community. For instance, clean air is a common good because no one owns it, it is a shared good, and it benefits all in its presence.

15. Co-developing green technology

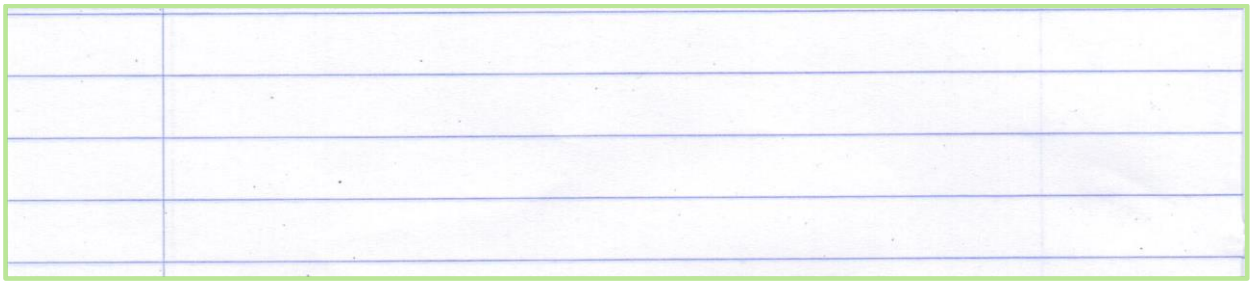
The research priority is to 1) assess and develop green technologies (including social innovations) and 2) involve users and stakeholders in the design of products (co-creation). Such market development would pay attention to open innovation communities* at local level and the stages of innovation processes that involve users. Looking at how public procurement can support the co-innovation process involving users. Looking at how public procurement can support co-development of green technology is called for. The impacts, costs and barriers to implementation of public policies supporting green technologies (including eco-labelling) should be looked at.

Additional comments from the experts:

- Remember ecological consumption is a priority only to a small percentage of people.
- Need new ecological mindset as the outset for new technologies beyond mystery of nature.

From the vision: Development of new technologies and improvements of the existing harmony with nature and society

How important is this research priority for a sustainable future?



***Open innovation communities** =* Can be described as communities of motivated individuals or groups who support innovation by working together towards a common goal.

16. Understanding and implementing sustainable electronics

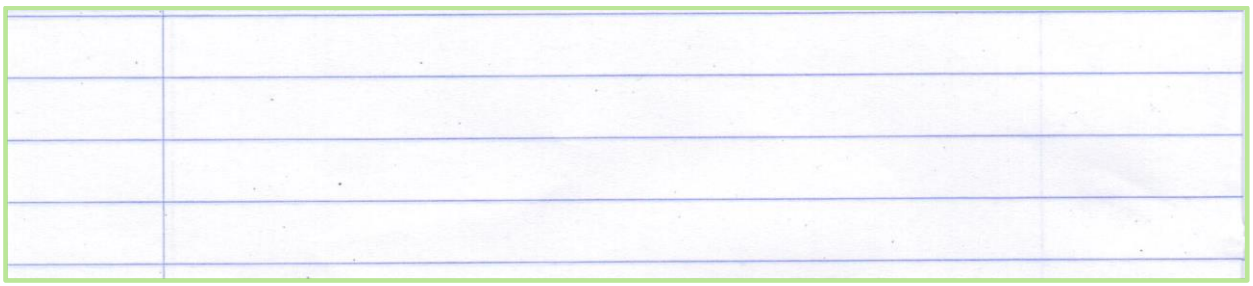
The research priority is the application of the concept of circular economy* to the electronics industry. For instance leasing as a new consumption model and developing supply chain monitoring systems in order to assess the social and environmental impact of production. Research should focus on new models for the application of circular economy and the different value chains* in electronics production.

Additional comments from the experts:

- Additional focus could be service design: Developing sustainable design with users. This will inform citizens and stakeholders and make products that citizens and stakeholders can actually use.
- Development of new product strategies based on upgrading of products, product leasing etc. is necessary to suggest a more circular economy within electronics and other products as well.

From the vision: Sustainable electronics

How important is this research priority for a sustainable future?



***Circular economy =** A circular economy seeks to rebuild capital, whether this capital is financial, manufactured, human, social or natural. This ensures enhanced flows of goods and services in society where for instance reuse and redesign plays a significant role.

*** *Value chains* =**A **value chain** is a set of activities that a firm performs in order to deliver a valuable product or service for the market.

17. Sustainable construction of buildings

The goal is to be able to build and retrofit* even more in ways that are carbon-neutral. To this end research should be done to identify materials that last longer, or that are made of recyclable materials.

There is a need for continued development of new technologies and new materials. However, even more, there is a need for business models, incentives, and understanding of what can ensure large-scale changes in the building sector, faster than currently.

Research should be directed at how can public procurement be a driver in this process, what kind of new innovative service designs can spur further dissemination and how to minimize all environmental costs – whether transport of materials or the materials themselves, that is, taking into account the recycling of buildings after the life span of buildings.

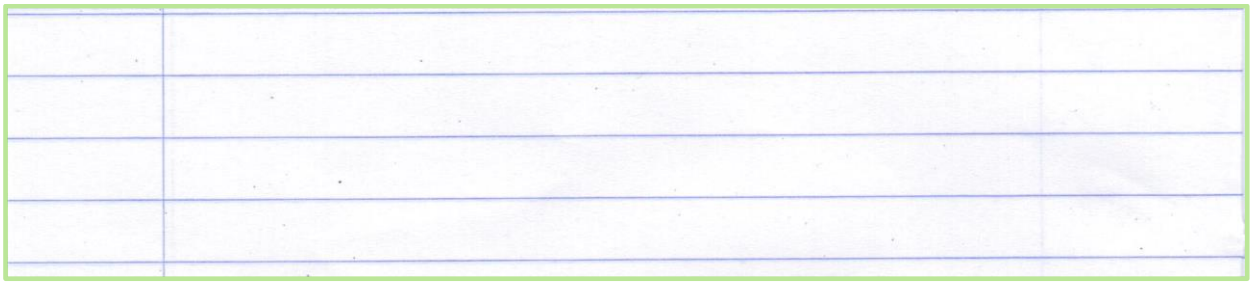
Research should also study the role of standardisation and interchangeability, as a means to ensuring easy upgrade of retrofit level.

Additional comments from the experts:

- Political will is needed to support the implementation of the latest technology to have the most sustainable building and to take into account the recycling of buildings after their life span. In addition, it is suggested to focus on energy consumption of buildings and development of common facilities in buildings.

From the vision: The sustainable construction of buildings

How important is this research priority for a sustainable future?



***Retrofit** =* Retrofitting refers to the addition of new technology or features to older systems.

18. Unified ecological grading system

The research priority is to identify a simple and fair unified systematic framework for assessing the impact of products, buildings or services for consumers, providers or government to increase their introduction with environmental friendliness and to reduce environmental impact.

Research should be done on how business controversies will delay the development of a broadly applicable grading system, or the detailed development of specific guidelines and criteria. Research should be done, on how to find better criteria that take into account several aspects (like not only focusing on energy classes A+++) also to avoid the rebound effect*. Research should be directed to re-evaluation of the whole criteria that is currently used, how to support the on-going harmonization process and to provide tools to enhance the harmonisation process taking into account both ecological and social parameters.

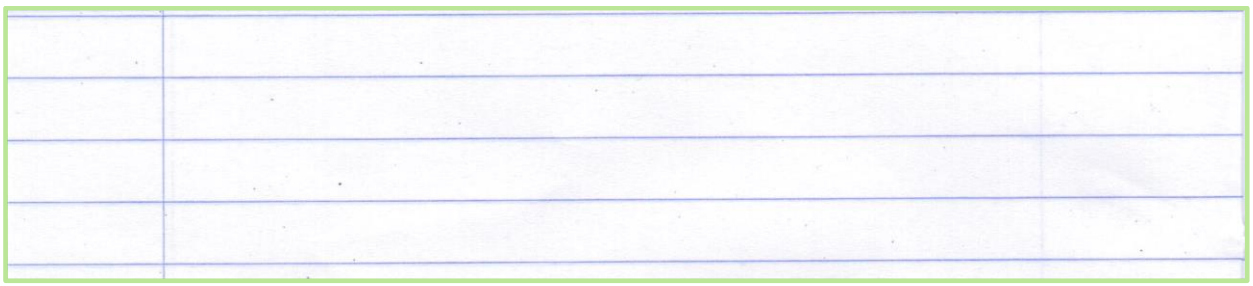
It is recommended to study the common ground on different labelling systems taking into account sustainability (like the carbon footprint) in order to understand the highly complex interdependencies. This will give possibilities to capture enough information to avoid e.g. green washing*.
Research should be conducted that studies both the ecological and social implications of unified ecological grading systems (influence on purchase choices) and offers support for a more visible regulation frame like the Food and Drugs Administration (in the US) for approving products and take into table the NON-EU countries.

Additional comments from the experts:

- It is reminded that business controversies will delay the development of broadly applicable grading system, or the detailed development of specific guidelines and criteria.

From the vision: Eco credits

How important is this research priority for a sustainable future?



***Rebound effect =**The reduction in expected gains from new technologies that increase the efficiency of resource use, because of behavioral or other systemic responses.
***Greenwashing=** when marketing deceptively promotes an organization's products, aims or policies as environmentally friendly.

19. Sustainable living environment

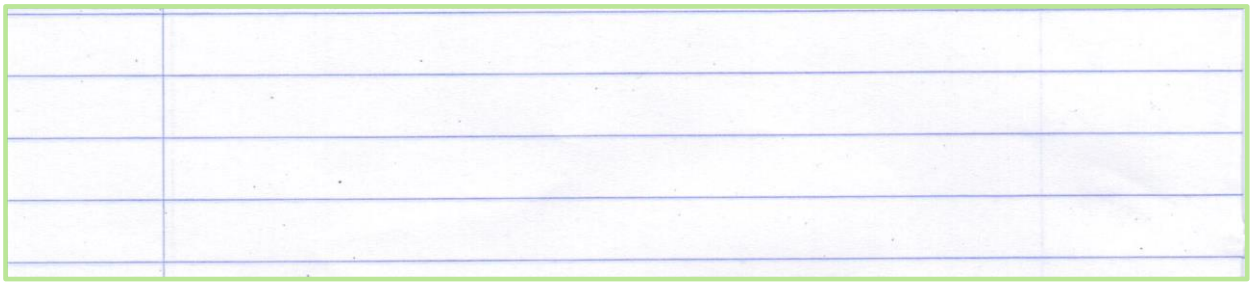
The research priority is to focus on considering the dynamics of environmental regulation. We need new ground rules or principles focusing on what we are aiming for. Define the aims of dynamic environmental regulation.

Additional comments from the experts:

- Research should examine the role of the state and how to best support sustainable transport, housing, energy production and waste treatment. Standards are set very high sectorally, but how to harmonise all standards and compare differences in adoption in Member States?
- Research should target how to make the processes interdisciplinary and how to bring all into one table. In addition, it should be examined how to implement trans-sectoral visions.
- It should be studied what are the conditions that are influencing the way legislation is implemented in different countries and organise a comparative study of best practices.
- An important question is to study how to change people's way of living and what is the role of values in realising a sustainable way of life. How do you create a trend to influence the majority of people to adopt a completely new way of life? Local self-sufficiency should be taken into account as well.
- The role of communities should be studied in the transfer into sustainable living environment.
- Conduct research on differences between possibilities and challenges in rural and in urban areas. Take into account the studied geographical area as there are different recommendations in different areas.

From the vision: Sustainable living environment, sustainable values

How important is this research priority for a sustainable future?



20. Holistic Education for a Sustainable Future

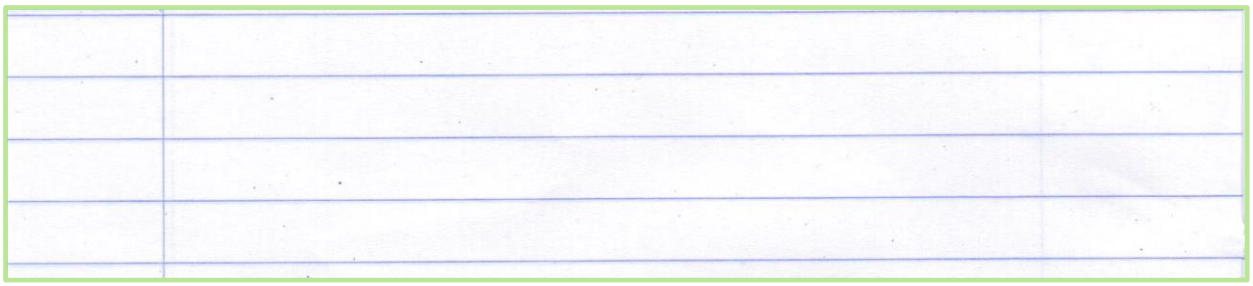
The research priority is to identify and elaborate the skill set that is needed for "eco-citizenship". Eco-citizenship as a concept that comprises sustainable lifestyles and consumption, participation in public discourse and decision making on environmental issues, reflexive understanding of one's own role and responsibilities as citizen and taking initiative (eco-entrepreneurship, activism, civil society activities). Research should be directed at exploring the differences between types of educational systems in whether and how they promote eco-citizenship and which characteristics of educational systems are relevant in this regard (private/public, cooperative/competitive, inclusive/exclusive). Research is needed on how educational systems can adapt to a more holistic mind set and how educational systems are perceived and valued in different countries.

Additional comments from the experts:

- Eco-citizenship definition includes the participation in public discourse on environmental issues and the ability to make reflexive consumption and life style choices.
- It is reminded to avoid jargon in research policy: a research priority should be understandable for citizens and be based on informing citizens to engaging them.

From the vision: Education - a path to spiritual and sustainable future and Education=aware citizen=aware society=sustainability

How important is this research priority for a sustainable future?



21. New Spaces for Public Discourse

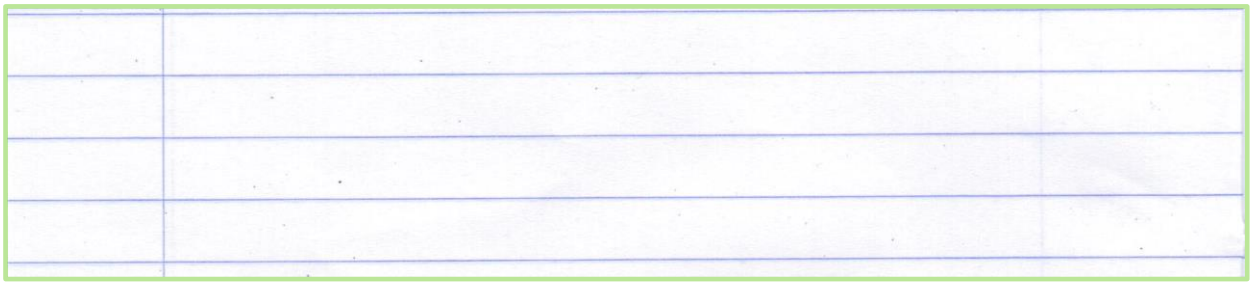
Research should be directed at what the experiences are so far with public spaces in history and other cultures and how real or virtual communities can actual contribute to public discourse. In addition, it is recommended to research new ways to increase public engagement by creating new, commerce-free real or virtual citizen spaces for public discourse open to the whole community and how to mobilize citizens to become involved, recognising different social milieus and groups.

Additional comments from the experts:

- Emphasis should be put on the "physical" locations rather than on virtual ones. Virtual spaces will not stimulate cities but rather they will cause isolation.
- The influence of social pressure should be explored on the platforms, where everybody sees and confronts, hears, reads what is produced. These could also be physical spaces, community-centers, commons, urban and nature.
- Research should be conducted on initiatives that already exist and evaluate their impact on decision-making.

From the vision: Think coloured

How important is this research priority for a sustainable future?



22. Supporting an active civil society for sustainable development

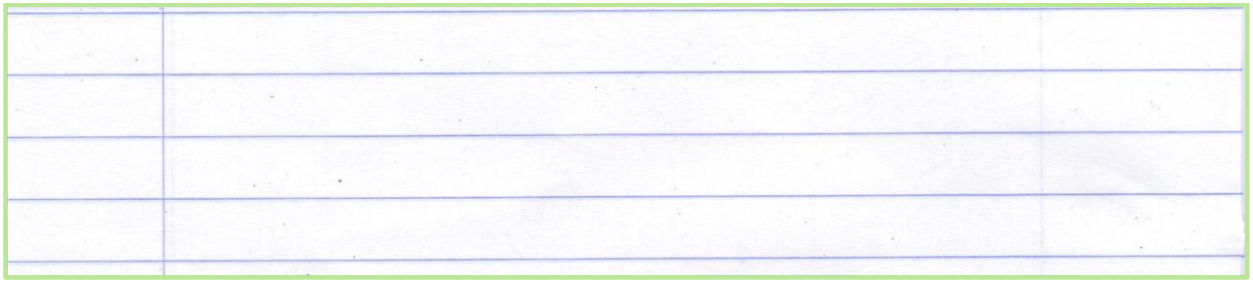
Study the involvement of citizens and societal stakeholder in decision making based on co-creation principle. It is suggested to conduct research on schools and higher education institutions as centres for community development (both at the local as well as national level). These can both be open doors for civil society to approach, but can also themselves approach the most excluded groups and offer cooperation about social challenges. Study experiences with democratic aspects of new forms of governance.

