Foresight and Public Engagement in Research and Innovation

The year 2013 marked the official end of the SPRING project, whose objective to create and provide a solid basis for future EU-China collaboration in the field of environmental research, had been successfully accomplished by the end of February. ARC Fund's role in the implementation of SPRING was crucial since it was the partner providing the core methodology for the foresight activities.

The major deliverable, namely the *Roadmapping Report with Identified Research Priorities*, is the final result of the all foresight activities executed during the course of the project implementation. This included the key technologies workshop, followed by the key technologies online survey, the success scenario building workshop and the roadmapping workshop. The report was prepared by the Chinese Research Academy of Environmental Sciences on the basis of the content structure provided by ARC Fund. In addition, ARC Fund wrote the part of the report dedicated to the description of the foresight methodology applied in SPRING. The document consists of the following major parts:

- *Executive Summary*, presenting the objective and the structure of the roadmapping report;
- *Introduction*, encompassing the reasons for having such a roadmapping report, presenting in details the foresight methodology of SPRING and providing an overview of the context of the roadmap, including EU policies in research and innovation 2014-2020, the grand challenges, as well as existing research gaps;
- *Research Landscape and Various Resources to be Committed to the EU-China Collaboration*, including the relevant stakeholders, necessary human capital and research infrastructure and the needed financial resources;
- *The Roadmaps – Setting Concrete Priorities for EU-China Environmental Research Collaboration*, presenting the roadmaps in the domains of biodiversity, climate change, water and atmosphere as well as the relevant policy measures and recommendations in each of these four fields;
- *Implementation of the Roadmaps*, presenting the stakeholders involved in the roadmap validation process, as well as a thorough implementation plan for the uptake and execution of the roadmaps.

This major project deliverable was officially presented to a larger audience from DG Research and Innovation, and DG Environment, during the final workshop in Brussels in February 2013. Possibilities to continue this line of work in the environmental field, by implementing other EU-China research collaboration projects in the future, were discussed.

EnVision2020

The need to improve resource efficiency is at the heart of the EU agenda. This is evidenced both by the energy and pollution targets set, as well as the Resource-Efficient Europe flagship initiative, within the Europe 2020 strategy. In many countries in South East Europe, the energy intensity of countries is among the highest in Europe. Since these countries are expected to economically converge with European averages over time, (GDP per capita) the correlative link between energy use and economic growth indicates that energy use in this region is likely to increase at above average rates.

The objective of the 'Energy Vision 2020 for South East European Cities' (Envision2020) project is to support the development of a policy framework, and specific options for reducing energy use against a baseline in South East Europe, while maintaining or improving living conditions. While there are many levers across all economic sectors which could be pulled to reduce energy use and minimize greenhouse gasses, buildings have been identified as having particularly underexploited abatement and cost savings potential. In other areas such as transport, the stakes are also high, with growth in personal vehicles on the rise around the world.

ARC Fund is in charge of developing the foresight methodology of the EnVision2020 project, and training the partners to support to the local and regional authorities in the overall execution of the energy foresight exercise. In its role of a methodology provider for the foresight activities within the project, in 2013 ARC Fund implemented the following tasks:

- Preparation of a stakeholders' interview template, listing the questions used by all project partners for conducting interviews with energy stakeholders in their city/region;
- Preparation of a short info material on foresight;
- Development of a foresight guide;
- Development of a key technologies workshop methodology;
- Preparation of an online key technologies survey questionnaire.

Furthermore, ARC Fund organized training on the key technologies workshop methodology for all consortium partners. It was held at the premises of the organization on 16 July, 2013 and was followed by the Sofia Key Technologies workshop on 17 July, which was also hosted by ARC Fund. A total of 38 people participated in the workshop. They were representatives of various stakeholders groups such as universities, research organizations, utility companies, non-governmental organizations, the Municipality of Sofia as well as representatives of businesses in the field of energy efficiency. The event lasted one full day and the participants were divided into three working groups, each of which was moderated by an expert in the respective area, namely conventional energy, bioenergy and renewable energy. Under the guidance of the facilitators, the participants discussed the European and global technological trends in their energy field and identified the respective key technologies which have the potential to enhance the competitiveness and the quality of life in Sofia, and in the long run can contribute to the greening of the local economy.

Key energy technologies, in the context of EnVision2020, are new[3], or considerably upgraded energy technologies (for the production of energy), which have a strong potential to enhance the competitiveness and the quality of life in a particular city/region, and in the long run can contribute to the greening of local and regional economies of the participating cities and regions.

These key technologies allow the participating cities and regions to develop their local energy resources and energy systems within a time-horizon of 20 years, while minimizing environmental impacts. Also, they should be meeting local and regional energy demand

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[3] Technologies which are in their working prototype phase or have already had their first industrial application

in a sustainable way and should have the potential to be adopted on a wide scale. Such key technologies workshops were organized in all participating cities/regions. The key technologies identified during these events were used as an input to the online key technologies survey, whose concept was developed by ARC Fund. The survey consisted of two major parts. The first one targeted the European technological developments and trends and was prepared by ARC Fund and the second one was dedicated to the local/regional technologies, identified by the participants in the key technologies workshops. The implementation of the foresight activities in 2014 will continue with the analysis of the survey data, followed by the conceptualization and organization of the EnVision2020 roadmapping activity.

