Cooperative (District-level) Energy Planning: Commonly experienced challenges and barriers

Introduction

Transforming the existing urban structures provides great energy efficiency potential. In the scope of the AREA 21 project, the contribution to fulfilling such potential may derive from district-level actions in four dimensions:

. Community energy production (e.g. installation of PV panels on rooftops);
. Cooperative retrofitting of buildings (e.g. improvements to building envelope, reducing energy losses);
. Cooperative improvements to public infrastructure (e.g. renovation of district heating network, preventing energy losses); and
. Community awareness building for reduced energy consumption patterns.

The projects' goal is to facilitate cooperation structures to enable such actions and reach the ultimate goal of a transition to low emission urban structures. AREA 21 aims to provide local authorities, energy agencies and other institutions responsible for energy planning with the expertise and strategic tools on how to plan and implement new solutions for energy efficiency in urban districts. The Energy Improvement District concept, developed by the project, is an innovative governance instrument. It seeks to stimulate public-private partnerships, cooperation and co-creation activities, which contribute to increased energy efficiency of the building stock.

This document reflects the process of identification of key elements that hinder not only the cooperation process, but also the implementation of actions or strategies to fulfil the energy efficiency potential of urban districts. The AREA 21 partners initially identified these hindering elements, namely barriers and challenges, and clustered them according to their nature – financial, technical/technological, administrative/legislative, or social. Then, the authors analyzed a collection of similar projects and studies aiming at identifying common and potentially overlooked challenges and barriers, drawing parallels with the AREA 21 experiment and elaborating adequate strategies to overcome them throughout the project implementation. Finally, the authors collected scientific literature relating to the four types of actions (community energy, cooperative retrofitting of buildings, improvements to public infrastructure, or awareness building) to identify action-specific challenges and elaborate corresponding strategies to overcome them.

Section 1 introduces the initial observations of the AREA 21 partners for their corresponding regions. The stakeholders developed a list of challenges and barriers through brainstorming and mediated discussion. In addition, the clustering of the elements of this list resulted in an initial categorization of challenges.

Section 2 collates findings on challenges experienced in cooperative energy planning in a selection of international energy planning projects and studies.

Section 3 gives an overview of specific challenges to community energy production, cooperative retrofitting of buildings, improvements to public infrastructure, awareness building for reduced energy consumption patterns, and cooperation structures according to scientific literature.

Section 1: AREA 21 Challenges

The initial step for the identification of potential challenges came from a brainstorming session by the AREA 21 Project Partners. They collected all of the foreseen barriers for the implementation of strategies for cooperative energy planning, and through mediated discussion clustered them generating a thematic list of challenges. The partners clustered the collected challenges in the following categories:

1. **Financial challenges** relate to the real or perceived availability (short and long term funding) and financial risk associated with cooperative energy projects;
2. **Technical or technological challenges** relate to the functionality of the system design, such as its integration with existing systems, as well as the approaches used to monitor its use.
3. **Administrative or legislative challenges** relate to processes and regulations that govern the implementation of district-level energy planning.
4. **Social challenges** relate to the stakeholder perception of district-level energy planning, which is inter-dependent with their knowledge of the system and its benefits, which influences their engagement with new technology and tolerance for disruption during implementation phases.

The authors transcribed the challenges and barriers as identified and categorized by the AREA 21 partners in the table below.

Table 1: Hindering factors to the transition to low emission urban structures, identified by the AREA 21 partners.

	LIST OF CHALLENGES AND BARRIERS: AREA 21
FINANCIAL	**Lack of funding transparency.** E.g., in Hamburg, there are funding instruments and support mechanisms available, yet access to and information about funding, is not very transparent.
	Funds are available, but city or regional regulations prevent its activation. E.g., in Hamburg, the attempts to implement district level energy infrastructure (e.g. for district-level solar energy production) are hampered due to regulatory requirements, despite EU endorsement.
	Lack of willingness or lack of financial capability to invest. E.g., situations, in which private parties are not able to provide co-funding (i.e. their own contribution) for the implementation of energy efficiency projects and as a result cannot, gain access to external funding sources.
	Lack of financial support opportunities or insufficient financial opportunities.
	Project-based development. In many cases, cooperation efforts are project-based, i.e. with funding provided externally for a limited period, and when funding is over the cooperation often discontinues. The lack of long-term strategic orientation and funding is a challenge.