Additional comments from the experts:

- It is recommended to build on the experience and activities, programmes or strategies of Education for Sustainable Development (UNESCO programme). Additional focus for research and policy should be the development of success assessment indicators and how to reward if they are reached.
- Educational institutions and community initiatives should produce local value. Study the public discourse for citizens' engagement and the role of media to support active citizenship

From the vision: Active civil society for sustainable development

How important is this research priority for a sustainable future?



23. Impact of virtual communities in behaviour change

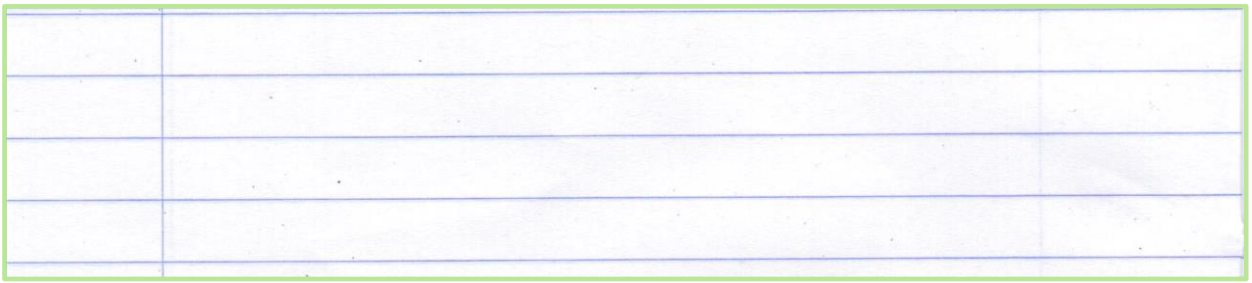
Research should look at impact effects of virtual communities in mobilizing citizens and changing behaviours based on case studies of existing networks as well as identify policy recommendations based on research outcomes.

Additional comments from the experts on the recommendation:

- Research should be done on who are the leaders, what are the dynamics of virtual communities, upscaling and how to support them and how to spread them to other countries. Are the communities linked to some initiatives? Does the size of the virtual community matter? How to measure the behavioural change?
- Pilot projects could be organised to study the impact of the networks on advancing sustainability or resource intensity and to study the typology of these networks, and what describes these networks e.g. are the communities organised vertically or horizontally. What is the most beneficial way of organisation: should it be formalised or remain as a bottom up approach.
- A comparative study on existing and emerging networks in Europe should be organised, especially on networks that are "nudging" people towards sustainability. This could deliver insight on which kinds of virtual communities could be promoted in order to create a sustainable world?
- The long-term effects of virtual communities should be studied - including what are the conditions of creating a lasting, long-term (sustainable in terms of time) community? Also the virtual communities in global perspective should be studied.
- Study the evolution of one initiative to another and what are the best practices in the communities and how to transfer the best practices.
- Research should be directed to aid finding the appropriate community. Study the influence of online and offline networks and their interaction and the value of physical interaction in addition to virtual network. How to reach groups that are not online and not involved in the virtual communities. How does digital literacy influence the success of these networks? How to nudge a network?

From the vision: Network for a world as a home

How important is this research priority for a sustainable future?



24. More green in cities

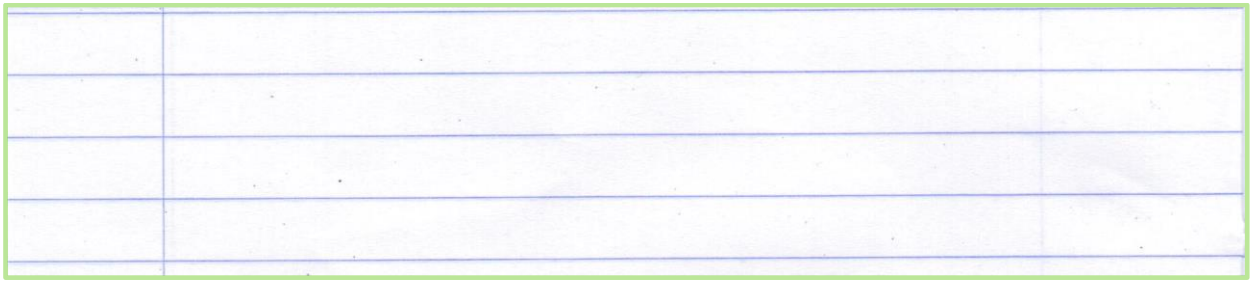
Although much research already exists, there is a need to build on research on best cases and effects for urban liveability and living conditions by making greener cities. This should be provided to policy makers. Further research should focus on making comprehensive planning instruments to include green areas, building on analysis of best cases or practices, which are important for cities.

Additional comments from the experts:

- There is a need for political will and greener cities should be seen as a priority for politicians.
- Public procurement is one tool to reach this aim. Important is also to look at legal barriers.
- There are many benefits to be recognised such as greening can prevent heat islands and that it increases biodiversity. Greening is already in place in many cities.

From the vision: More green in the city

How important is this research priority for a sustainable future?



25. Sustainable transformation of existing traffic infrastructures in cities

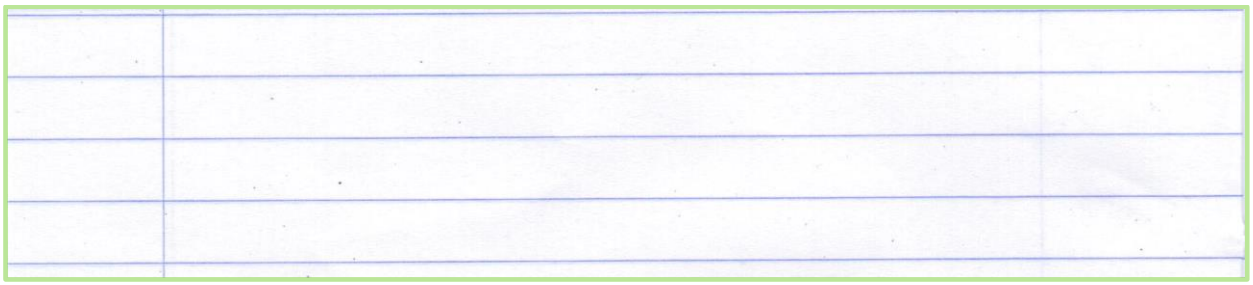
Research priorities should include a comparative study of local cases in city planning related to traffic. Question is how does a city accomplish to make these changes and does the ideas for a transformation of traffic infrastructure already exist, but how can it be implemented? Research should take note of how do we deal with different interests in the planning? We should explore positive impacts on the environment. A question is not just of traffic mode, we should also make space for pedestrians and safe green corridors and recreational areas. How have conflicts of interests been solved elsewhere in processes to enable these changes?

Additional comments from the experts:

- Solutions already exist, it depends on political will.

From the vision: Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational space, related to the visions: More green in the city and the Clean nature for better quality of life

How important is this research priority for a sustainable future?



26. Ensuring inclusive and dynamic city centres

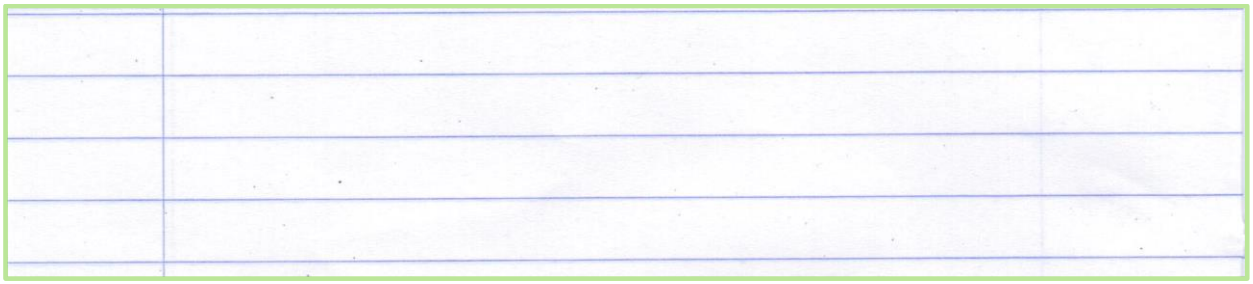
Research on how to combine the "all-inclusive-villages"* and the city centres. How to find and improve the attractiveness of city centres (and avoid ghost town centres)? Research on which space is related to which functionality? How to bring back the economic activity into the city centres? Research on how to revert the escape of services based on research about peoples movement (where income is created and where it is spent).
Research with focus on assessing impact of inclusive city centres on energy consumption.
Maybe looking to Denmark as a model.

Additional comments from the experts:

- The main question is how to create places where people can both live, work and play ("sticky places")?
- There should be studies on citizen's quality of life/well-being as well as studies of mixed purposes for staying (some of the offices could also be apartments/hotels?)

From the vision: The city my home/ home in the city

How important is this research priority for a sustainable future?



All-inclusive-villages = Refers to villages, where inhabitants can both live, work and spend their leisure time.

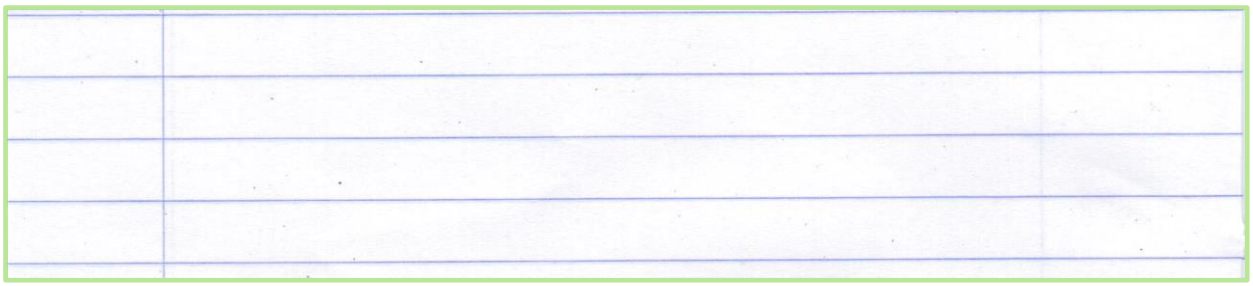
27. Research on individual urban farming

Research on how ownership influences the possibilities of realizing individual urban farming. Research on technical possibilities of urban farming. Research on the impact on the neighbourhood. Feasibility assessments.

From the vision: Urban farming, related to the Urban farm.

(No additional comments from the experts)

How important is this research priority for a sustainable future?



4: European Research Priorities Based on Citizen Visions: Report on the CASI expert workshop held in Copenhagen 8.-9.6.2015 (WP 3, Task 3.4)

2015

Repo, P., Kaarakainen, M. & Matschoss, K.

Report on the expert workshop

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

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CASI

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EUROPEAN RESEARCH PRIORITIES BASED ON CITIZEN VISIONS

Report on the CASI expert workshop held in Copenhagen 8.-9.6.2015 (WP 3, Task 3.4)

Organisation responsible for the report
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Authors:
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Abstract

The CASI project develops European research priorities on sustainable innovation and the Grand challenge on climate action, environment, resource efficiency and raw materials through a consultation of citizens and experts. This report lists and analyses such research priorities from a European expert workshop which was organised by CASI in Copenhagen in 8.-9.6.2015 and convened 23 European experts in the field. The research priorities were developed in relation to 50 citizen visions on sustainable futures that were previously formulated in citizen workshops in 12 European countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and the United Kingdom. A selection of 27 research priorities were elaborated and evaluated according to their novelty, essentiality and timeliness. Future work on research priorities will involve citizen feedback and integrate other forms of knowledge created in the CASI project.

1. Introduction

The CASI project develops European research priorities on sustainable innovation and the Grand challenge on climate action, environment, resource efficiency and raw materials. Involving both citizens and experts in the field implements public participation in the process and is designed to ensure that developed research priorities reflect citizen concerns on changes, alarms, suggestions and intentions relating to the future. This report lists and analyses research priorities developed by invited experts in a workshop which convened 23 European experts in Copenhagen in 8.-9.6.2015. This expert workshop was preceded by citizen consultations drafting visions in 12 countries and shall be followed by citizen consultation reviewing research priorities (cf. Rask and Damianova 2009 for a CIVISTI approach). Future work will gather citizen feedback and further develop research priorities by making use of other forms of knowledge created in the CASI project.

The overall aim of the expert workshop was to translate visions from the preceding citizen panel meeting (CPM1) into research priorities and policy recommendations in the field of sustainable innovation, by environmental, innovation and policy experts. Participating experts represented stakeholders, policymakers and scientists, and representatives from the private sector, non-governmental organizations and governmental bodies. The expert workshop formed an important part of the CASI task 3.4. (Citizens and experts meetings) lead by Danish Board of Technology (DBT).

Participating experts were selected according to the following mode detailed criteria:

- interdisciplinarity from various scientific fields e.g. technology, health, environment, engineering, marine, society, economy, agriculture
- knowledge of European level RTDI policies
- no strong involvement in politics
- representing various types organisations (private, public, education…)
- coming from EU countries and representing each of the CASI partner countries
- being interested in citizen involvement

In the first stage of selection, CASI partners nominated 6-10 potential candidates and provided background information on the candidates. The University of Helsinki received a total of 81 nominees of which 21 fulfilled CASI perspectives/aims in sustainability, innovation and participation. From these first stage candidates only 8 had an opportunity to participate, leading to additional recruitment using project networks and the same criteria. As a conclusion, 24 experts were selected and 23 of them eventually had an opportunity to participate in the workshop.

To help the participating experts to extract research priorities for sustainable innovation from citizens' visions, a report including a topic analysis and clustering process was conducted by a project task group (Kaarakainen et al. 2015). Each vision was connected to a topic and additional alternative perspectives and dimensions on visions were provided alongside.

The following materials were sent to the participants as a preparation to the expert workshop:

- agenda and introduction to the workshop one week before the workshop
- full list of the citizens visions (the Catalogue of Citizen Visions)
- a content analysis of the visions (Kaarakainen et al. 2015)
- list of participants

The result of the experts meeting included a catalogue of future research priorities on sustainable innovation. This report describes the process of formulating research priorities and provides an analysis of them.

2. Drafting, elaboration and evaluation process of research priorities

The research priorities were developed in relation to 50 citizen visions on sustainable futures which were formulated in earlier CASI citizen workshops in 12 countries: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and the United Kingdom. Experts received in advance a CASI report on the visions, a topic clustering of them and a description of the process (Kaarakainen et al. 2015).

The invited experts and vision clusters were first arranged to pre-assigned groups in the workshop. Experts were grouped according to their professional background (academic, business, civil society) and expertise (environmental, economic and social sustainability). Visions were grouped according to a topic clustering made by the CASI project partners.

In the first day of the workshop, the visions were discussed and research priorities drafted for each vision in the pre-assigned groups (with one exception of two visions merged to one research priority). Then the experts moved around and commented priorities drafted in other groups. This was followed by a vote on which draft research priorities were to be elaborated on. This process ensured that all experts had an opportunity to work collectively on each of the citizen visions and research priorities and could participate in an informed selection of research priorities that would be elaborated on.

A total of 27 research priorities were selected for elaboration for the second day of the workshop. At this stage, experts could choose on which priorities to work on according to a schedule in which there were 3-5 priorities concurrently worked on. Thereafter, the experts had an opportunity to familiarize themselves with all research priorities and finally evaluate them according to the dimensions of novelty, essentiality and timeliness.

3. Analysis of European research priorities

The upcoming sections of this report analyse the formulated research priorities according to evaluations made by the participating experts. The selection of the 27 research priorities for elaboration is presented first, which is followed by an analysis of the elaborated priorities according to their expert ratings on novelty, essentiality and timeliness. Novelty reflects on how new each priority is considered, essentiality on its importance, and timeliness on urgency.

A total of 27 of the draft research priorities (55%) were selected for elaboration in a two-phase selection process aimed to ensure a wide variety and representativity of citizen visions in the research priorities. In the selection procedure, each expert first received three votes (green) to use freely and then two additional votes (yellow) of which one was to be given to a priority first having received no votes. Table 1 presents the selection of research priorities for elaboration.

