

Science, Technology and Innovation Policy Program

The Science, Technology and Innovation Policy (STIP) Program facilitates public, multi-actor deliberative processes on societal challenges, stemming from research and innovation. In 2021 the activities focused on:

- **Responsible Research and Innovation (RRI) and Anticipation, Inclusiveness, Reflexivity and Responsiveness (AIRR).** ARC Fund integrated RRI principles at the organizational level through experimental implementation of an ethical governance system. The uptake of RRI-AIRR approach was promoted at the territorial policy level to enable a more citizen-centered, open, transparent, responsible and inclusive governance. Efforts were made to enhance the scientific understanding and provide a robust monitoring system for RRI in research and research funding across the EU.
- **Conscious and responsible energy consumption.** ARC Fund worked to advance the household energy use shift and encourage active energy citizenship as a tool for supporting the clean-energy transition process across Europe.
- **Strengthening the precautionary principle.** Support was provided for active and productive citizen participation in public deliberation and use of the precautionary principle.
- **Resilience through workplace innovations.** ARC Fund helped Bulgarian SMEs improve business results and achieve a more satisfying and motivating environment for employees through introducing workplace innovations.

Leadership in Responsible Research and Innovation

Over the past decade, Responsible Research and Innovation (RRI) was established as a practical concept for anticipating and assessing the potential implications of research and innovation. A major premise of the RRI approach is that researchers, policy-makers, civil society organizations, individual citizens, businesses, etc. work together to attain better alignment of both processes and their outcomes with the values, needs and expectations of society. The concept and its areas of application continue to evolve.

Since 2019, ARC Fund has worked actively to integrate the principles and practices of RRI in territorial governance of research and innovation. The initiative Leveraging Leader-

ship for Responsible Research and Innovation in Territories supports the design of policies that are anticipatory, inclusive, reflexive and responsive. ARC Fund coordinated five research organizations and four organizations, representing and/or supporting territorial authorities (municipalities of Sofia and Thalwil, city of Sabadell and the region of Western Macedonia) in conducting a thorough assessment of RRI relevance to territorial governance in different policy areas (support for innovation; digital transition and new skills; youth employment and entrepreneurship; sustainable urban development; transition towards a low-carbon economy; smart specialization in the circular economy, active aging and intelligent design in industry).

Part one: Program areas

In collaboration with Sofia Development Association (SDA), ARC Fund produced a report, containing detailed stakeholder profiles and good practice examples, based on in-depth interviews and a focus group. The report provides a summary of stakeholder needs, interests, power and influence from an RRI perspective and analyzed the relationships and interdependencies between them.

An analysis of 10 national and 5 municipal strategic documents and a participatory workshop were conducted to assess the relevance of the RRI-AIRR approach for selected policy areas in Sofia municipality (support for innovation; digital transition and new skills; youth employment and entrepreneurship; sustainable urban development) and territorial policies at large.



RRI participatory workshop in Sofia, 15 July 2021

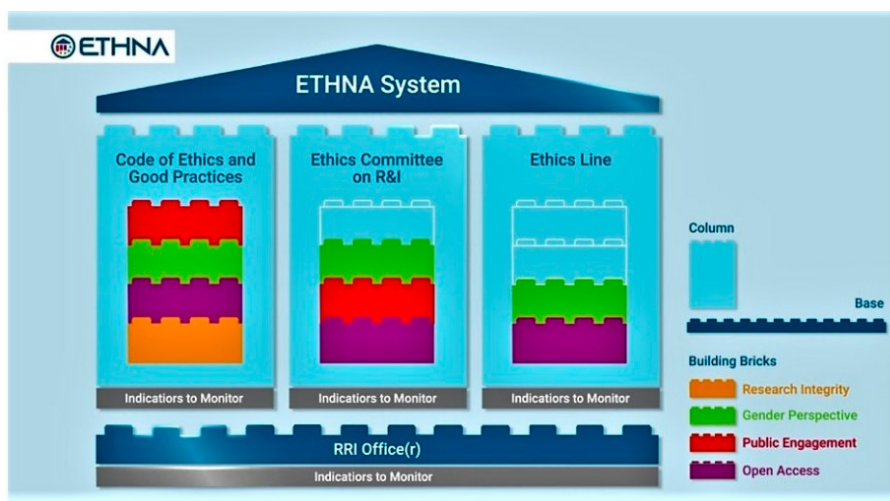
The findings and conclusions drawn from the analytical work and data collection were used for conducting the RRI audit for Sofia Municipality. The audit report assesses the state-of-the-art regarding the application of RRI-AIRR principles by the municipal government in the four policy areas and proposes strategic priorities for improving territorial governance through a streamlined integration of the RRI-AIRR approach in the overall policy-making process. RRI-AIRR principles are relatively well embedded in policy documents and plans in the chosen areas. Some RRI keys (public engagement, open access, gender equality) are better known and more adequately reflected in the policy areas in comparison to other keys (science education, research ethics). Public bodies, responsible for policy implementation (in particular in the areas of digital transition and sustain-

