



The James
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Institute

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TO WHOM IT MAY CONCERN

Horizon 2020: Consultation on Future Priorities for Climate Challenge

Response from James Hutton Institute, United Kingdom

<http://ec.europa.eu/programmes/horizon2020/en/news/consultation-stakeholders-horizon-2020-societal-challenge-5>

Please consider the following questions, citing any available evidence such as foresight and other assessments of research and innovation trends and market opportunities:

1) What is the biggest challenge in the field concerned which requires immediate action under the next Work Programme?

A fully adequate and comprehensive consumption-side accounting of energy and material stocks and flows that underpin the societies in Member States of the EU. It is imperative that responsibility for emissions be firmly located with the consumer rather than the producer. This would provide a characterisation of the metabolism of the EU with a realistic definition of what needs to change to stay within environmental limits. It would contribute to informing the required substantial change in patterns of consumption and wealth “creation” and a redefinition of progress well beyond GDP. It would underpin the development of credible and acceptable lifestyle changes that ensure we live within our means. It would also highlight Europe’s deep interconnectedness with other parts of the world and emphasise the need to look beyond national and continental boundaries in developing effective agreements and solutions.

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Which related innovation aspects could reach market deployment within 5-7 years?

There is a need to recognise that technological innovations are only a small part of the process as without other changes the benefits in terms of efficiency can be squandered by rebound effects with greater consumption. Although development of appropriate infrastructure can facilitate pro-environmental behaviours, what is needed is lifestyle innovation, innovation in the tokens and metrics by which individuals and societies measure their success, and innovation in governance that rebalances power and influence away from a super-rich minority.

2) What are the key assumptions underpinning the development of these areas (research & innovation, demand side and consumer behaviour, citizens' and civil society's concerns and expectations)?

The hegemonic assumption is that growth in GDP is an adequate high level index of progress. Since 1980, GDP has grown with little or no effect on quality of life and indeed an increasingly unequal distribution of wealth and opportunity. Even economically, the next generation in Europe can expect to be less wealthy than the current; the first such since the start of industrialisation in the 1750's. This calls into question the role, legitimacy and function of government, viz the rise of extremist politicians in the last EU elections. There is a need for a fundamental review of how society can exist within environmental limits and who benefits from the functioning of the EU.

Although wealth creation is essential to meet basic needs, evidence has shown that beyond a certain level of income, additional wealth can be detrimental. Shifting emphasis in economic policy to the biological, psychological, social, economic and environmental determinants of well-being encompasses the creation of wealth to alleviate poverty, but acknowledges that human needs are broader than the goods and services that can be obtained with money.



3) What is the output that could be foreseen, what could the impact be, what would success look like, and what are the opportunities for international linkages?

Success would look like mandatory, enforced and transparent accounting of stocks and flows of energy, materials and wealth. International cooperation at the highest level is required to implement CAP and trade limits on resource use in the developed world. Revisions to taxation and banking regulations are needed to curb excessive and destabilising speculation with a transaction tax funding ecosystem service protection both within the EU and particularly within the developing world where palm oil is more valuable than the sequestration of carbon.

Longer-term, success would be evident in shifts in international narratives about the indicators of success, and in cultural changes in the lifestyles to which people aspire.

4) Which are the bottlenecks in addressing these areas, and what are the inherent risks and uncertainties, and how could these be addressed?

The main bottleneck is self-interest and individualism of national governments and weakness in the face of commercial interests. The greatest risk to the EU is dependence upon unstable states for carbon-based energy supply. Decarbonisation results in a more pluralist and democratic supply of energy that undermines vested interests. It represents a new frontier in terms of technologies that will enhance our quality of life by reducing pollution avoiding environmental damage from tar sand, fracking, arctic exploitation etc. One further bottleneck is a lack of political will to make the transition and sell the benefits to the population of the EU.

There are bottlenecks in academia and among practitioners and business consultants in rebuilding economics to be fit for purpose rather than a narrative based on demonstrably false assumptions and an obsession with equilibria. The fact that economics provides a convenient message for those wanting to justify the concentration of power and wealth, whilst ignoring the degradation of the environment as an “externality” (or making farcical attempts to express everything in monetary terms) is also unhelpful.



5) Which gaps (science and technology, markets, policy) and potential game changers, including the role of the public sector in accelerating changes, need to be taken into account?

Transparency of accounting and collective enforcement of binding trajectories that more than meet the minimum levels of decarbonisation required (given the uncertainty in knowing what the level of emissions that results in a soft landing). Accepting trajectories that are certain to mean failure to stay below 2.0 degrees of change means a significant probability of exceeding 3.0 degrees, which with positive feedbacks means the potential for runaway climate change with large-scale environmental degradation and societal collapse. Developing transparent, integrated modelling methodologies allowing scenarios of change to be explored and discussed is also essential.

6) In which areas is the strongest potential to leverage the EU knowledge base for innovation and, in particular, ensure the participation of industry and SMEs? What is the best balance between bottom-up activities and support to key industrial roadmaps?

There needs to be a balance between information, incentives, markets and regulation. Each individually is inadequate and each needs to be carefully balanced against the others. All aspects of society need to be considered but priority needs to be given to the most polluting and most resource-demanding. The EU has world-leading expertise in integrated modelling.

7) Which areas have the most potential to support integrated activities, in particular across the societal challenges and applying key enabling technologies in the societal challenges and vice versa; and cross-cutting activities such as social sciences and humanities, responsible research and innovation including gender aspects, and climate and sustainable development? Which types of interdisciplinary activities will be supported?

Responding to the challenges of climate change is necessarily an interdisciplinary endeavour, but one that needs to engage better with society. A key need is for genuine science-society or science-policy interactions. In particular there needs to be iterative co-construction of the research with direct interactions; something that is largely infeasible in the current contracted research model as it does not provide sufficient flexibility for research goals to change, nor sufficient time to establish meaningful dialogue among participants, research professionals and funding bodies.



This means building up the mechanisms and pathways for interactions and strengthening the back loop – evaluation and revision of activities. There is also the need for longer-term funding of projects beyond the 3-5 year time frame – but with much stronger oversight that means projects are more responsive or are terminated if not delivering.

However, note that social science is not a cross cutting activity *per se* any more than a natural science (e.g. soil science).

Sincerely,

Professor Iain Gordon
Chief Executive