	Draft research priorities	Elaborated research priorities	Share of elaborated priorities, %
Local needs and support	2	2	100
Energy and production	6	5	83
Urban life	4	3	75
System resources	8	5	63
Living and spaces	5	3	60
Change for the future	7	4	57
Values and politics	7	3	43
Social development and people	10	2	20
Total	*49*	*27*	*55*

***Table 1**. Selection of draft research priorities for elaboration.*

Technically oriented topics such as *Energy production* and *System resources* were popular amongst experts to turn to research priorities (83% and 63 %, respectively). Turning citizen visions to research priorities appeared less inviting in the fields of *Social development and people* as well as *Values and politics* (20% and 43%, respectively).

There were fewer citizen visions in the fields of *Local needs and support* as well as *Urban life* which appear to position between the technical and social ends of the spectrum and attracted elaboration to research priorities (100% and 83%, respectively). Citizen visions concerning *Living and spaces* as well as *Change for the future* also addressed this part of the spectrum but received less elaboration (60% and 57%, respectively). This selection of research priorities for elaboration merits attention and may be explained by expert competences, relationship between hard vs. soft values or assessment of personal vs. professional contexts, for instance.

The limited selection of citizen visions on social development and people on the one hand and values and politics on the other indicates that there indeed is a need for public participation in the development of European research priorities. This issue is at the heart of the CASI project, which considers the types of actors involved in social and technological innovation and their inherent interests.

The 27 research priorities which were selected for elaboration are presented in Table 2 according to the *overall evaluation on novelty, essentiality and timeliness*. Evaluation of these dimensions was carried out by individual ratings on a scale from 1 to 5 with 5 being the highest rating. The descriptions of both elaborated and drafted research priorities are listed in Appendix 1.

Overall rank	Research priority	Overall rating	Topic
1	Improvement of European electricity transmission to increase renewable energy production	4.11	Energy and production
2	Research on business models and changing institutions related to sustainable energy economy	3.84	Energy and production
3	Sustainable living environment	3.83	Values and politics
=4	Holistic education for a sustainable future	3.81	Change for the future
=4	A new European food culture	3.81	Social development and people
6	Access to natural resources as a human right	3.71	System resources
7	Co-developing green technology	3.68	System resources
=8	Sustainable economics	3.65	Social development and people
=8	Unified ecological grading system	3.65	Change for the future
10	Sustainable transformation of existing traffic infrastructure in cities	3.63	Urban life
11	Supporting people to become producers of renewable energy	3.60	Energy and production
12	Supporting an active civil society for sustainable development	3.59	Values and politics
13	New working models – new economic models	3.57	Values and politics
=14	Sustainable construction of buildings	3.56	Local needs and support
=14	Fair and participatory access to limited resources	3.56	System resources
=16	Understanding and implementing sustainable electronics	3.51	System resources
=16	Innovating agriculture: the sustainability option	3.51	System resources
=16	New spaces for public discourse	3.51	Change for the future
=19	Supporting local/regional agricultural production, distribution and consumption system	3.48	Energy and production
=19	Supporting Eco-preneurship	3.48	Local needs and support
21	Collaboration through shared space	3.46	Change for the future
22	Impact of virtual communities in behaviour change	3.40	Living and spaces
23	Ensuring inclusive and dynamic city centres	3.33	Urban life
24	Enhanced physical activity for better quality of life and energy efficiency	3.24	Living and spaces
25	Exploring the introduction of insect food	3.08	Energy and production
26	More green in cities	3.00	Living and spaces
27	Research on individual urban farming	2.97	Urban life

***Table 2**. Overall rating of 27 elaborated research priorities (n=27, mean 3.54, SD 0.25).*

The elaborated research priorities received rather high overall ratings with a mean of 3.54 of a maximum of 5. The standard deviation of the ratings was low at 0.25, reflecting that the research priorities had been formulated collectively through drafting, commenting, elaborating and selecting. The elaborated research priorities could also combine elements from all formulated research priorities and citizen visions, partly also explaining small differences in ratings.

Differences in ratings could, however, be observed. Five research priorities emerged with particularly high ratings (Improvement of European electricity transmission to increase renewable energy production, Research on business models and changing institutions related to sustainable energy economy, Sustainable living environment, Holistic education for a sustainable future, and A new European food culture). The first two of the related to the topic of *Energy and production* whereas the others to *Values and politics*, *Change for the future*, and *Social development and people*.

Similarly, four research priorities received particularly low ratings (Enhanced physical activity for better quality of life and energy efficiency, Exploring the introduction of insect food, More green in cities, and Research on individual urban farming). Two of these related to the topic of *Living and spaces*, and the others to *Energy and production* and *Urban life*.

Table 3 presents elaborated research priorities receiving highest ratings on *novelty*. The mean of the ratings was slightly lower (3.24) and the standard deviation slightly higher (0.35) than those of the overall ratings. The slightly lower levels of novelty ratings may partly be explained by that the experts were familiar with the research priorities they elaborated on. Additionally, the experts formulated priorities in close connection to the citizen visions they originated from and which all do not appear very novel.

Novelty rank	Research priority	Rating on novelty	Overall rank
1	Improvement of European electricity transmission to increase renewable energy production	3.95	1
2	Holistic education for a sustainable future	3.67	=4
=3	Enhanced physical activity for better quality of life and energy efficiency	3.62	24
=3	Research on business models and changing institutions related to sustainable energy economy	3.62	2
=5	New working models – new economic models	3.48	13
=5	Impact of virtual communities in behaviour change	3.48	22
=7	Exploring the introduction of insect food	3.43	25
=7	A new European food culture	3.43	=4
9	Sustainable living environment	3.38	3
=10	Fair and participatory access to limited resources	3.33	=14
=10	Supporting Eco-preneurship	3.33	=19
=10	Collaboration through shared space	3.33	21
=10	Co-developing green technology	3.33	7

***Table 3**. Elaborated research priorities receiving highest ratings on novelty (n=27, mean 3.24, SD 0.35).*

When evaluating research priorities according to novelty, 6 out of 7 priorities receiving highest overall ratings are included in the Top-10. Accordingly, the overall rating performs as good guidance for novelty as well. At the same time, however, a number of research priorities receiving low overall ratings are evaluated highly in terms of novelty (Enhanced physical activity for better quality of life and energy efficiency, Impact of virtual communities in behaviour change, Exploring the introduction of insect food, Supporting Eco-preneurship, and Collaboration through shared space). When targeting novelty at the expense of the dimensions of essentiality and timeliness, these research priorities should be looked at. Similarly, novelty could be considered differently when considered against European, national and local backgrounds. Novelty may also relate to renewal or redesign of existing research priorities.

Table 4 presents elaborated research priorities receiving highest ratings on *essentiality*. The mean of the ratings was slightly higher (3.73) and the standard deviation slightly higher (0.32) than those of the overall ratings.

Essentia-lity rank	Research priority	Rating on essentiality	Overall rank
1	Sustainable construction of buildings	4.19	=14
=2	Improvement of European electricity transmission to increase renewable energy production	4.14	1
=2	Sustainable living environment	4.14	3
=4	Sustainable transformation of existing traffic infrastructure in cities	4.05	10
=4	A new European food culture	4.05	=4
6	Research on business models and changing institutions related to sustainable energy economy	4.00	2
7	Supporting local/regional agricultural production, distribution and consumption system	3.95	19
8	Access to natural resources as a human right	3.90	=14
=9	Supporting people to become producers of renewable energy	3.86	11
=9	Co-developing green technology	3.86	7
=9	Unified ecological grading system	3.86	=8

***Table 4**. Elaborated research priorities receiving highest rating on essentiality (n=27, mean 3.73, SD 0.32).*

A total of 6 out of 8 priorities receiving highest overall ratings are included in the Top-10 for the ratings on essentiality. In this respect, the overall ratings reflect also essentiality very well. No research priorities receiving low overall ratings emerge in the top list, but two with medium overall ratings become highlighted (Sustainable construction of buildings, Access to natural resources as a human right).

The distinction between research priorities and policy recommendations was most challenged in the dimension of essentiality. Even for experts, it turned out to be troublesome to draw a line between research priorities and policies relating to them. This is an observation which calls for attention when developing research programmes. The CASI project shall return to this issue in its subsequent project activities.

Table 5 presents elaborated research priorities receiving highest ratings on *timeliness*. The mean of the ratings was slightly higher (3.65) and the standard deviation slightly higher (0.36) than those of the overall ratings.

Timeliness rank	Research priority	Rating on timeliness	Overall rank
1	Improvement of European electricity transmission to increase renewable energy production	4.24	1
2	Sustainable construction of buildings	4.10	=14
3	Sustainable transformation of existing traffic infrastructure in cities	4.05	10
=4	Holistic education for a sustainable future	3.95	=4
=4	A new European food culture	3.95	=4
=4	Sustainable living environment	3.95	3
=7	Sustainable economics	3.90	=8
=7	Access to natural resources as a human right	3.90	6
=7	Research on business models and changing institutions related to sustainable energy economy	3.90	2
=9	Co-developing green technology	3.86	7
=9	Unified ecological grading system	3.86	=8

***Table 5**. Elaborated research priorities receiving highest rating on timeliness (n=27, mean 3.65, SD 0.36).*

Again, the research priorities receiving high overall ratings are well represented in the Top-10 of the ratings for timeliness. Only the research priority of Sustainable construction of buildings emerges and that also has a medium high overall rating.

Timeliness turned out to be a challenging dimension for experts. In particular, it was difficult to formulate and evaluate research priorities which should be responded to in the future. It appeared much easier to formulate and assess visions which should receive current attention or should have received attention already some time ago. This observation has relevance for the formulation of research programmes which target future needs and shall be addressed in the CASI project in upcoming activities.

4. Discussion and next steps

This report has described and analysed research priorities relating to sustainable futures that were drafted, elaborated and evaluated by invited experts in a European workshop, which was organised in Copenhagen in 8.-9.6.2015 by the CASI project. A selection of 27 elaborated research priorities were analysed according to their novelty, essentiality and timeliness. The overall ratings of research priorities reflected well also ratings concerning essentiality and timeliness, but ratings on novelty also introduced other priorities. Observations meriting further attention include expert preference for technological rather than social topics, difficulties in the distinction of research priorities from accompanying policy recommendations and the assessment of priorities planned to take place in the future. The CASI project shall address these observations as well as make use of its complementary contributions in other activities such as sustainable innovation case mapping, sustainable innovation survey, policy watch and work on a common framework for assessment and management of sustainable innovation when developing European research priorities on sustainable innovation and the Grand challenge on climate action, environment, resource efficiency and raw materials.

References

Kaarakainen, Minna, Petteri Repo, Kaisa Matschoss, Bjørn Bedsted, Mikko Rask, Zoya Damianova (2015). 50 Citizen Visions on Sustainable Futures. CASI project. Available at www.casi2020.eu.

Rask, Mikko, Zoya Damianova (2009). Citizen Visions - Preliminary Content Report. CIVISTI project. Available at www.civisti.org.

Appendix 1: Citizen visions

The research priorities developed in the expert workshop are based on citizen visions created in 12 European countries. The names of the visions are presented in the Table A1 below.

More detailed descriptions of the visions can be found at www.casi2020.eu: Kaarakainen, Minna, Petteri Repo, Kaisa Matschoss, Bjørn Bedsted, Mikko Rask, Zoya Damianova (2015). 50 Citizen Visions on Sustainable Futures. CASI project.

Table A1 List of citizen visions according to clustered topic and title

1. Energy and production (6)	2. Social development and people (10)
Distributed small-scale energy generation in mainstream within 30-40 years Energy for humanity and ecosystems preservation Insects – the dish of the future New sustainable energy economy Self-supply with healthy food Sharengy – Sharing renewable energy sources	Eco2Social Industry in 2050 Facing immigration of nations Food for all Homo Faber Human world Living in community Recognition, rethinking and responsible governance / action Societal reset Society of understanding (empathic) The happy life. Healthy and contending life as the driver of a holistically sustainable development.
3. System resources (8)	**4. Local needs and support (2)**
Cannabis utopia Clean nature for a better quality of life Conflict free distributive justice Development of new technologies and improvements of the existing in harmony with nature and society Distributive justice of essential resources Healthy living Sustainable agriculture Sustainable electronics *Outlier topic: companies*	Eco-preneurship – Sustainable business for the future The sustainable construction of buildings
5. Change for the future (8)	**6. Values and politics (7)**
Assets of the planet on the school curriculum Eco credits Education - a path to spiritual and sustainable future Education=aware citizen=aware society=sustainability EUCRES - EU collaboration for recycle systems New ways for sustainable education Think coloured Vision of quality	1⁄2 day labour Active civil society for sustainable development Beauty will save the world Global solidarity based on volunteering, technological development and regulated distribution of resources Society of potential capacities Sustainable living environment, sustainable values Union of the earth – World without the borders
7. Living and spaces (4)	**8. Urban life (4)**
From physical activity to electricity More green in the city Network for a world as home Optimal living together in the city and surrounding areas Supporter of body and mind [IPHA – intelligent personal health adviser]	Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational spaces. The city my home / home in the city Urban farm Urban farming

Appendix 2: European research priorities for sustainable futures

Experts participating in the CASI workshop in Copenhagen in 8.-9.6.2015 drafted 49 research priorities of which 27 were selected for elaboration and evaluation.

Appendix 2. Research priorities and policy recommendations to the citizens' visions

1. ENERGY AND PRODUCTION

Supporting people to become producers of renewable energy

Research priority and policy recommendation was driven from:
Distributed small-scale energy generation in mainstream within 30-40 years (1FI)

Description of the research priority and policy recommendation:
Main research priority is how to support people to become producers of renewable energy? Following questions should be considered as well: How do we make citizens actors and which barriers do we currently have, why citizens cannot be actors? Research priority should focus on how to integrate and support smart grids around Europe as well as how to make people aware of the possibilities of smart grid and self-production? Encouraging people to work together with energy production should be considered.

Further research should be made on the possibilities of mechanisms to increase bargaining power of small scale energy producers and how to give them more market power. It is about improving the collective organizing of energy producers (for instance several households with solar panels).

Policy recommendations:
It should be drawn from best practice studies of energy production cooperatives and to make tools to support cooperation and support upscaling.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is not a new priority.
Essentiality: It is very essential to target this issue.
Timing : Very important to do this now.

Additional comments from the experts on the research priority and policy recommendation:
There is already research on how to include people/individuals to the energy systems and different systems of energy cooperation.
There is a need to be aware of data security and control of energy supply.
Self-production is difficult in urban areas with dense population like multi-store housing
We should remember also the professional roles of people
How are the current energy production plants related to the flexible system (path dependency)? Are there new business models opportunities?

Scoring: 6 green votes, 0 yellow votes → selected to the elaboration

How to raise people's awareness and encourage them to support RES and energy saving?

Recommendation was driven from:
Energy for humanity and ecosystems preservation (4PT)

Description of the research priority and policy recommendation:
Research priority is how to reduce energy consumption and How to raise people's awareness and encourage them to support renewable energies and energy saving. Supporting the application of these technologies in different areas should be considered. One priority is how citizens could find cheaper RES technologies? We need research about the substitution of Chinese imports and raw and rare materials.

Policy recommendation:
We should look at fiscal incentives and how they motivate behavioral change.

Evaluation of the recommendation by the experts:
Novelty: Not a new research priority.
Essentiality: It is very essential to target this issue.
Timing : It is very important to do this now.

Additional comments from the experts on the recommendation:
Industry consumes a lot of energy which is important when raising people's awareness and encouraging them.
Energy companies alongside with individuals should be included supporting renewable energy and energy savings.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Exploring the introduction of insect food

Recommendation was driven from:
Insects – the dish of the future (2CZ)

Description of the research priority and policy recommendation:
Research priorities should concentrate how to raise an initial awareness in the public the issue of insect food? There should be assessment on environmental impacts of mass production of insects as food compared to meat production and legal issues of insect production and selling of insect food and experiments with insect food? Research on consumption and production of insect food in countries where insects are part of the diet is essential as well. We need a scenario research: a switch from meat to either 1. vegetagles or 2. insects, regarding environmental and health impacts.

Policy recommendation:
New health legislation and important legislation needed.

Evaluation of the recommendation by the experts:
Novelty: New in the aspect of replacing traditional food with insects. It contradicts the conventional European idea of what is food.
Essentiality: It is essential in the way that insect food could replace meat with a positive impact in the sustainable balance.
Timing : Now is the time for the first awareness raising. It may take for than 10 years for the idea to be implemented.

Additional comments from the experts on the recommendation:
Single cell protein can be synthesized so this could be another option.
Is insect food ethical acceptable for vegetarians?

Scoring: 1 green votes, 0 yellow votes → selected to the elaboration

Research on business models and changing institutions related to sustainable energy economy

Recommendation was driven from:
New sustainable energy economy (2DE)

Description of the research priority and policy recommendation:
Research priority is to study the change in the roles of market actors and institutions especially in order to connect small scale energy producers. Research topics include the development of a stable energy market system, risk management, security of the grid, energy storage, prosumerism, energy democracy, and data privacy concerns. Similarly, the transition from a centralized into a decentralized market structure merits research.