able urban development) pursue and rely on broad public engagement, inclusiveness, foresight scenarios, and transparent and accountable governance.

ARC Fund's team supported the Municipality of Gabrovo in the application of a novel approach to territorial decision-making, focusing on cross-actor collaborations among local research and innovation (R&I) actors. A Public and Stakeholder Engagement Plan was developed, supporting the implementation of the Smart Specialization Strategy of Gabrovo for the period 2022–2027. Several online mutual-learning workshops were held to discuss the application of RRI keys into territorial decision-making, the challenges related to this process, and potential strategies for integrating the RRI framework into policy-making at the local and regional level.

In 2021, ARC Fund continued to enhance its own RRI capacity and to champion it as a guiding principle of Bulgarian R&I organizations. Along with universities and research institutes from Austria, Bulgaria, Denmark, Estonia, Germany, Portugal, Spain and Norway, ARC Fund acts as one of the six Living Labs implementing and testing an original ethics governance system for grounding good RRI practices in higher education institutions, research and innovation funding bodies, and research-conducting organizations. The part-

nership has set up an ETHNA Office to develop a Code of Ethics and Good Practices, a Gender Equality and Non-Discrimination Policy, an Open Access Policy, Guidelines on Public Engagement and establishment of a Research Ethics Board. In July 2021, ARC Fund experts participated in a workshop on public engagement and governance and a workshop, entitled “Leveraging a gender equality agenda in research and innovation performing organizations” and organized a workshop on ethics.



Structure of the ETHNA System

ARC Fund also acted as Bulgarian country correspondent for the Scientific Understanding and Provision of an Enhanced and Robust Monitoring System for RRI. Contributing to the Europe-wide study of research funding organizations, ARC Fund performed a detailed analysis of the National Science Fund and the Ministry of Education and Science. A number of strategies and other policy documents were reviewed from the perspective of RRI, including the National Strategy for Development of Scientific Research in the Republic of Bulgaria 2017–2030, the National Plan for Development of the Open Science Initiative in the Republic of Bulgaria, the Innovation Strategy for Smart Specialization 2014–2020, the National Roadmap for Research Infrastructure 2017–2023, the Strategy

for Development of Higher Education in the Republic of Bulgaria for 2014–2020, the Law on Scientific Research Promotion, the Rules of the National Science Fund, and the Regulations for monitoring and evaluation of research activities, carried out by universities and research organizations.

ARC Fund also examined four research performing organizations: the University of Plovdiv, the National Academy of Art in Sofia, the University of Ruse, and the International Business School in Botevgrad. The analysis focused on the overall strategic priorities of the institutions; the place of RRI in their strategic documents; structures, policies and practices, support to the uptake of RRI; and inspirational or innovative good practice examples.

Encouraging Energy Citizenship and Modifying Energy Consumption Patterns

ARC Fund remains committed to the goal of motivating a more conscious and responsible energy consumption of households in Europe. Through the Act4Eco platform households receive information on the measures they could implement to save energy and reduce their carbon footprint. The platform is actively promoting such new patterns and has reached an audience of

almost 900 consumers from Bulgaria and more than 13,000 consumers globally. Its Facebook group has 260 Bulgarian members, forming a community with a sustained interest in energy efficiency, who discuss their energy consumption habits through online polls and learn about practices and advice on how to reduce their energy consumption at home.

The screenshot shows the Act4Eco platform interface. At the top, there is a navigation bar with the logo 'ACT4ECO.' and menu items: 'Actions', 'News', 'About us', 'FAQ', 'EN', and a 'Sign in' button. Below the navigation bar, there is a secondary menu with categories: 'Produce your own energy', 'Manage your energy consumption', 'Improve your home', 'Become a smart consumer', and 'Sustain'. The main content area features a large illustration of a house with solar panels, a wind turbine, and a battery, connected by lines to various energy-related icons. Below the illustration, it says 'Select the dots to discover the different actions'. To the right, there is a card titled 'SOLAR PHOTOVOLTAIC SYSTEMS'. This card includes a table with columns for 'Duration:', 'Cost:', 'Difficulty:', and 'Impact:'. The 'Duration:' row shows '24 min'. The 'Cost:' row shows five yellow bars. The 'Difficulty:' row shows four yellow bars. The 'Impact:' row shows five yellow bars. Below the table, there is a paragraph of text explaining the term 'photovoltaic' and its origin. At the bottom of the card, there are two buttons: 'Sign in' and 'Begin without sign-in'.