	Public funds in the field of energy efficiency focus on technologies, not on cooperation. Funds also predominantly support technical measures in individual buildings, not across quarters. Furthermore, these technical measures do not tackle user behavior, which likely plays a major role in energy saving.
FINANCIAL	**Language problems.** In Kohtla-Järve many of the funding regulations are EU related and are therefore written in English or Estonian. However, this is problematic as the majority of the local population speak Russian.
	Insecurity related to changes in the tax income. In Tampere, there is a possibility that the city could lose income from taxes in the future.
	Cooperative processes at a district level, such as EIDs, need a coordinator/organizer from the beginning of the project to manage ongoing cooperation. To initiate cooperation, especially if it is externally funded, there is a need for someone to take responsibility and to prepare a joint application. The question is who pays for the preparation of the application. Once cooperation is established, it should have a leadership figure organizing everyday communication, and monitoring the timely implementation of actions, etc. The question is if an EID is needed, who funds it?
TECHNICAL OR TECHNOLOGICAL	**General reluctance among citizens towards technological innovation.** There is a lack of understanding among citizens about the purpose and functioning of technology. Hostility towards innovation on an emotional basis rather emotional than fact-based.
	Lack of mutual understanding. Decision-makers do not understand the technicians' products or the need for innovation. While technicians do not understand how to "sell" their products to decision-makers and users, as they are too often deeply involved into technical details but lack awareness of the greater context.
	Reliance on the "big four" in terms of data protection. To comply with today's data protection laws, smaller-scale solutions rely on modules from Google, Facebook etc. because developing own data protection solutions would be too costly and complex.
ADMINISTRATIVE OR LEGISLATIVE	**Lack of tools to implement set-up goals.** Lack of funding for renovation activities (e.g. roof renovation), narrow timeframe for project implementation, contradiction of scale (i.e. building vs. district incentives) and lack of funding for administrative processes (e.g. developing district concepts).
	Limited to a project-approach. Implementation of many different projects instead of solving the problem systematically in framework of a program.
	Energy efficiency as a city-level topic. Energy efficiency should not be limited to the city scale.

	Lack of long-term programs. As the visibility of results for long term projects exceed the term of politicians, often politicians do not commit to them, where credit cannot be accounted.
	Central state ownership in energy.
ADMINISTRATIVE OR LEGISLATIVE	**No feed-in regulation**. Different institutions are responsible for buildings and for supplying energy. It is challenging to bring different institutions/sectors to work together. A further complication arises when regulations constantly change.
	Lack of regulation for district level. Legislation only available at a building level, which makes it challenging to implement concepts on a district level.
SOCIAL	**Lack of awareness on energy consumption and climate change.**
	Lack of motivation to save energy, with money as the only motivation.
	Lack of motivation to take part in cooperative processes. Lack of Good Practices on cooperative processes. The question is how to motivate and bring together a large number of tenants (e.g. some buildings can have as much as 400 apartments) to take part in cooperative processes on energy saving?
	Lack of role models. Students are unmotivated to undertake any measures to save energy because the university administration does not promote change.

Source: Own table, information transcribed from brainstorming and mediated discussion of AREA 21 partners.

Section 2: International Projects and Studies on Cooperative Energy Challenges

This Section provides an overview of challenges for cooperative energy planning presented in European studies and projects. It aims at identifying common and potentially overlooked challenges, drawing lessons from the manner the involved stakeholders dealt with them. The list below illustrates the projects as relevant to the proposed analysis, underlining similarities with the AREA 21 project. These similarities may refer to the use of cooperation structures to achieve their goals, and/or to one or more common fields they act on (community energy, cooperative retrofitting of buildings, improvements to public infrastructure, and/or awareness building).