Policy recommendation:
Make use of overviews and analysis of early experiences in the field when developing policy and legislation.

This research priority relates to climate action and resource efficiency.

Evaluation of the recommendation by the experts:
Novelty: Business model research is more novel compared to the other energy visions that focus more on the technology integration into society.
Essentiality: As the markets are developing rapidly, business models should reflect this and consider new issues.
Timing : Work is commencing, will be highly topical within 5 years.

Additional comments from the experts on the recommendation:
Physics should be brought to this vision.

Scoring: 4 green votes, 0 yellow votes → selected to the elaboration

Supporting local/regional agricultural production, distribution and consumption system

Recommendation was driven from:
Self-supply with healthy food (2SI)

Description of the research priority and policy recommendation:
There should be research on how to encourage communities' local producers and suppliers to support each other as well as how to support the creation of less polluting, local and regional alternative market production, distribution and consumption. As a research priority, there should be studied how to ensure that local production is prioritized and substitute part of the super market supply and how to encourage the local communities to identify their local ethnical, traditional and seasonal products and dishes. How to give tools to create functioning business models, quality and labeling should be studied also.

A specific research suggestion could be to map the existing or emerging cases of community-supported agriculture (CSA), and learn from their experiences: understand what the conditions of emergence and success are. What is the role of public procurement, and how can it become a driver in the process? Does EU legislation hinder the prioritization of local production and supply?

Another specific research suggestion is to map and understand the role of the municipalities, such as in protecting local water resources, and how that links with local agricultural form: How and when do municipalities support the conversion of conventional agriculture into more sustainable agriculture (e.g. organic farming).

Evaluation of the recommendation by the experts:
Novelty: This is not very new.
Essentiality: Particularly for Europe it is essential.
Timing: It is very relevant, to preserve cultural identity.

Additional comments from the experts on the recommendation:
Politicians will to support community-supported agriculture (CSA), such as the building of CSA networks, for example Water Framework Directive, European Fund for Rural Development (EFRD) and national Rural Development Plans (RDP) should include tools for municipalities to encourage local business communities (incl. agriculture) to reduce their water consumption and pollution.
Some few experiences with CSA should be important to draw on.
Is delivery and some kind of pre-handling of goods (egg, veggie, butcher) included? Could be "crowsourced"?

Scoring: 3 green votes, 0 yellow votes → selected to the elaboration

Improvement of European electricity transmission to increase renewable energy production?

Recommendation was driven from:
Sharengy – Sharing renewable energy sources (4SI)

Description of the research priority and policy recommendation:
Research about how to improve the interconnectedness of the European countries. Study on the implications of meshed networks to energy security in national countries. Research on future directions on energy system developments, technologies, storage and barriers. Research on how to include citizens into the decision making in order identify the issues of acceptance for new infrastructure projects.

Policy recommendation:
Recommendation is to provide funding for the building of electricity distribution and transmission networks.

Evaluation of the recommendation by the experts:
Novelty: This is very novel.
Essentiality: It is very important
Timing : Timing is now.

Additional comments from the experts on the recommendation:

Scoring: 4 green votes, 0 yellow votes → selected to the elaboration

2. SOCIAL DEVELOPMENT AND PEOPLE

History & transformations of medical models

Research priority and policy recommendation was driven from:
Eco² Social industry in 2050 (3PT)

Description of the research priority and policy recommendation:
As a research priority, there should be research into how different countries developed different models of the welfare state and working life as well as labor markets.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is not now-how, but the context changed since as part of Horizon2020 1980 – 90 welfare state research common.
Essentiality: For the cohesion of society, it is key.
Timing : It's about time! Very timely.

Additional comments from the experts on the research priority and policy recommendation:
Inspiration for EU on the welfare model for Europe: comparative and supranational.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Researching migrant diversity. Research of the diversity of immigrants' lives

Research priority and policy recommendation was driven from:
Facing immigration of nations (5SI)

Description of the research priority and policy recommendation:
Research priority should be how immigrants can be more active in society and who the touch points are and how they may enable a more active inclusion. e.g. ways to overcome legal to the law and sometimes treat people differently to give all equal opportunities.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is not real efficiency oriented, but emphasizes potentials of immigrants.
Essentiality: This is important – considering social tensions over the immigrant issue.
Timing : Timing is good.

Additional comments from the experts on the research priority and policy recommendation:
There are existing research and we need ideas new policies.

Scoring: 0 green votes, 2 yellow votes → not selected to the elaboration

A new European food culture

Research priority and policy recommendation was driven from:
Food for all (3UK)

Description of the research priority and policy recommendation:
The research priority is to find ways to persuade people eat more sustainably. This would require critical research into food cultures and food habits, and their place in the entire food value chain as well as a look at the consequences of the current habits. Measurements of ecological impacts should be developed. Attention should be paid also to economic (healthy food, for instance) and social sustainability (possibility for everyone to eat in healthy ways). Food cultures should be better adapted to climate concerns and seasonality.

Policy recommendation:
Food culture is a very cross-sectoral topic so economic, social and environmental dimensions of sustainability should be considered when developing and implementing policies relating to it (locally based production, stress on health issues, and carbon footprints, respectively).

This research priority relates to climate action, environment and resource efficiency.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: A new topic in a European wide perspective.
Essentiality: It is important, because food is part of the resource chain – from food production through supply chains to consumers.
Timing : It should already have happened 10-15 years ago.

Additional comments from the experts on the recommendation:
We should think about limits and finding ways to help the market correct its course.
How to enable culture change – when/how did it become attractive to change eating habits?

Scoring: 1 green votes, 0 yellow votes → selected to the elaboration

Prototyping new world

Recommendation was driven from the vision:
Homo Faber (3IT)

Description of the research priority and policy recommendation:
Research into the prototyping of new worlds. Applied research programme – trying out the ideas in a real life setting.

Evaluation of the recommendation by the experts:
Novelty: This kind of research already exists.
Essentiality: It appears less important.
Timing: We need new models and life styles.

Additional comments from the experts on the recommendation:
Potential case: Understand the impact of 3D production on local production.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Human world

Research priority and policy recommendation was driven from:
Human world (3PL)

Description of the research priority and policy recommendation:
Research on green significance as an example of utopia and how others could feel attached to it.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is not new.
Essentiality:
Timing :

Additional comments from the experts on the research priority and policy recommendation:
What answers should the research focus for and does it replace something?

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Living in community

Research priority and policy recommendation was driven from:
Living in community (2PT)

Description of the research priority and policy recommendation:
Comparative research on barriers to the free and equal access to education, health services, justice and opportunities.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is not really new.
Essentiality: It is an important topic.
Timing : Timing is now.

Additional comments from the experts on the research priority and policy recommendation:
Access to these things is a precondition for success and high performance levels.
To monitor and evaluate assuming that it should be like this equal.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Sustainable economics

Research priority and policy recommendation was driven from:
Recognition, rethinking and responsible governance / action (4DE)

Description of the research priority and policy recommendation:
Research on how and whether alternative economic models deliver better knowledge than conventional ones concerning sustainable innovation or climate action, that is, models that take the externalities properly into account. The key challenge is to develop economic knowledge and models that build on the principles of sustainable development. Taking the need for sustainable innovation as starting point, the knowledge gap concerns the theory development and modelling that will examine and discuss why the conventional economic thinking fails, and most importantly what must be added or changed to enable more sustainable innovation.

Policy recommendation:
As a means to this, the policy recommendation is to build a European network or a think tank for sustainable economics – as an alternative expertise.

Comments:
Research the connections between finance and the economy.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is new.
Essentiality: It is very important.
Timing: It is very timely to do it now.

Additional comments from the experts on the recommendation:
Listen to alternatives to the mainstream economic at theoretical level, but also, look at alternative projects, that is, not only hard core economic research, but also projects that are based on current experimenting in social life such as those based on sharing economy, community economy. It is important to learn from both successes and failures already out there.
Europe as a frontrunner in sustainable economy (cf. China put 'circular economy' in its latest five years' plan).

Scoring: 5 green votes, 3 yellow votes → selected to the elaboration

Societal reset

Research priority and policy recommendation was driven from:
Societal reset (4CZ)

Description of the research priority and policy recommendation:
Research into community dialogue.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is not new.
Essentiality: Scoring essentiality 4 out of 10.
Timing :

Additional comments from the experts on the research priority and policy recommendation:
How to turn the elements that cause the moral crisis into supports of a positive development?
How to enable citizen participation in public life or re-created new loyalty

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Society of understanding

Research priority and policy recommendation was driven from:
Society of understanding (1PL)

Description of the research priority and policy recommendation:
Comparative study on open civil society as a resource, barriers and strengths.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is sort of new.
Essentiality: This is building blocks of social life.
Timing : Timing is now.

Additional comments from the experts on the research priority and policy recommendation:
Research should focus on something like multiculturalism and education as a key to reducing fear/lack of understanding.
There should be study in which practices can bring people with different backgrounds together and also think of new places for public participation.
Methods to improve empathy should be considered as well as virtual world and connection/impact on civil society.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Happy life

Research priority and policy recommendation was driven from:
Happy life. Healthy and contending life as the driver of a holistically sustainable development (5AT)

Description of the research priority and policy recommendation:
Research should be concentrated to what an economics of the common could good look like.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is not new, but needed in updated version.
Essentiality: It is very important.
Timing : Timing is now.

Additional comments from the experts on the research priority and policy recommendation:
Challenge will be how the mainstream economics look beyond GDP.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

3. SYSTEM RESOURCES

Assessment of cannabis potential

Research priority and policy recommendation was driven from:
Cannabis utopia (3CZ)

Description of the research priority and policy recommendation:
Research priority could be to take cannabis seriously in scientific terms and explore environmental, social and economic potentials. More specifically, we suggest assessing its potential in comparative terms, for example farming techniques and other alternatives.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Novel in interdisciplinary is novel.
Essentiality: It is relatively low.
Timing: It has low timing priority.

Additional comments from the experts on the research priority and policy recommendation:
Research should focus in medical use and assessing medical benefits.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Clean nature for a better quality of life

Research priority and policy recommendation was driven from:
Clean nature for a better quality of life (1BG)

Description of the research priority and policy recommendation:
Research should focus to further exploration of the economic and environmental benefits of sustainable products and services.

Policy recommendation:
A policy concerning biodiversity and eco system services and further support of alternative energy sources should be created.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Evaluating eco systems in an interdisciplinary way is novel.
Essentiality: This is crucial and highly important.
Timing : It is urgent.

Additional comments from the experts on the research priority and policy recommendation:
It is important to assess existing business models and impacts on health.
There is already ongoing work, environmental impact assessments (LCA) that are not that novel.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Fair and participatory access to limited resources

Research priority and policy recommendation was driven from:
Conflict free distributive justice (3DE)

Description of the research priority and policy recommendation:
Research priorities:
Research should focus the excuses for different actors for not acting on the problems of limited resources. Participatory scenario building (done by different kinds of stakeholders: local people, scientists, politicians, NGOs, CSOs) should be done: the consequences for different countries and different people in a world with limited resources. Include all mayor intended and unintended consequences. There should do a concept analysis: different arguments and definitions of fairness. We need more information about who are the gatekeepers of change and drivers with veto-powers.

Policy recommendations:
A Policy concerning global transparency in terms of resources (one example: how much oil do we have?) Increase understanding of what will happen in different countries in the future due to problems with limited resources. There should be a bottom-up approach where global issues are handled on the local level (cities, rural areas). A policy should fight against companies stealing/explain resources in an illegal and/or unfair way.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: The focus of the participatory scenario building on fairness and the fair distribution (ethical level) of limited resources is novel.
Essentiality: It is critical on the global level, but also on the local level, where there needs to be actions, too.
Timing: This is urgent.

Additional comments from the experts on the research priority and policy recommendation:
Cities and economies are very important are very interlined and depended on each other.

Scoring: 2 green votes, 0 yellow votes → selected to the elaboration

Co-developing green technology

Research priority and policy recommendation was driven from:
Development of new technologies and improvements of the existing harmony with nature and society (3SI)

Description of the research priority and policy recommendation:
The research priority is to assess and develop green technologies (including social innovations) and the involvement of users and stakeholders in the design of products (co-creation). Such market development would pay attention to open innovation communities at local level and stages of innovation process involving users. Looking at how public procurement can support the co-innovation process involving users. Looking at how public procurement can support to co-development of green technology is called for. The impacts costs and implement barriers of public policies supporting green technologies (including eco-labelling) should be looked at.

Policy recommendations:
Disseminate information to consumers to make better choices for instance better eco-labelling than today) and provide fiscal support (preferential tax treatment)to green technologies.

This research priority relates to sustainable innovation and assessment of green technologies and involving users/stakeholders in design of products (co-creation).

Evaluation of the research priority and policy recommendation by the experts:
Novelty: The development of the market for green technologies needs stronger involvement from users and stakeholders than today.
Essentiality: The co-development of green technologies needs stronger involvement from users and stakeholders than today.
Timing: There are initiatives taking users into account, but serious steps should be taken in the direction of co-development green technologies and policy instruments.

Additional comments from the experts on the research priority and policy recommendation:
Remember ecological consumption is a priority only to a small percentage of people.
Need new ecological mindset as the outset for new technologies beyond mystery of nature.

Scoring: 1 green votes, 1 yellow votes → selected to the elaboration

Access to natural resources as a human right

Research priority and policy recommendation was driven from:
Distributive justice of essential resources (2AT)

Description of the research priority and policy recommendation:
What is the role of human rights in the distribution of natural resources: Can the access to natural resources be considered a common good? Or should access to natural resources be a human right? Would that support a more even and fair distribution of resources, both within and among countries.

More specifically, what is needed is both a legal and a structural analysis of the global distribution of world-wide limited resources with specific attention to the role of human rights. What is the needed legal framework to support, monitor and evaluate current practices? And what is the impact of privatisation on the possibility of equal access and exploitation to natural resources? What are the dominant power structures and economic frameworks?

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is fairly novel (3 out of 5).
Essentiality: This is medium or high by essentiality (4 out of 5).
Timing : Timing is high (4 out of 5).

Additional comments from the experts on the research priority and policy recommendation:
These issues should be taken into consideration when developing the sustainable development goals.
Philosophical and normative analysis is needed as well as discussion of income and inequality. Also, role of the companies' should be discussed and look at role/abuse of companies exploiting resources and its impacts on human rights.

Scoring: 0 green votes, 2 yellow votes → not selected to the elaboration

Improving health communication

Research priority and policy recommendation was driven from:
Healthy living (1PT)

Description of the research priority and policy recommendation:
Research priority is to improve innovative communication and engagement programs for disadvantaged people.

Policy recommendation:
Healthy professionals', education programs and healthy communication are the key factors of healthy living.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is moderate innovative (3 out of 5).
Essentiality: This is quite essential (4 out of 5).
Timing : This is quite important at the moment (4 out of 5).

Additional comments from the experts on the research priority and policy recommendation:
We should start with needs, not by categories and assess impact of initiatives and projects. Focus has been on patient empowerment and health literacy.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Innovating agriculture: the sustainability option

Research priority and policy recommendation was driven from:
Sustainable agriculture (4AT)

Description of the research priority and policy recommendation:
Research priorities are to comparative study of experiences with public regulation for increase organic food production and consumption, for example in the EU-countries with 'current' high-levels of organic farming as models) Austria, Sweden, Slovenia, Denmark, Germany). Study should focus on experiences with changes in diets in households and catering towards less consumption of anima products in connection to use of organic food. Research should be done of green jobs and how to create new employment opportunities in the sector. Also, the subsidies that are reforming the CAP (keep the same level of subsidies for farmers who convert to organic farming) should be studied as well as how to increase the share of organic farms in the EU.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is not a new idea, but it needs to be developed.
Essentiality: It is essential to support increased production and consumption of organic food as a strategy for improvement of farmer's economy and protecting environment and eco-systems.
Timing : It is important NOW as organic farming is reduced in some EU-countries.

Additional comments from the experts on the research priority and policy recommendation:
Need long-term sustainability (ecology) as final aim for agricultural production.
There are very different approaches to sustainability agriculture. Conventional agriculture promotes integrated agriculture, but organic agriculture is a really sustainable alternative.

Scoring: 2 green votes, 1 yellow votes → selected to the elaboration

Understanding and implementing sustainable electronics

Research priority and policy recommendation was driven from:
Sustainable electronics (1DK)

Description of the research priority and policy recommendation:
Research priority is the application of the concept of circular economy to the electronics industry, for instance leasing as a new consumption model and developing supply chain monitoring systems in order to assess the social and environmental impact of production. Research should focus on new models for the application of circular economy and the different value chains in electronics production.

Policy recommendation:
There should be supporting schemes for companies which can develop circular economy models and new business models of taking products back for recycling. One of the questions is that what is the role of the public sector and should there be lobbying on the political level (e.g. the European Commission has canceled its proposal on circular economy).