The Act4Eco platform

In June 2021, an online policy seminar on the efficiency of the national/local-level energy policy interventions aimed at shifting consumer behavior towards increased energy efficiency was held, which was attended by 25 Bulgarian energy experts. They deliberated on the available policy instruments, identified policy options for promoting consumer behavior change, and proposed measures to increase the impact of such energy policy interventions. The event was part of a series of national-level seminars organized in Belgium, Denmark, Greece, Finland, Ireland, Italy, Lithuania, and Portugal.

As follow-up, a list of challenges and policy recommendations was formulated and presented in July and August 2021 at two

EU-level policy seminars, co-hosted by ARC Fund. The events provided a forum to around 50 energy stakeholders to elaborate on and validate the identified challenges and to further discuss policy solutions to tackle these challenges. Focus was placed on the ways to encourage consumers to take action for increasing the energy efficiency of their homes and reducing energy consumption. ARC Fund coordinated the development of nine policy briefs, summing up the policy seminar findings and conclusions.

ARC Fund is part of the European initiative Proactive Strategies and Policies for Energy Citizenship Transformation, which deals with the various aspects of energy citizenship across Europe. Partners from Belgium,

Bulgaria, France, Germany, Hungary, Ireland, Latvia, Spain and The Netherlands work with communities, businesses and decision-makers to explore ways of involving citizens in the clean energy transition.

Apart from energy citizenship cases from Bulgaria, ARC Fund also collects examples from other Southeast European countries: Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Serbia, and North Macedonia.

Applying the Precautionary Principle Through Public Participation

In 2021 ARC Fund continued its participation in a co-creative process to identify stakeholder needs and ideas in terms of guidelines and tools to support the application of the precautionary principle. The aim of this process is to develop a guidance document, targeted at policy-makers and public authorities in the field of risk and innovation governance at the EU level.

Along with partner organizations from the EU, ARC Fund participated in a series of stakeholder-need identification workshops. The findings were used to develop guidelines on the application of the precautionary principle, based on three broad themes: participation; organization and production of expertise; and extent of application. ARC Fund contributed by developing the chapter on participation, building upon its solid track record in promoting public participation.

ARC Fund worked on defining the conditions that cultivate active and productive citizen participation in public deliberation, together with 12 organizations, involved in the Inclusive Science and European Democracies (ISEED) initiative. Through a combination of theoretical analysis, empirical research, and small-scale experiments, the initiative studies how current practices of citizen participation in science could help European societies overcome the obstacles to democratic participation and decision-making. It introduces the concept of “deliberative participation,” designed to enhance both the quality and the legitimacy of political decision-making, and to establish new forms of knowledge-based democratic governance, complementary to political representation.

Enterprise Resilience Through Workplace Innovation

In 2021, ARC Fund conducted a study on the role of workplace innovation in small and medium-sized enterprises in Bulgaria. Workplace innovation practices aim to more actively engage employees in decision-making processes, encourage the autonomy and flexibility of staff members in performing their operational activities, foster the development of employees’ potential through formal and informal trainings and/or increase collaboration among departments and teams within organizations. These improve business results, create a more satisfying and motivating work environment, and increase the resilience of enterprises in times of crisis. The COVID-19 pandemic demon-

strated the vital role of workplace innovation for both individual enterprises and the economy at large.

Most EU countries have policy mechanisms that foster this type of innovation. In Bulgaria, though, such mechanisms are few and are coupled with widespread lack of awareness among stakeholders. ARC Fund identified national public support measures to encourage workplace innovation in SMEs, which are particularly vulnerable in times of crisis due to limited resources and limited access to knowledge. The policy recommendations were summarized in a report presented at a series of webinars, engaging a number of

Part one: Program areas

stakeholders: six universities, five employer and industry organizations, five ministries and government agencies, non-governmental organizations, media representatives and

over 100 SMEs. Participants agreed on the benefits of workplace innovations and underlined the need for closer collaboration among all stakeholders.