PACITA

In 2013 ARC Fund continued promoting technology assessment (TA) as a strategy in public policy and decision-making. The PACITA project, supported by the EU through its Seventh Framework Program, involves 15 partners from 13 European countries, and aims to strengthen TA capacity across Europe. It was officially featured by the European Commission as a good practice and a priority for the upcoming Horizon 2020 program, evidencing the importance of embedding TA into the democratic decision-making systems across the EU. It further emphasizes the importance of ARC Fund's efforts in being the primary advocate for more open, transparent and accountable policy making when it comes to issues of science, technology and innovation.

As a partner in PACITA, ARC Fund has been in a unique position to further strengthen its institutional capacity in technology assessment and integrate within a network of renowned TA organizations across Europe. In 2013, ARC Fund was involved in several capacity building opportunities in pursuit of its long-term objective of developing sound in-house TA expertise and knowledge-base. The particular events included:

- A three-day international practitioners' training in Sofia, Bulgaria in April 2013 for more than 30 EU technology assessment experts from all over Europe. The training focused on the topic of technology assessment methods and their application as part of larger technology assessment projects. Experienced practitioners from the leading TA-institutions in Europe presented an overview of the rich (and growing) variety of available TA methods. Participants worked through actual case studies, based on a contentious TA topic, such as public health genomics and sustainable consumption, demonstrating the complex linkages between societal challenges, technology options, and policy solutions.
- A three-day practitioners' training in Vilnius, Lithuania in November 2013 discussing which stakeholders, experts, laypeople and decision-makers should be involved in TA and what their roles should be in order to deliver best quality results.

In addition to these capacity-building workshops, ARC Fund's team participated in the First European Conference on Technology Assessment which took place in Prague in March 2013. About 300 stakeholders engaged in science and policy studies across the globe attended the conference, such as policy makers in legislation and administration, civil society organizations as well as academics and TA practitioners. In addition to being a major opportunity for networking with international TA experts and practitioners, ARC Fund's team could take part in an open debate among stakeholders on topics, such as institutionalizing TA, TA and governance, future-oriented TA, participatory methods, and ethical aspects of TA, among others.

Following its strategic commitment to stimulate an environment of open and transparent policy making and to facilitate the communication between the decision

makers in the legislative process and the different policy stakeholders, including citizens, in 2013 ARC Fund initiated work on two TA pilot projects, which will put to practice some of the most common technology assessment methods within the next year.

The two projects represent a joint effort of the PACITA partners to: i) demonstrate technology assessment's potential in countries which have not yet institutionalized TA, and ii) gather information input to deliver to the EU-wide policy making in two fields of science and technology with great potential to impact people's lives in the years to come – telecare for healthy ageing and sustainable consumption. Each project will use a different TA method for delivering results. These are World Wide Views – a method for

simultaneous consulting a high number of citizens in particular topic in several countries, and scenario workshops. The conclusions of the consultations will have significance for both national and EU-level policy makers as the same consultations will be conducted in around 14 Member States.

ARC Fund is the premiere Bulgarian organization working to establish a formalized network of TA practitioners and think tanks, with an ambition to bring professional S&T discourses into public policy planning, design, and implementation. As part of an EU-wide network of TA institutes, and resting on decades of innovation and policy analysis experience, ARC Fund is uniquely positioned to provide TA opinions and analyses to policy planners and decision-makers.

Sofia, Bulgaria – Participants in the training for TA practitioners; Photo: Tomas Michalek

Sofia, Bulgaria - Participants in the training for TA practitioners; Photo: Tomas Michalek

Engage2020

In the autumn of 2013, the "Engaging Society in Horizon 2020" (Engage2020) project was launched. As part of the project team, ARC Fund helps to promote and facilitate the use of policies, instruments, and praxis in the Horizon2020 Program for the engagement of society in research and innovation. The project makes a thorough overview of existing policies, structures, methods, approaches, tools and instruments to promote societal engagement. The Engage2020 consortium includes 6 organizations, which involve experts and practitioners in the fields of science, technology and innovation related issues. These experts have experience in applying

engagement methods on all level of governance (local, national, European and global).

ARC Fund's contribution to the project includes making an overview of existing praxis in Europe, and around the world, of societal engagement in research and innovation. This is done through a comprehensive literature review, as well as consultations with international experts via an online survey and personal interviews. The results of the screening and mapping of engagement methods are summarized and presented in an Action Catalogue which aims to prescribe relevant actions in the development of policies, programs, and projects.

Another major activity in the project, co-ordinated by ARC Fund, is the development and publication of policy briefs. These include summaries of relevant results of the Engage2020 project, and their linkages to the developments and timeframes of current policy processes in the field of research and innovation at the European and national level. Also, suggestions on ways to strengthen public engagement in policy formulation, program development, and project definition, will be included.

Participation in this project, along with the Danish Board of Technologies, the Karlsruhe Institute of Technologies (Germany), the University of Groningen (Netherlands), INVOLVE (UK) and DIALOGIK (Germany) is by itself a recognition of ARC Fund's knowledge, capacity, and dedication to public engagement in policy-making. The end-goal here is to achieve a more informed and democratically legitimate policy-making process in the areas of science, technology and innovation.