Evaluation of the research priority and policy recommendation by the experts:
Novelty: In many countries and industries this concept is very novel (5 out of 5).
Essentiality: This is very essential (5 out of 5).
Timing : This is moderately urgent (4 out of 5).

Additional comments from the experts on the research priority and policy recommendation:
Service design: Developing sustainable design with users. Will inform citizens/stakeholders and make products that citizens/stakeholders can actually use
Development of new product strategies based on upgrading of products, product leasing etc. is necessary to suggest a more circular economy within electronics and other products as well.

Scoring: 5 green votes, 0 yellow votes → selected to the elaboration

4. LOCAL NEEDS AND SUPPORT

Supporting the eco-preneurship

Research priority and policy recommendation was driven from:
Eco-preneurship – sustainable business for the future (2UK)

Description of the research priority and policy recommendation:
Eco-preneurship is an important research priority as it relates to transformation and hybrid new forms of enterprises in local economies. The research priority includes issues such as identification of required skill sets and specialization in eco-preneurship, developing business infrastructure such as citizen ownership and crowdfunding as well as mapping financial, social and human capital in eco-preneurship. The research priority relates to sustainable innovation and development.

Policy recommendation: Support cooperation between eco-startups and bigger companies to help upscaling, making sure that negotiation is on equal terms.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Very novel creating a competitive advantage to eco-preneurship.
Essentiality: To make business sector more eco-oriented in a new way.
Timing: The business climate is currently good for sustainable start-ups.

Additional comments from the experts on the research priority and policy recommendation:
There are outcomes to consider such as economic impact, "too much" of free time and the question on how to use that time. It is also recommended to conduct research on business models, how to develop eco-preneurs into SME's, "consumer cleantech" and services to business.
It is further suggested that psychics of electricity should be embedded in this vision.
In addition, there should be support community based eco-entrepreneurship as alternative to individual entrepreneurship and support social-economic as well as not profit ideas of organisations as well.

Scoring: 5 green votes, 1 yellow votes → selected to the elaboration

Sustainable construction of buildings

Research priority and policy recommendation was driven from:
The sustainable construction of buildings (3DK)

Description of the research priority and policy recommendation:
The goal is to be able to build and retrofit even more in ways that are carbon-neutral. To this end research should be done to identify materials that last longer, or that are made of recyclable materials.

There is a need for continued development of new technologies and new materials. However, even more, there is a need for business models, incentives, and understanding of what can ensure large-scale changes in the building sector, faster than currently.

Research should be directed at how can public procurement be a driver in this process, what kind of new innovative service designs can spur further dissemination and how to minimize all environmental costs – whether transport of materials or the materials themselves, that is, taking into account the recycling of buildings after the life span of buildings.

Research should also study the role of standardisation and interchangeability, as a means to ensuring easy upgrade of retrofit level.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: 3/5
Essentiality: 5/5
Timing: 4/5

Additional comments from the experts on the research priority and policy recommendation:
Political will is needed to support the implementation of the latest technology to have the most sustainable building and to take into account the recycling of buildings after their life span. In addition, it is suggested to focus on energy consumption of buildings and development of common facilities in buildings.

Scoring: 0 green votes, 2 yellow votes → selected to the elaboration

5. CHANGE FOR THE FUTURE

Assets of the planet on the school curriculum

Research priority and policy recommendation was driven from:
Global education in sustainable development (2DK)

Description of the research priority and policy recommendation:
To study how issues in climate action, environment, resource efficiency and raw materials could be embedded in education systems globally.

Policy recommendation: to utilize existing international organizations such as WHO and ILO to introduce education in sustainable development worldwide. For example, UNESCO currently has an action plan in operation for improving sustainable development and this could be expanded to include other international organizations to deliver education in sustainable development. This initiative must take diversity of culture and provision of education into account.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It's novel to go global with this
Essentiality: Essential to secure a sustainable future
Timing: Urgent to implement

Additional comments from the experts on the research priority and policy recommendation:
The research efforts should also focus on how to take into account the local cultural etc. aspects in education. Two way dialogue is also needed: who is in charge of the program (shared responsibility). The focus should be on industrialised countries, since they contribute work.
It is reminded that problems are global, but solutions local and "life long learning" will have a big role in the future.
Research could be done in investigating the role of the media along education and policy level responsible for education/school programs should be involved in the research.
It is however reminded that it is difficult to get education related to sustainable development integrated in schools and higher education due to focus on traditional subjects, like "math".

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Unified ecological grading system

Research priority and policy recommendation was driven from:
Eco credits (1UK)

Description of the research priority and policy recommendation:
To identify a simple and fair unified systematic framework for assessing the impact of products, buildings or services for consumers, providers or government to increase their introduction with environmental friendliness and to reduce environmental impact.

Policy recommendation: support the on-going harmonization process and provide tools to enhance it.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: How is this different from EU's current environmental footprint/-label scheme for products and companies? The unified framework is new, as the current approaches are not sufficient in that they are either too detailed or general
Essentiality: Essential to have measurement
Timing: Urgent to implement

Additional comments from the experts on the research priority and policy recommendation:
Research should be done on how business controversies will delay the development of a broadly applicable grading system, or the detailed development of specific guidelines and criteria. Research, on how to find better criteria that take into account several aspects (like not only focusing on energy classes A+++) also to avoid the rebound effect. Research should be directed to re-evaluation of the whole criteria that is currently used, how to support the on-going harmonization process and to provide tools to enhance the harmonisation process taking into account both ecological and social parameters..
It is recommended to study the common ground on different labelling systems taking into account sustainability (like the carbon footprint) in order to understand the highly complex interdependencies. This will give possibilities to capture enough information to avoid e.g. green washing.
Research should be conducted that studies both the ecological and social implications of unified ecological grading systems (influence on purchase choices) and offers support for a more visible regulation frame like FDA for approving products and take into table the NON-EU countries.
It is reminded that business controversies will delay the development of broadly applicable grading system, or the detailed development of specific guidelines and criteria.

Scoring: 3 green votes, 1 yellow votes → selected to the elaboration

Holistic Education for a Sustainable Future

Research priority and policy recommendation was driven from:
Education - a path to spiritual and sustainable future (3BG) and Education=aware citizen=aware society=sustainability (4PL)

Description of the research priority and policy recommendation:
Research priority is to identify and elaborate the skill set that is needed for "eco-citizenship". Eco-citizenship as a concept comprises sustainable lifestyles and consumption, participation in public discourse and decision making on environmental issues, reflexive understanding of one's own role and responsibilities as citizen and taking initiative (eco-entrepreneurship, activism, civil society activities). Research should be directed at exploring the differences between types of educational systems in whether and how they promote eco-citizenship and which characteristics of educational systems are relevant in this regard (private/public, cooperative/competitive, inclusive/exclusive). Research is needed on how can educational systems adapt to a more holistic mindset and how is educational systems perceived and valued in different countries.

Policy recommendation: the EU should promote eco-citizenship as part of the curriculum in schools and as a part of adult education. Eco-citizenship should be promoted as a part of education on European level.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Yes, compared to existing school system.
Essentiality: Very essential.
Timeliness:

Additional comments from the experts on the research priority and policy recommendation:
Eco-citizenship definition is the participation in public discourse on environmental issues and the ability to make reflexive consumption and life style choices.
It is reminded to avoid jargon in research policy: a research priority should be understandable for citizens and be based on informing citizens to engaging them.

Scoring: 1green votes, 0 yellow votes → selected to the elaboration

Collaboration through shared space

Research priority and policy recommendation was driven from:
EUCRES - EU collaboration for recycle systems (4DK)

Description of the research priority and policy recommendation:
To research market-oriented platforms to enable recycling markets to function more efficiently in business collaboration by involving different stakeholders and actors and being aware of their offers. The approach will make the information about reusing and recycling products, components and industrial byproducts available over the Internet to facilitate business trading and collaborating. The platform should also be usable for end users. Development of a more advanced value creation models and material flows for components and industrial byproducts is also called for.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is a new market-driven approach to enable the business collaboration, creating a new European market.
Essentiality: Solutions to minimize waste are called for – this approach provides a market based solution at component and industrial by-product levels.
Timeliness: There are alternative marketplaces evolving, so it is timely to start developing one now for these particular aims.

Additional comments from the experts on the research priority and policy recommendation:
It is recommended to start in each country in order to avoid transportation of materials.
Support circular economy is an answer.
It is reminded that something like this already exists, like in Finland e.g. mpankki.
Research should look if there are already examples/case studies.
Important would be to pay attention how this platform would avoid the export of hazardous waste to poorer regions

Scoring: 1 green votes, 0 yellow votes → selected to the elaboration

Community-based lifelong learning

Research priority and policy recommendation was driven from:
New ways for sustainable education (1DE)

Description of the research priority and policy recommendation:
Research the possibility of community-based and community-supported modular lifelong learning. This could involve waged internships in companies and integration within e.g. the University of the third age to be accessible to citizens of all ages.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: A comprehensive and certificated system of education outside educational institutions throughout life is new.
Essentiality: Desirable for an integrated and well-educated citizens.
Timeliness: It should be implemented as soon as possible.

Additional comments from the experts on the research priority and policy recommendation:
It is recommended to create a system that offers an overview of the effect and cost of education. Support open university and offer civil society courses. It is reminded that we already have a system like that.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

New Spaces for Public Discourse

Research priority and policy recommendation was driven from:
Think coloured (1IT)

Description of the research priority and policy recommendation:
Research should be directed at what are the experiences so far with public spaces in history and other cultures and how can real or virtual communities actual contribute to public discourse. In addition, it is recommended to research new ways to increase public engagement by creating new, commerce-free real or virtual citizen spaces for public discourse open to the whole community and how to mobilize citizens to become involved, recognition different social milieus and groups.

Policy recommendation: create new institutions as an interface between the political system and civil society.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Fairly novel
Essentiality: It is important because people have less and less interest in being involved in political processes on EU or national level.
Timeliness: It is urgent.

Additional comments from the experts on the research priority and policy recommendation:
Emphasis should be put on the "physical" locations rather than on virtual ones. Virtual spaces will not stimulate cities but rather they will cause isolation.
The influence of social pressure should be explored on the platforms, where everybody sees and confronts, hears, reads what is produced. These could also be physical spaces, community-centers, commons, urban and nature.

Research should be conducted on initiatives that already exist and evaluate their impact on decision-making.

Scoring: 4 green votes, 0 yellow votes → selected to the elaboration

Research on the perception of quality and the connection to sustainable consumption choices

Research priority and policy recommendation was driven from:
Vision of quality (3FI)

Description of the research priority and policy recommendation:
Comparative research should be done on the perception of quality of different social groups (socio-economic differences) and in different cultural settings. Study on how relevant is the perception of ”quality” for consumption choices.
A research could be targeting consumption preferences based on the perception of ”quality”, are they more sustainable than for instance consumption preferences based on price and are economically disadvantaged social groups bound to make ”unsustainable” consumption choices because they depend on low price products.
Research on the economic (and cultural) restraints on the production of high quality products, such as are the best possible technological solutions offered to the customer.
Research should be done on related issues such as ”planned obsolescence”.
Research should focus on institutional settings, which allow customers to make informed consumption choices based on a preference for high quality, sustainable products and on how quality can be assessed (e.g. certificates) and communicated to customer.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Quality preferences have been studied in the context of market research by individual firms. The focus on the connection between quality preferences and sustainability is however new.
Essentiality: It is relevant to explore perceptions of quality of different social groups and whether/how these preferences are connected to sustainable consumption choices.
Timeliness: Not as urgent as other recommendations.

Additional comments from the experts on the research priority and policy recommendation:
Research should be done on how to put more emphasis and stimulus on local producers to eliminate “low quality” inputs and the relationship of price and value.
The market should be deconstructed based on the value involved and co-created (not necessarily shown). Research should be conducted on how does quality relate to other values?

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

6. VALUES AND POLITICS

New working models – new economics

Research priority and policy recommendation was driven from:
½ day labour (1AT)

Description of the research priority and policy recommendation:
The research priority focuses on new economic models of value creation as well as formal and informal economies. One could look at existing companies or cases with reduced working time and look at the social, economic and environmental impacts and their transferability. Interaction between regulation, labour market, social infrastructure and the public sector should be examined. Similarly, it should be explored who would be interested in ½ day labour. Development of alternative economic models and their dynamics and underlying discourses is required.

Policy recommendation: see better sharing of work as a means to bring people into the labour market (immigrants, elderly, youngsters etc.).

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is very novel, but challenging due the dominating discourses.
Essentiality: It is essential, for instance when you look at the European economic crisis, and the increasing social inequality in Southern Europe.
Timing: It will need time to develop, but is very urgent. Better start today.

Additional comments from the experts on the research priority and policy recommendation:
Some experts reminded that the idea actually is not novel, but still very essential.
It was suggested to not have a ½ day labour, but a "slight" reduction of working time, which would lead to less unemployment.
Study the impact of labour time on pensions and for social security in old age. Focus research also on immigrants, young people and the economy as a whole.

Scoring: 7 green votes, 2 yellow votes → selected to the elaboration

Supporting an active civil society for sustainable development

Research priority and policy recommendation was driven from:
Active civil society for sustainable development (4BG)

Description of the research priority and policy recommendation:
Study the involvement of citizens and societal stakeholder in decision making based on co-creation principle. It is suggested to conduct research on schools and higher education institutions as centres for community development (both at the local as well as national level). These can both be open doors for civil society to approach, but can also themselves approach the most excluded groups and offer cooperation about social challenges. Study experiences with democratic aspects of new forms of governance.

Policy recommendations: assure financial means for civil society organisations to be active and seek to involve to most excluded groups of society and not rely on the big organisations

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It is specifically novel in the political system.
The research is already going on – we know what to do, but the political structures are not supporting it yet.
Essentiality: It is very essential, for instance because civil society needs to have more trust in the democratic procedures. Essential to change e.g. the educational system and to create civil responsibility and control.
Timing : It is a long process maybe.

Additional comments from the experts on the research priority and policy recommendation:
It is recommended to build on the experience and activities, programmes or strategies of Education for Sustainable Development (UNESCO programme). Additional focus for research and policy should be the development of success assessment indicators and how to reward if they are reached.
Educational institutions and community initiatives should produce local value. Study the public discourse for citizens' engagement and the role of media to support active citizenship

Scoring: 9 green votes, 0 yellow votes → selected to the elaboration

City aesthetics

Research priority and policy recommendation was driven from:
Beauty will save the world (2IT)

Description of the research priority and policy recommendation:
Research priority should be the development of new approaches to visualization and model use in dialogues about urban development. The researchers should work with designs and make green products more attractive.
Because beauty is relative, we should explore how to create a public space or way having public discussion about aesthetics (when building new).

Policy recommendation: people should be asked and heard – not only about limited aspects.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Yes.
Essentiality:
Timing :

Additional comments from the experts on the research priority and policy recommendation:
It is reminded that the approach is not novel as aesthetics already play an important role in cities. Research should be directed at how can parts of cities and locations be designed in a consisted way despite the fragmented private ownership.
The research should be focused on the cost of "beauty" and whether beauty is available for low income areas as well.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Global solidarity

Research priority and policy recommendation was driven from:
Global solidarity based on volunteering, technological development and regulated distribution of resources (2BG)

Description of the research priority and policy recommendation:
Research should focus on environmental and social impacts of global value chains: analysis of practices and new forms of dialogue between businesses and civil society organizations.

Policy recommendations: coherence between economic support for businesses and development aid and avoid export subsidies hampering development aid.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: It would be novel to develop real dialogues about shared values between businesses and civil society.
Essentiality: It is very essential to develop more solidarity based export subsidies.
Timing : It is very important now, not least in relation to Africa and EU export subsidies and competing local industry.

Additional comments from the experts on the research priority and policy recommendation:

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

The potential of local community centers

Research priority and policy recommendation was driven from:
Society of potential capacities (3AT)

Description of the research priority and policy recommendation:
Research priority is to focus on experiences with libraries as local community centres.

Policy recommendations: introduce an INTERREG programme for local community centres, which can develop local community activities and local jobs.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Its novel to develop the commons approach to social development – contradiction to the present entrepreneurship approach. It can support new initiatives among social movements.
Essentiality: It is essential, not least in socially deprivated areas (high unemployment etc)
Timing : There is an urgent need, not least due the high unemployment in Southern Europe and in marginalized areas in Northern Europe.

Additional comments from the experts on the research priority and policy recommendation:
Include ERDF programs that are cross-borders and trans-national

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

Sustainable living environment

Recommendation was driven from:
Sustainable living environment, sustainable values (4FI)

Description of the research priority and policy recommendation:
Research priority is to focus on considering the dynamics of environmental regulation. We need new ground rules or principles focusing on what are we aiming for. Define the aims of dynamic environmental regulation.

Policy recommendation: create a more intelligent mix of policy instruments that could support sustainable development (economic instruments combined with innovation instruments) etc. Remove harmful legal barriers at the same time supporting new environmental initiatives (for instance green public procurement).

Evaluation of the recommendation by the experts:
Novelty: Yes. We need more research and assessment in this.
Essentiality: Yes, it is essential with sustainable transition.
Timing : It is possible to begin the process now.

Additional comments from the experts on the recommendation:
Research should examine on the role of the state and how to best support sustainable transport, housing, energy production and waste treatment. Standards are set very high sectorally, but how to harmonise all standards and compare differences in adoption in Member States.
Research should target how to make the processes interdisciplinary and how to bring all into one table. In addition, it should be examined on how to implement trans-sectoral visions.
It should be studied what are the conditions that are influencing the way legislation is implemented in different countries and organise a comparative study of best practices.
An important question is to study how to change people's way of living and what is the role of values in realising a sustainable way of life. How do you create a trend to influence the majority of people to adopt a completely new way of life? Local self-sufficiency should be taken into account as well.
The role of communities should be studied in the transfer into sustainable living environment.
Conduct research on differences between possibilities and challenges in rural and in urban areas. and take into account the studied geographical area as there are different recommendations in different areas.

Scoring: 0 green votes, 3 yellow votes → selected to the elaboration

Assessing the relevance and feasibility of the world without boarders

Research priority and policy recommendation was driven from:
Union of the earth – world without the borders (2PL)

Description of the research priority and policy recommendation:
Research should focus on how to bring utopia to local level and study citizens to identify what they really like to include or have form this vision.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Coming from the 70's…
Essentiality: Not essential, other more important priorities, more fair immigration for instance than remaining borders.
Timing: Later if ever.

Additional comments from the experts on the research priority and policy recommendation:
There are other priorities on researching immigration issues that are more urgent.

Scoring: 0 green votes, 0 yellow votes → not selected to the elaboration

7. LIVING AND SPACES

Enhanced physical activity for better quality and energy efficiency

Research priority and policy recommendation was driven from:
From physical activity to electricity (1CZ)

Description of the research priority and policy recommendation:
Research should concentrate on how to exploit the kinetic and thermal energy of people, how to capture it, transform the energy, store it and distribute it. Technologies to do this already exist (such as charging of mobile phones from bodies' movement), but they are currently more like gadgets, focused on single person use. What is needed is a better understanding of business models, political will to support it, both single person and crowd sources of energy, dissemination strategies and cultural uptake of the technologies.

As an example: Gym's where people work out and produce a lot of energy. That energy should be captured – and the gym could claim, and actually be, self-sufficient in terms of energy production and consumption.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Indeed a new research priority.
Essentiality: Important for both more sustainable energy production and health improvement.
Timing: Not that urgent, and yet timely.

Additional comments from the experts on the research priority and policy recommendation:
Study the political will to support this, e.g. support eco-entrepreneurs, who wants to develop this.
Policy recommendations: incentives for these practices (regulation and funding), integrate physical activity and resources efficiency in urban planning and policies. It is recommended to look at economic outcomes as well in addition to "health" as focus and outcome.

Scoring: 2 green votes, 0 yellow votes → selected to the elaboration

More green in cities

Research priority and policy recommendation was driven from:
More green in the city (2BE)

Description of the research priority and policy recommendation:
Although much research already exists, there is a need to build on research on best cases and effects for urban liveability and living conditions by making greener cities. This should be provided to policy makers. Further research should focus on making comprehensive planning instruments to include green areas building on analysis of best cases or practices, which are important for cities.

Policy recommendations: regulation of city planning: introduce specific amount of green in cities. Support or organize local initiatives to help citizens plant trees and ”green” their places. Use green spaces for community building and civic actions. Convert traffic infrastructure to green areas. Optimise existing spaces in cities (example: The PLUREL project, www.plurel.net). Include citizens in decision making.

Evaluation of the research priority and policy recommendation by the experts:
Novelty: Already old -> Awareness about the benefits of more green.
Essentiality: It is! Impact on health, wellbeing.
Timing: It should have been done already.

Additional comments from the experts on the research priority and policy recommendation:
There is a need for political will and greener cities should be seen as a priority for politicians. Public procurement is one tool to reach this aim. Important is also to look at legal barriers. There are many benefits to be recognised such as greening can prevent heat islands and that it increases biodiversity. Greening is already in place in many cities

Scoring: 1 green votes, 0 yellow votes → selected to the elaboration

Impact of virtual communities in behaviour change

Recommendation was driven from:
Network for a world as a home (4IT)

Description of the research priority and policy recommendation:
Research should look at impact effects of virtual communities in mobilizing citizens and changing behaviours based on case studies of existing networks as well as identify policy recommendations based on research outcomes.

Policy recommendation: deliver funding for demonstrations.

Evaluation of the recommendation by the experts:
Novelty: Rather new.
Essentiality: Yes, as way to engage citizens.
Timing: Can be done now.

Additional comments from the experts on the recommendation:
Research should be done on who are the leaders, what are the dynamics of virtual communities, upscaling and how to support them and how to spread them to other countries. Are the communities linked to some initiatives? Does the size of the virtual community matter? How to measure the behavioural change?
Pilot projects could be organised to study the impact of the networks on advancing sustainability or resource intensity and to study the typology of these networks, and what describes these networks e.g. are the communities organised vertically or horizontally. What is the most beneficial way of organisation: should it be formalised or remain as a bottom up approach.
A comparative study on existing and emerging networks in Europe should be organised, especially on networks that are "nudging" people towards sustainability. This could deliver insight on which kinds of virtual communities could be promoted in order to create a sustainable world?
The long-term effects of virtual communities should be studied including what are the conditions of creating a lasting, long-term (sustainable in terms of time) communities and study the virtual communities also in global perspective.
Study the evolution of one initiative to another and what are the best practices in the communities and how to transfer the best practices.
Research should be directed to aid finding the appropriate community. Study the influence of online and offline networks and their interaction and the value of physical interaction in addition to virtual network. How to reach groups that are not online and not involved in the virtual communities. How does digital literacy influence the success of these networks? How to nudge a network?

Scoring: 2 green votes, 0 yellow votes → selected to the elaboration

Building bridges towards better urban living.

Research priority and policy recommendation was driven from:
Optimal living together in the city and surrounding areas (1BE)

Description of the research priority and policy recommendation:
Harmonization of indicators and methodologies to assess the impacts of such initiatives. What is needed for reaching optimal living? More research should target the change of mindsets and political will.

Evaluation of the research priority and policy recommendation by the experts:
***Novelty*:** Not new, been here for long time.
***Essentiality*:** Essential to look at the bigger picture and ensure happy living of people.
***Timing* :** It has already started in some places.

Additional comments from the experts on the research priority and policy recommendation:
Not novel, aesthetics already play an important role in cities.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Business models and ethical considerations of IPHA (intelligent personal health advisor)

Research priority and policy recommendation was driven from:
Supporter of body and mind (IPHA – intelligent personal health adviser) (1SI)

Description of the research priority and policy recommendation:
Research is needed on business models related to the virtual services, ethical issues, data protection of medical records or health status.

Policy recommendations: create legal framework that ensures that people have access to these kind of services (internet connection, technology available, etc…)

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is not new anymore, there exists lot of apps etc.
Essentiality: Good if leads to better health & empowerment, critical issues related to data protection.
Timing : Has already started.

Additional comments from the experts on the research priority and policy recommendation:

Scoring: 0 green votes, 1 yellow votes → notselected to the elaboration

8. URBAN LIFE

Sustainable transformation of existing traffic infrastructures in cities

Recommendation was driven from:
Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational space (4UK), related to the visions: More green in the city (2BE) and the Clean nature for better quality of life (1BG)

Description of the research priority and policy recommendation:
Research priorities should include a comparative study of local cases in city planning related to traffic. Question is how does a city accomplish to make these changes and does the ideas for a transformation of traffic infrastructure already exist, but how can it be implemented? Research should taking note that how do we deal with different interests in the planning? We should explore positive impacts on the environment. A question is not just of traffic mode, we should also make space for pedestrians and safe green corridors and recreation areas. How have conflicts of interests been solved elsewhere in processes to enable these changes?

Policy recommendation:
Focus on functionality so that an area becomes more valuable. Areas should have new functions when are changed – for instance change from one traffic function to another. Maintain the transport function. Change politician legislation in the practice in city planning elsewhere.

Evaluation of the recommendation by the experts:
Novelty: The upscaling effect is new.
Essentiality: It is very essential.
Timing: Almost already too late.

Additional comments from the experts on the recommendation:
Solutions already exist, depends on political will.

Scoring: 1 green votes, 2 yellow votes → selected to the elaboration

Ensuring inclusive and dynamic city centres

Research priority and policy recommendation was driven from:
The city my home/ home in the city (3BE)

Description of the research priority and policy recommendation:
Research on how to combine the "all-inclusive-villages" and the city centres? How to find and improve the attractiveness of city centres (avoid ghost town centres)? Research on which space is related to which functionality? How to bring back the economic activity into the city centres? Research on how to revert the escape of services based on research about peoples movement (where income is created and where it is spent).

Research with focus on assessing impact of inclusive city centres on energy consumption. Maybe looking to Denmark as a model.

Policy recommendation:
Providing affordable housing, mixed housing (mixed sizes and prices), providing services in city centres (education, public services, health, shops etc.).
Legislation to ensure affordable lives for all in city centres – will also reduce commuting.
Looking at feasibility of converting business premises to affordable housing (legal barriers)

Evaluation of the research priority and policy recommendation by the experts:
Novelty: This is not novel.
Essentiality: It depends on the country.
Timing: Now.

Additional comments from the experts on the research priority and policy recommendation:
The main question is how to create places where people can live, work and play (sticky places)?
There should study on citizen's quality of life/well-being as well as mixed purposes for staying – some of the offices into appartments/hotels?

Scoring: 3 green votes, 0 yellow votes → selected to the elaboration

Research on business models related to urban farming

Recommendation was driven from:
Urban farm (4BE), related to the Urban farming (2FI).

Description of the research priority and policy recommendation:
There is a research gap concerning urban farming. What is the role and potentials of urban gardening: How and when does it emerge? And how does it strengthen education and social action that change peoples' behaviour (e.g. consumption patterns, diet, choice of education, life styles, understanding of food production, awareness of climate change and the need for climate adaptation). Are there any risks associated with urban gardening?

More specifically, the research could examine how this emergent phenomenon could grow in scale. Another specific question concerns how ownership influences the possibilities of realizing individual urban farming. Moreover, more research on technical possibilities, social management and organisation of urban farming, that is, among others the impact on the neighborhood.

Evaluation of the recommendation by the experts:
Novelty: This is not new.
Essentiality: It would be nice to have.
Timing: This is not very urgent.

Additional comments from the experts on the recommendation:
This is a risk, if urban farming is just an elitist's thing, or even "green wash".
Are the expectations for urban farming for example self-supply or learning to know agricultural processes?
Urban farm has social value. More than anything urban farming is interesting as social experimental zones of alternative ways to organize ourselves.

Scoring: 0 green votes, 1 yellow votes → not selected to the elaboration

Research on individual urban farming

Recommendation was driven from:
Urban farming (2FI), related to the Urban farm (4BE).

Description of the research priority and policy recommendation:
Research on how ownership influences on the possibilities of realizing individual urban farming. Research on technical possibilities of urban farming. Research on the impact on the neighbourhood. Feasibility assessments.

Evaluation of the recommendation by the experts:
Novelty: This is not new.
Essentiality: It would be nice to have.
Timing: Timing is not now.

Additional comments from the experts on the recommendation:

Scoring: 1 green votes, 0 yellow votes → selected to the elaboration

CASI

www.casi2020.eu

5: Citizen Assessment of Priorities for European Research: Report on the second citizen panel meetings (WP 3, Task 3.4)

2015

Matschoss, K., Repo, P., Kaarakainen, M., Kloppenborg, E., Ibsen-Jensen, J. & Kyhn, B.

Report on the second citizen panel meetings

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Report on the second citizen panel meetings (WP 3, Task 3.4)

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Contents

1. Introduction and objective

The overall aim of the CASI project is to give policy advice on how to promote societal engagement in sustainable innovation. To this end, CASI among other things, carried out a process to include citizen input to European research priorities for sustainable innovation – with a particular focus on issues that respond to the EU Grand Challenge of climate action, environment, resource efficiency and raw materials.

CASI builds on the methodology for citizen consultation that was developed and tested in the CIVISTI project. This methodology (cf. Andersen & Jacobi, 2011) includes three rounds of consultative processes with first citizens, second experts and third, the same citizens again before a final dissemination phase. The goal is to integrate citizens into the process of defining long-term visions for Europe (in the case of CASI, with a focus on a more sustainable future), and to use research as a key means to move in the direction of the outlined future that the visions suggest. This means that the visions must, in the process, be elaborated into research priorities. Moreover, the specific goal of the entire process is to get from a large number of scattered visions and research priorities to clusters of ideas and, eventually, a prioritised list of research priorities.

In CASI, the process and first two rounds of consultation included: The first citizens panel meetings in all 12 partner countries (April, 2015) during which citizens created 50 visions for a more sustainable future. These visions were then at an expert workshop (Copenhagen, June 8th-9th 2015) elaborated into 27 research priorities for Europe and policy recommendations.

The third consultation took place in September and October 2015, when the second round of citizen panel meetings took place to validate and deliver a European Top-10 of the research priorities, based on citizens' votes.

The objective of this report is to describe the results of the second citizen panel meetings. It presents the Top-10 list of research priorities for Europe that citizens voted for and discusses three thematic research priorities relating to agriculture, cities and technology. The complete results of the second citizen panel meetings are presented in appendices 1 and 2.

1.1 Second citizen panel meetings: A brief methodological overview

At least two weeks before the meetings, the participating citizens received the Catalogue of Research Priorities (translated into local language), that was developed on the basis of results from the expert workshop.

The first phase of the second citizen panel meetings consisted of a validation of the experts' work, that is, their elaboration of the citizen visions into research priorities. The validation process is a means to check whether experts treated the citizen visions in a loyal manner or came up with something (somehow or even completely) different. Two criteria were used: Faithfulness and relevance/importance of a research priority. Citizens were asked to consider, first, the faithfulness of a research priority to the vision behind. Second, citizens scored how relevant or important they considered each research priority, irrespective of how faithful the research priority was to the vision (see section 2 for more details on the two validation criteria).

In practice, the facilitator at the citizen panel meeting presented the research priority and the corresponding national vision and asked the citizens to discuss in smaller groups how faithful and relevant or important the research priorities were. Finally, the validation process was concluded when citizens individually scored the work of the experts (see appendix 3 for the results of the entire validation process in each country).

The second phase of the citizen panel meetings consisted of citizens voting on the 27 research priorities to come up with a Top-10 list of research priorities, considered the most relevant or important research priorities to create a more sustainable future (see appendices 1 and 2 for a presentation results at a European level and by country). The facilitator briefly presented each research priority, followed by discussion in smaller groups to make sure that all citizens remembered all the research priorities and

further got a chance to sharpen their understanding of the importance of each research priority. Finally, the citizens voted on the 10 research priorities they found the most relevant or important for a more sustainable future. The voting process resulted in the lists presented in appendix 2 (i.e. one Top-10 list for each partner country).

1.2 Recruitment of citizens for the second citizen panel meeting

The citizens invited for the second citizen panel meetings were the same as for the first citizen panel meetings. This was, and is, important for the citizens to be able to assess in particular the faithfulness of the research priorities. In some instances, new citizens were recruited to cover cancellations. Where it happened, the new citizens were carefully introduced to each vision concerned to enable them to validate the research priorities against the corresponding citizen vision. The recruitment for the first citizen panel meeting aimed at getting 25 participants for each of the 12 countries, reflecting the diversity of the population. The criteria used for selection were (in no particular order): Age, Gender, Geography, Educational level, and Occupation. Besides these five criteria, personal motivation for participating in the citizen panel meetings was also taken into account in the selection of participants.

2. Top 10 research priorities for Europe

This section presents the Top-10 priorities for European research that have been developed in a joint effort by the CASI project. The Top-10 research priorities are based on the second citizen meetings organized in 12 CASI partner countries in September or October in 2015: Austria, Belgium, Bulgaria, Czech Republic, Denmark, Finland, Germany, Italy, Poland, Portugal, Slovenia and the United Kingdom. The aim of ranking priorities by 184 participating European citizens is to deliver guidance to European research policy makers on research issues and topics that are valued high in importance by the public, and which will move Europe in the direction of a more sustainable future.

In the citizen meetings, participating citizens each had 10 votes that they gave to 10 research priorities which they found the most important. Each citizen could choose from 27 research priorities altogether and was not allowed to vote twice on any priority.

The transnational comparison of voting results on research priorities is carried out by providing equal weights for each country and the size of its citizen panel. In this procedure, the emerging Top-10 on research priorities is based on normalized number of votes from all 12 countries. A score index is used to normalize votes, and has been calculated by dividing the number of votes that each research priority received by the number of total votes in that country panel and showing this percentage. The score index ranges from 0 (no votes at all) to 10 (all possible votes in all national panels).

For instance, the research priority addressing "*Holistic education for a sustainable future*" received 20 votes from a total of 23 in Bulgaria, resulting in the score index 8,70, in effect showing that the priority received 8,7 per cent of all Bulgarian votes. Its relative share, however, is larger, as it collected 20 of 23 possible votes as each citizen could give one vote to ten priorities.

The European Top-10 is presented in Table 1. Appendix 1 provides the ranks and scores of all 27 research priorities and Appendix 2 provides Top-10 ranks by country. It is important to note that the Top-10 lists across countries are not being compared. Upcoming CASI policy briefs will address national differences in June 2016.

Research priorities were also validated against the visions that they built on. Citizens in each country then took time to consider whether the research priority that had been developed in the expert meeting corresponded the vision or visions that were created in that specific country. The validation scores for faithfulness to each vision are presented in the Table 1. The connection of the Top-10 priorities and the validation score is discussed in a latter section of the report.

Table 1 *Top-10 European research priorities according to mean index scores, standard deviation and validation against vision as voted by citizens in 12 countries.*

European rank	Name of research priority	Mean index score	SD	Validation score (faithfulness)	Priority number
1	Supporting local/regional agricultural production, distribution and consumption system	6,67	1,24	4,53	6
2	Holistic education for a sustainable future	6,02	2,10	3,51	20
3	Supporting people to become producers of renewable energy	5,59	1,53	4,06	1
4	Sustainable construction of buildings	5,55	2,40	3,31	17
5	Sustainable transformation of existing traffic infrastructure in cities	4,84	1,66	3,33	25
6	New working models – new economic models	4,60	1,71	3,33	11
7	Innovating agriculture: the sustainability option	4,35	1,68	3,13	8
8	More green in cities	4,12	2,16	3,33	24
9	Understanding and implementing sustainable electronics	4,06	2,09	3,69	16
10	Fair and participatory access to limited resources	3,88	2,70	2,55	13

The mean index number for all of the priorities ranges from 2.06 to 6.67, meaning that the priority voted as the most important (ranked at 1st place) received 6.67% of all European votes and the least important priority (ranked at 27th place) received 2.06% of all votes.

The most important priority voted by the European citizens is a priority called "*Supporting local/regional agricultural production, distribution and consumption system*", followed by "*Holistic education for a sustainable future*", "*Supporting people to become producers of renewable energy*", and "*Sustainable construction of buildings*". 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 countries.

There were, indeed, large differences between the Top-10 lists of the 12 countries, which supports the procedure of transnational comparison with normalized score indexes based on number of votes. In the low end, some priorities did not receive any votes in all countries but all visions have gained votes in at least one country.

The standard deviation of the voting results indicate that there are some priorities with large differences in voting between countries meaning that the priority in question has not been considered equally important throughout Europe. For instance, the standard deviation of the priority "*Fair and participatory access to limited resources*" (European rank 10) has the highest standard deviation of 2,70 implying larger differences in perceived importance between the countries in spite of being so highly ranked overall. It actually received no votes by the citizens in the Czech Republic, quite a small percentage in Bulgaria, Denmark, Italy and Portugal (below 2% of the votes), but in Austria, Germany and Slovenia more than 7 % of respondents found it important.

More uniformly, "*Co-developing green technology"* (European rank 23) was the lowest (0.716) meaning that the voting scores of this priority has been the most similar in the 12 countries and at the low end.

The differences between countries in the perceived importance of a priority could reflect to some extent the level of satisfaction of the citizens on the national state of affairs on related to the issue targeted with the research priority or to the differences in perceived importance relate to cultural, economic, infrastructural or even geographical differences between the countries. These are issues to which the CASI project shall return to in its national level policy briefs in June 2016. Therefore, also low scoring priorities are worth considering because they might have gained high support in some countries.

The mean countrywise standard deviation of the Top-10 priorities is 14% higher than that of the other priorities. This implies on the one hand that the choice of the Top-10 is not more unanimous than the others. On the other, there seems to be more common understanding on priorities that are not considered as important. One such priority is "*Supporting Eco-preneurship* " (European rank 20), which could be explained by the discussions of citizens in the panel held in Finland. There, the citizens commented that the main driver of eco-preneurship should be business instead of research and that if the research priority targets 30-40 years' from now, it will come too late to adequately affect sustainability.

Citizens were asked to validate if the research priorities drafted by experts were faithful to the visions drafted by the citizens in the first citizen panel meetings. In practice, national panels validated the research priorities that their visions had contributed to. Overall, the research priorities were considered by citizens to be faithful to the visions that they are based on. The mean validation score for all priorities is 3,53 on a scale from 1-5 (5= It addresses the ideas completely, 4=To a large degree, 3= To a moderate degree, 2=To a lesser degree, 1=Not at all). The validation score for the Top-10 research priorities is close to that average with a score of 3,48. This indicates that the faithfulness to original visions was not a determining criteria in the selection of the Top-10 research priorities.

The citizens were further asked to assess to what degree the research priority was relevant or important to reach a more sustainable future. As for the faithfulness criteria, the national panels only looked at the research priorities that stemmed from visions their own country had contributed to. Overall, the citizens considered the research priorities highly relevant to reach a more sustainable future. The mean relevance score for all priorities is 3,31 on a scale from 1-4 (4= Very relevant, 3= Relevant, 2= Less relevant, 1= Not at all relevant). Not surprising, the citizens found the Top-10 research priorities to be even more relevant. Here the mean relevance score is 3,53.

As to the question of relevance the citizens were asked at which geographical level the research priority was most relevant. The citizens had the option of choosing more than one geographical level. Overall, citizens found that the research priorities are almost equally relevant at the four levels (in my local area, in my country, in Europe, Globally), however with a slight trend towards the global level. For the Top-10 the emphasis on the international levels rose, with the European and Global levels receiving 56 % of the votes.

For a presentation of the validation scores for all the research priorities, see appendix 3.

3. Thematic priorities: Agriculture, Cities and Technology

Themes relating to agriculture, cities and technology emerge in the Top-10 list of European research priorities. These themes are discussed next because they reflect transnational interests amongst European citizens, that is, they go beyond the scope of each carefully formulated research priority.

3.1 Agriculture

The following Top-10 research priorities relate to agriculture: "Supporting local/regional agricultural production, distribution and consumption system" and "Innovating agriculture: the sustainability option" are based on the citizen visions "Self-supply with healthy food" and "Sustainable agriculture". The priority "Fair and participatory access to limited resources" is also interlinked to agriculture.

The main focus of research priorities on agriculture is, on the one hand, on how 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, how to ensure that local and organic production is prioritized. Emphasis in the identification and support of local ethnical, traditional and seasonal products and dishes.

Research should focus on how to give tools to create functioning business models and to improve the quality and labelling of products. A specific research suggestion is to map the existing or emerging cases of community supported agriculture, and to learn from experiences in local communities: to understand what

the conditions of emergence and success are, the role of public procurement in this, and how can it become a driver in the process, and to compare experiences with public regulation to increase organic food production and consumption (for instance in EU-countries with high-levels of organic farming as models: Austria, Sweden, Slovenia, Denmark, Germany).

EU legislation comes forth as an important topic: does it hinder the prioritization of local production and supply? Another specific research suggestion is to map and understand the role of the municipalities, such as in protecting local water resources, and how that links with local agricultural form. Research should be aimed to study how and when municipalities support the conversion of conventional agriculture into more sustainable agriculture (e.g. organic farming) and draw lessons learned from these practices. In addition, research should be done on green jobs and on how to create new employment opportunities in the sector. Also, the subsidies (keeping the same level of subsidies for farmers who convert to organic farming) should be studied as well as how to increase the share of organic farms in the EU.

3.2 Cities

The following Top-10 European research priorities relate to cities: “More green in cities” and “Sustainable transformation of existing traffic infrastructure in cities”. These are based on three citizen visions: “More green in the city”, “Reducing traffic congestion through the creation of green transport corridors and the protection and development of open and recreational space” and “Clean nature for better quality of life”. The priority “Sustainable construction of buildings” is also interlinked to cities.

Best cases and effects for urban liveability and living conditions should be studied in order to make cities greener. The focus should be on developing comprehensive planning instruments to include more green areas in cities. These should be built on best cases or practices, which are important for cities, and on supporting the organization of local initiatives to help citizens plant trees and “green” their places. It should be studied how to include citizens in decision making and conducted a comparative study of local cases in city planning related to traffic. There is a question of how a city accomplishes to realize this and if ideas for a transformation of traffic infrastructure already exist, but are not yet implemented? Research should study how different interests in the planning are taken into account and explore how to make space for pedestrians and safe green corridors and recreation areas. Furthermore, attention should be given to how conflicts of interest have been solved in processes to enable these changes.

3.3 Technology

The following Top-10 European research priorities relate to cities: “Supporting people to become producers of renewable energy” and “Understanding and implementing sustainable electronics”. They are based on the visions “Distributed small-scale energy generation in mainstream within 30-40 years” and “Sustainable electronics. The priorities “Holistic education for a sustainable future” and “New working models – new economic models” are also interlinked to technology.

Here, the main research foci are 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. Research should focus on how to integrate and support smart grids around Europe as well as how to make people aware of the possibilities of smart grids and self-production. Encouraging people to collaborate in energy production should be considered. Further research should be made on the possibilities of mechanisms to increase the bargaining power of small scale energy producers and on how to give them more market power. It is about improving the collective organizing of energy producers (for instance several households with solar panels). In sustainable electronics, leasing as a new consumption model should be studied. Research should be developing supply chain monitoring systems in order to assess the social and environmental impact of production. Research should also focus on new models for the application of circular economy and the different value chains in electronics production.

4. Discussion

These results of the Top-10 research priorities give insights for European research policy makers about interests brought forth by citizens in 12 European countries. This data thus presents a unique and up to date source of information of citizen views for a European research agenda. As it is founded on a procedure that engages lay people, it can be argued to be generally well accepted among European citizens. The upcoming CASI policy briefs will address the research priorities from national perspectives and embed them in policy contexts (in December 2015 at the European level and in June 2016 at the national level).

The results on research priorities presented in this report were built and assessed following a CIVISTI methodology (Andersen & Jacobi 2011; Rask & Damianova 2009) in which citizens first created visions of desirable and sustainable futures, which experts used as data when formulating research priorities, and which in turn the citizens assessed. The CASI project believes that this procedure ensures that the emerged priorities are both relevant for European citizens and can be implemented in the formulation of the European research agenda.

References and further reading:

Andersen, I.& Jacobi, A (2011). CIVISTI - Deliverable 1.3: Civisti Methodology Manual. CIVISTI project. See www.civisti.org.

CASI (2015). Inspiration magazine for CASI citizen panel meetings. Making Visions for a Sustainable Future. CASI project. Available at www.casi2020.eu.

CASI (2015). 50 Citizen Visions on Sustainable Futures. CASI project. Available at www.casi2020.eu.

CASI (2015). Catalogue of research priorities for a sustainable future. Preparation material for the second CASI citizen panel meeting. CASI project. Available at www.casi2020.eu.

Kaarakainen, M., Repo, P., Matschoss, K., Bedsted, B., Damianova, Z., Popper, R. & Rask, M. (2015). 50 Citizen Visions on Sustainable Futures. CASI project. Available at www.casi2020.eu.

Rask, M., Damianova, Z. (2009). Citizen Visions – Preliminary Content Report. CIVISTI project. Available at www.civisti.org.

Repo, P., Kaarakainen, M. & Matschoss, K. (2015). European Research Priorities Based on Citizen Visions . A report from the CASI expert workshop in Copenhagen 8.-9.2015. CASI project. Available at www.casi2020.eu.

Appendix 1. Top-27 European research priorities according to mean index scores, standard deviation and validation against vision as voted by citizens in 12 countries

European rank	Name of research priority	Mean index score	SD	Validation score (faithfulness)	Priority number
1	Supporting local/regional agricultural production, distribution and consumption system	6,67	1,24	4,53	6
2	Holistic education for a sustainable future	6,02	2,10	3,51	20
3	Supporting people to become producers of renewable energy	5,59	1,53	4,06	1
4	Sustainable construction of buildings	5,55	2,40	3,31	17
5	Sustainable transformation of existing traffic infrastructure in cities	4,84	1,66	3,33	25
6	New working models – new economic models	4,60	1,71	3,33	11
7	Innovating agriculture: the sustainability option	4,35	1,68	3,13	8
8	More green in cities	4,12	2,16	3,33	24
9	Understanding and implementing sustainable electronics	4,06	2,09	3,69	16
10	Fair and participatory access to limited resources	3,88	2,70	2,55	13
11	Enhanced physical activity for better quality of life and energy efficiency	3,81	2,42	4,40	4
12	Improvement of European electricity transmission to increase renewable energy production	3,77	1,76	3,94	3
13	Ensuring inclusive and dynamic city centres	3,40	1,02	3,27	26
14	Sustainable living environment	3,39	1,36	3,24	19
15	A new European food culture	3,32	1,82	3,18	7
16	Sustainable economics	3,27	2,16	3,18	9
17	Unified ecological grading system	3,25	2,23	3,91	18
18	Research on business models and changing institutions related to sustainable energy economy	3,11	1,75	3,27	2
19	Supporting an active civil society for sustainable development	2,99	1,84	4,26	22
20	Supporting Eco-preneurship	2,94	1,65	3,55	12
21	Access to natural resources as a human right	2,88	1,58	3,75	14
22	Research on individual urban farming	2,74	1,53	3,29	27
23	Collaboration through shared space	2,56	1,81	3,38	10
24	Co-developing green technology	2,52	0,72	3,76	15
25	Impact of virtual communities in behaviour change	2,23	1,50	3,60	23
26	New spaces for public discourse	2,10	2,26	3,20	21
27	Exploring the introduction of insect food	2,06	1,36	3,33	5

Appendix 2. Top-10 ranked research priorities by country and index score

Austria			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Holistic education for a sustainable future	8,18	20
2	Fair and participatory access to limited resources	7,55	13
3	Supporting people to become producers of renewable energy	6,92	1
3	Innovating agriculture: the sustainability option	6,92	8
5	Unified ecological grading system	6,29	18
6	Supporting Eco-preneurship	5,66	12
6	Understanding and implementing sustainable electronics	5,66	16
8	Supporting local/regional agricultural production, distribution and consumption system	5,03	6
8	New working models – new economic models	5,03	11
8	Sustainable living environment	5,03	19

Belgium			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Supporting local/regional agricultural production, distribution and consumption system	5,22	6
1	Sustainable transformation of existing traffic infrastructure in cities	5,22	25
3	Understanding and implementing sustainable electronics	4,35	16
3	Sustainable construction of buildings	4,35	17
5	Improvement of European electricity transmission to increase renewable energy production	3,48	3
5	Holistic education for a sustainable future	3,48	20
7	Sustainable economics	3,04	9
7	New working models – new economic models	3,04	11
7	New spaces for public discourse	3,04	21
10	Supporting people to become producers of renewable energy	2,61	1
10	Collaboration through shared space	2,61	10
10	Ensuring inclusive and dynamic city centres	2,61	26

Bulgaria			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Holistic education for a sustainable future	8,70	20
2	Supporting local/regional agricultural production, distribution and consumption system	7,83	6
3	Sustainable construction of buildings	6,96	17
4	Innovating agriculture: the sustainability option	6,52	8
5	Supporting an active civil society for sustainable development	5,65	22

6	Improvement of European electricity transmission to increase renewable energy production	5,22	3
6	Sustainable transformation of existing traffic infrastructure in cities	5,22	25
8	Supporting people to become producers of renewable energy	4,78	1
9	Enhanced physical activity for better quality of life and energy efficiency	4,35	4
9	Access to natural resources as a human right	4,35	14

Czech Republic			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	More green in cities	8,67	24
2	Enhanced physical activity for better quality of life and energy efficiency	8,00	4
3	Sustainable construction of buildings	7,33	17
4	Supporting local/regional agricultural production, distribution and consumption system	6,67	6
5	Exploring the introduction of insect food	5,33	5
5	Understanding and implementing sustainable electronics	5,33	16
5	Sustainable transformation of existing traffic infrastructure in cities	5,33	25
8	Supporting people to become producers of renewable energy	4,67	1
8	A new European food culture	4,67	7
8	Supporting Eco-preneurship	4,67	12
8	Holistic education for a sustainable future	4,67	20
8	Ensuring inclusive and dynamic city centres	4,67	26

Denmark			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Sustainable construction of buildings	7,69	17
2	More green in cities	6,92	24
3	Improvement of European electricity transmission to increase renewable energy production	6,15	3
3	Supporting local/regional agricultural production, distribution and consumption system	6,15	6
5	Enhanced physical activity for better quality of life and energy efficiency	5,38	4
5	New working models – new economic models	5,38	11
5	Understanding and implementing sustainable electronics	5,38	16
8	Innovating agriculture: the sustainability option	4,62	8
8	Sustainable economics	4,62	9
8	Sustainable living environment	4,62	19
8	Holistic education for a sustainable future	4,62	20
8	Ensuring inclusive and dynamic city centres	4,62	26

Finland			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Supporting people to become producers of renewable energy	7,50	1

2	Sustainable economics	6,25	9
2	Understanding and implementing sustainable electronics	6,25	16
2	Sustainable construction of buildings	6,25	17
5	Supporting local/regional agricultural production, distribution and consumption system	5,00	6
5	Sustainable living environment	5,00	19
7	Innovating agriculture: the sustainability option	4,38	8
7	Fair and participatory access to limited resources	4,38	13
7	Unified ecological grading system	4,38	18
7	Sustainable transformation of existing traffic infrastructure in cities	4,38	25

Germany			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Holistic education for a sustainable future	9,09	20
2	Fair and participatory access to limited resources	8,18	13
3	Sustainable economics	7,27	9
4	Research on business models and changing institutions related to sustainable energy economy	6,36	2
4	Supporting people to become producers of renewable energy	6,36	1
6	Supporting local/regional agricultural production, distribution and consumption system	5,46	6
6	Research on individual urban farming	5,46	27
8	A new European food culture	4,55	7
8	Access to natural resources as a human right	4,55	14
8	Sustainable living environment	4,55	19
8	Supporting an active civil society for sustainable development	4,55	22
8	Sustainable transformation of existing traffic infrastructure in cities	4,55	25

Italy			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Supporting local/regional agricultural production, distribution and consumption system	9,33	6
2	New working models – new economic models	8,67	11
3	New spaces for public discourse	7,33	21
4	Understanding and implementing sustainable electronics	6,67	16
5	Supporting people to become producers of renewable energy	6,00	1
5	Unified ecological grading system	6,00	18
5	Sustainable transformation of existing traffic infrastructure in cities	6,00	25
8	Impact of virtual communities in behaviour change	5,33	23
9	Supporting Eco-preneurship	4,67	12
10	Research on business models and changing institutions related to sustainable energy economy	4,00	2
10	Ensuring inclusive and dynamic city centres	4,00	26

Poland

National rank	Name of research priority	Index score	Priority number
1	Sustainable construction of buildings	7,83	17
2	Supporting local/regional agricultural production, distribution and consumption system	6,43	6
2	Supporting an active civil society for sustainable development	6,43	22
2	More green in cities	6,43	24
5	Improvement of European electricity transmission to increase renewable energy production	5,71	3
5	A new European food culture	5,71	7
5	Collaboration through shared space	5,71	10
8	Holistic education for a sustainable future	5,00	20
8	New spaces for public discourse	5,00	21
8	Impact of virtual communities in behaviour change	5,00	23

Portugal			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Sustainable construction of buildings	7,81	17
1	Sustainable transformation of existing traffic infrastructure in cities	7,81	25
3	Supporting people to become producers of renewable energy	7,03	1
3	Enhanced physical activity for better quality of life and energy efficiency	7,03	4
3	Innovating agriculture: the sustainability option	7,03	8
6	Supporting local/regional agricultural production, distribution and consumption system	6,25	6
7	New working models – new economic models	5,47	11
7	Holistic education for a sustainable future	5,47	20
7	More green in cities	5,47	24
10	Improvement of European electricity transmission to increase renewable energy production	4,69	3

Slovenia			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Holistic education for a sustainable future	8,24	20
2	Supporting local/regional agricultural production, distribution and consumption system	7,65	6
3	Fair and participatory access to limited resources	7,06	13
3	Sustainable construction of buildings	7,06	17
5	Enhanced physical activity for better quality of life and energy efficiency	5,88	4
5	Research on individual urban farming	5,88	27
7	New working models – new economic models	5,29	11
7	Access to natural resources as a human right	5,29	14
9	Improvement of European electricity transmission to increase renewable energy production	4,71	3
10	Unified ecological grading system	4,12	18

United Kingdom			
National rank	**Name of research priority**	**Index score**	**Priority number**
1	Sustainable construction of buildings	8,18	17
2	Supporting local/regional agricultural production, distribution and consumption system	7,27	6
2	Unified ecological grading system	7,27	18
2	Holistic education for a sustainable future	7,27	20
5	Supporting people to become producers of renewable energy	6,36	1
5	Exploring the introduction of insect food	6,36	5
5	Supporting Eco-preneurship	6,36	12
8	A new European food culture	5,46	7
8	Sustainable economics	5,46	9
10	Improvement of European electricity transmission to increase renewable energy production	4,55	3
10	Collaboration through shared space	4,55	10

Appendix 3. Validation score for research priorities sorted after the European Top-27

1. Supporting local/regional agricultural production, distribution and consumption system
Partner: UP

Faithfulness	%
It addresses the ideas completely	64,71
To a large degree	23,53
To a moderate degree	11,76
To a lesser degree	0
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	82,35
Relevant	17,65
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	27,50
In my country	27,5
Europe	12,5
Globally	32,5
I do not know	0

2. Holistic education for a sustainable future
Partner: ARC Fund and PSTP[1]

Faithfulness	%
It addresses the ideas completely	10,87
To a large degree	46,74
To a moderate degree	21,585
To a lesser degree	18,635
Not at all	2,175
I do not know	0,00

Relevance/Importance	%
Very relevant	56,22
Relevant	35,87
Less relevant	5,75
Not at all relevant	2,18
I do not know	0,00

Geographical level	%
In my local area	19,74
In my country	26,32
Europe	28,95
Globally	23,68
I do not know	1,32

3. Supporting people to become producers of renewable energy
Partner: INOVA

Faithfulness	%
It addresses the ideas completely	0
To a large degree	76,47
To a moderate degree	23,53
To a lesser degree	0
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	11,76
Relevant	76,47
Less relevant	11,76
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	0
In my country	13,64
Europe	31,82
Globally	50
I do not know	4,55

[1] The research priority is based on two visions. The calculated validation score is the average of these two.

4. Sustainable construction of buildings
Partner: DBT

Faithfulness	%
It addresses the ideas completely	0
To a large degree	38,46
To a moderate degree	53,85
To a lesser degree	7,69
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	76,92
Relevant	15,38
Less relevant	7,69
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	13,79
In my country	20,69
Europe	31,03
Globally	34,48
I do not know	0

5. Sustainable transformation of existing traffic infrastructure in cities
Partner: KU Leuven, ARC Fund and CUE[2]

Faithfulness	%
It addresses the ideas completely	2,90
To a large degree	45,94
To a moderate degree	29,52
To a lesser degree	16,53
Not at all	0,00
I do not know	5,11

Relevance/Importance	%
Very relevant	33,05
Relevant	53,32
Less relevant	10,10
Not at all relevant	1,45
I do not know	2,08

Geographical level	%
In my local area	27,63
In my country	31,52
Europe	20,42
Globally	18,06
I do not know	2,37

6. New working models – new economic models
Partner: ZSI

Faithfulness	%
It addresses the ideas completely	12,50
To a large degree	18,75
To a moderate degree	50
To a lesser degree	12,5
Not at all	0
I do not know	6,25

Relevance/Importance	%
Very relevant	50,00
Relevant	43,75
Less relevant	6,25
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	22,73
In my country	22,73
Europe	27,27
Globally	22,73
I do not know	4,55

[2] The research priority is based on three visions. The calculated validation score is the average of these three.

7. Innovating agriculture: the sustainability option
Partner: ZSI

Faithfulness	%
It addresses the ideas completely	0
To a large degree	31,25
To a moderate degree	50
To a lesser degree	18,75
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	93,75
Relevant	6,25
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	27,91
In my country	23,26
Europe	25,58
Globally	23,26
I do not know	0

8. More green in cities
Partner: KU Leuven

Faithfulness	%
It addresses the ideas completely	0
To a large degree	37,5
To a moderate degree	50
To a lesser degree	6,25
Not at all	0
I do not know	6,25

Relevance/Importance	%
Very relevant	37,5
Relevant	43,75
Less relevant	12,5
Not at all relevant	0
I do not know	6,25

Geographical level	%
In my local area	35
In my country	15
Europe	25
Globally	20
I do not know	5

9. Understanding and implementing sustainable electronics
Partner: DBT

Faithfulness	%
It addresses the ideas completely	7,69
To a large degree	53,85
To a moderate degree	38,46
To a lesser degree	0
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	46,15
Relevant	53,85
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	14,81
In my country	14,81
Europe	22,22
Globally	48,15
I do not know	0

10. Fair and participatory access to limited resources
Partner: TUDo

Faithfulness	%
It addresses the ideas completely	0
To a large degree	27,27
To a moderate degree	9,09
To a lesser degree	54,55
Not at all	9,09
I do not know	0

Relevance/Importance	%
Very relevant	63,64
Relevant	27,27
Less relevant	9,09
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	9,09
In my country	13,64
Europe	27,27
Globally	50
I do not know	0

11. Enhanced physical activity for better quality of life and energy efficiency
Partner: FD

Faithfulness	%
It addresses the ideas completely	46,67
To a large degree	46,67
To a moderate degree	6,67
To a lesser degree	0
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	40
Relevant	53,33
Less relevant	6,67
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	10
In my country	10
Europe	20
Globally	60
I do not know	0

12. Improvement of European electricity transmission to increase renewable energy production
Partner: UP

Faithfulness	%
It addresses the ideas completely	17,65
To a large degree	58,82
To a moderate degree	23,53
To a lesser degree	0
Not at all	0
I do not know	0

Relevance/Importance	%
Very relevant	76,47
Relevant	17,65
Less relevant	5,88
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	4,17
In my country	8,33
Europe	25
Globally	62,5
I do not know	0

13. Ensuring inclusive and dynamic city centres
Partner: KU Leuven

Faithfulness	%
It addresses the ideas completely	12,5
To a large degree	18,75
To a moderate degree	43,75
To a lesser degree	18,75
Not at all	0
I do not know	6,25

Relevance/Importance	%
Very relevant	25
Relevant	31,25
Less relevant	31,25
Not at all relevant	0
I do not know	12,5

Geographical level	%
In my local area	34,62
In my country	30,77
Europe	19,23
Globally	11,54
I do not know	3,85

14. Sustainable living environment
Partner: UH

Faithfulness	%
It addresses the ideas completely	12,50
To a large degree	25
To a moderate degree	56,25
To a lesser degree	6,25
Not at all	0

Relevance/Importance	%
Very relevant	62,50
Relevant	25
Less relevant	6,25
Not at all relevant	6,25
I do not know	0

Geographical level	%
In my local area	11,54
In my country	23,08
Europe	23,08
Globally	42,31
I do not know	0

I do not know	0

15. A new European food culture
Partner: CUE

Faithfulness	%
It addresses the ideas completely	0
To a large degree	45,45
To a moderate degree	27,27
To a lesser degree	27,27
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	63,64
Relevant	36,36
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	16,00
In my country	20
Europe	28
Globally	36
I do not know	0

16. Sustainable economics
Partner: INOVA and TUDo[3]

Faithfulness	%
It addresses the ideas completely	0,00
To a large degree	42,78
To a moderate degree	25,40
To a lesser degree	22,73
Not at all	9,10
I do not know	0,00

Relevance/Importance	%
Very relevant	28,61
Relevant	47,33
Less relevant	19,52
Not at all relevant	0,00
I do not know	4,55

Geographical level	%
In my local area	7,69
In my country	20,28
Europe	29,37
Globally	38,46
I do not know	4,20

17. Unified ecological grading system
Partner: CUE

Faithfulness	%
It addresses the ideas completely	9,09
To a large degree	72,73
To a moderate degree	18,18
To a lesser degree	0
Not at all	0
I do not know	0

Relevance/Importance	%
Very relevant	36,36
Relevant	54,55
Less relevant	9,09
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	15,00
In my country	25
Europe	30
Globally	30
I do not know	0

[3] The research priority is based on two visions. The calculated validation score is the average of these two.

18. Research on business models and changing institutions related to sustainable energy economy
Partner: TUDo

Faithfulness	%
It addresses the ideas completely	0
To a large degree	27,27
To a moderate degree	72,73
To a lesser degree	0
Not at all	0
I do not know	0

Relevance/Importance	%
Very relevant	72,73
Relevant	27,27
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	36
In my country	36
Europe	20
Globally	8
I do not know	0

19. Supporting an active civil society for sustainable development
Partner: ARC Fund

Faithfulness	%
It addresses the ideas completely	43,48
To a large degree	39,13
To a moderate degree	17,39
To a lesser degree	0
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	56,52
Relevant	43,48
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	12,50
In my country	30
Europe	27,5
Globally	30
I do not know	0

20. Supporting Eco-preneurship
Partner: CUE

Faithfulness	%
It addresses the ideas completely	18,18
To a large degree	18,18
To a moderate degree	63,64
To a lesser degree	0
Not at all	0
I do not know	0

Relevance/Importance	%
Very relevant	18,18
Relevant	63,64
Less relevant	18,18
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	25,00
In my country	25,00
Europe	30,00
Globally	15,00
I do not know	5,00

21. Access to natural resources as a human right
Partner: ZSI

Faithfulness	%
It addresses the ideas completely	6,25
To a large degree	68,75
To a moderate degree	18,75
To a lesser degree	6,25
Not at all	0
I do not know	**0**

Relevance/Importance	%
Very relevant	81,25
Relevant	12,5
Less relevant	6,25
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	17,95
In my country	17,95
Europe	28,21
Globally	35,9
I do not know	0

22. Research on individual urban farming
Partner: KU Leuven

Faithfulness	%
It addresses the ideas completely	6,25
To a large degree	43,75
To a moderate degree	25
To a lesser degree	12,5
Not at all	6,25
I do not know	6,25

Relevance/Importance	%
Very relevant	6,25
Relevant	43,75
Less relevant	43,75
Not at all relevant	0
I do not know	6,25

Geographical level	%
In my local area	57,89
In my country	10,53
Europe	15,79
Globally	5,26
I do not know	10,53

23. Collaboration through shared space
Partner: DBT

Faithfulness	%
It addresses the ideas completely	15,38
To a large degree	38,46
To a moderate degree	23,08
To a lesser degree	15,38
Not at all	7,69
I do not know	0

Relevance/Importance	%
Very relevant	76,92
Relevant	23,08
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	24,14
In my country	24,14
Europe	20,69
Globally	31,03
I do not know	0

24. Co-developing green technology
Partner: UP

Faithfulness	%
It addresses the ideas completely	23,53
To a large degree	29,41
To a moderate degree	47,06
To a lesser degree	0
Not at all	0
I do not know	0

Relevance/Importance	%
Very relevant	47,06
Relevant	52,94
Less relevant	0
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	25,64
In my country	20,51
Europe	15,38
Globally	38,46
I do not know	0

25. Impact of virtual communities in behaviour change
Partner: META

Faithfulness	%
It addresses the ideas completely	26,67
To a large degree	33,33
To a moderate degree	13,33
To a lesser degree	26,57
Not at all	0

Relevance/Importance	%
Very relevant	46,67
Relevant	46,67
Less relevant	6,67
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	15,63
In my country	37,5
Europe	28,13
Globally	18,75
I do not know	0

I do not know	0

26. New spaces for public discourse
Partner: META

Faithfulness	%
It addresses the ideas completely	
To a large degree	40
To a moderate degree	40
To a lesser degree	20
Not at all	
I do not know	0

Relevance/Importance	%
Very relevant	6,67
Relevant	73,33
Less relevant	20
Not at all relevant	0
I do not know	0

Geographical level	%
In my local area	27,78
In my country	33,33
Europe	11,11
Globally	27,78
I do not know	0

27. Exploring the introduction of insect food
Partner: FD

Faithfulness	%
It addresses the ideas completely	20,00
To a large degree	26,67
To a moderate degree	26,67
To a lesser degree	20
Not at all	6,67
I do not know	

Relevance/Importance	%
Very relevant	26,67
Relevant	26,67
Less relevant	33,33
Not at all relevant	13,33
I do not know	

Geographical level	%
In my local area	5,26
In my country	10,53
Europe	15,79
Globally	57,89
I do not know	10,53

The average for all research priorities

Faithfulness	%
It addresses the ideas completely	13,20
To a large degree	38,80
To a moderate degree	32,40
To a lesser degree	12,80
Not at all	1,60
I do not know	1,30

Relevance/Importance	%
Very relevant	47,6
Relevant	39,6
Less relevant	10,5
Not at all relevant	1,1
I do not know	1,3

Geographical level	%
In my local area	22
In my country	22,7
Europe	23,8
Globally	29,7
I do not know	1,8

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