- **CITyFiED: RepliCable and InnovaTive Future Efficient Districts and cities (2014 to 2019).** The project achieved the renovation of three districts through deep retrofitting of buildings and a heating and cooling concept (RepliCable and InnovaTive Future Efficient Districts and Cities. Project Information., 2015). It proposed the use of innovative technologies with an information and communications technology (ICT) and mobility interface to develop strategies to reduce energy demand, GHG emissions and increase the use of renewable energy sources (RepliCable and InnovaTive Future Efficient Districts and Cities. Project Information., 2015).
- **CoolHeating: Market uptake of small modular renewable district heating and cooling grids for communities (2016 to 2018).** The project initiated new small renewable district heating and cooling grid investments as lighthouse projects (CoolHeating.eu, n.d.). It aimed to support implementation of renewable heating and cooling grids for communities in South-Eastern Europe, making use of knowledge transfer, capacity building and mutual activities to stimulate interest of communities and citizens to establish renewable district heating systems (CoolHeating.eu, n.d.).
- **Proficient: SME network business model for collective self-organized processes in the construction and retrofit of energy-efficient residential districts (2012 to 2016).** The project established Local Energy Services Companies (ESCOs) as coordinators of energy-efficient district projects (Home: Project, 2012). It focused on creating business opportunities or models for SMEs in the construction sector though the newly emerging process of Collective Self-Organized (CSO) constructing and retrofitting energy-efficient residential districts (Home: Project, 2012).
- **Co2mmunity: Co-producing and co-financing renewable community projects (2017 to 2020).** It promotes knowledge sharing among stakeholders, aiming to facilitate community energy (CE) projects as part of a transition to renewable energy sources (Overview: Sustainable. Community. Energy., n.d.).
- **REMOUrban: regeneration model for accelerating the smart urban transformation (2015 to 2019).** They aimed to introduce electric vehicles with recharging points and the retrofit of apartments to be more energy-efficient, production of solar and biomass energy, and smart grid management solutions (European Commission: Horizon 2020: REMOURBAN, 2019). Its ultimate goal was to reduce dependency on the electric grid and reduce generation of CO_2 emissions (European Commission: Horizon 2020: REMOURBAN, 2019).
- **SmartEnCity: Towards Smart Zero CO_2 Cities across Europe (2016 to 2021).** The project's approach is based on the Smart Zero Carbon City concept, reducing energy demand through ICT technologies and cost-effective low-energy retrofitting of residential buildings at a district scale (European Commission: Horizon 2020: SmartEnCity, 2019). It aims to test smart solutions in the areas of energy, transport and ICT, demonstrating that their use fosters sustainable, smart and resource-efficient urban environments in cities (European Commission: Horizon 2020: SmartEnCity, 2019).

. **Swedish Energy Communities**. A study by Magnusson & Palm (2019), of institutional challenges experienced by Community Energy (CE) initiatives in Sweden. The most common cooperatives are wind power initiatives, solar photovoltaics cooperatives and eco-villages. The types of initiatives differ from well-organized cooperatives that have grown into professional organizations to small-scale rural community-owned enterprises.
. **Distributed Energy in Finland.** A study by Ruggiero, Varho & Rikkonen (2015), of small-scale distributed energy generation in Finland, which identifies challenges for permit procedures, grid connection and taxation laws. In contrast to other European countries, the transition in Finland is expected to take place through a market-based approach favoring investment-focused measures.
. **Energy Cooperatives in Italy.** A study by Magani & Osti (2016), of challenges experienced by Italy's energy cooperatives, using Germany as a base comparison. A key challenge identified is the centralized dominance of the energy sector, restricting the entrance of other energy suppliers and formats to enter the market.

Based on the analysis of the documentation of the abovementioned projects and studies, the authors identified the main challenges and barriers perceived and/or faced by the stakeholders during the implementation of the projects. These key hindering elements will be clustered following the same categorization adopted for the challenges identified by the AREA 21 partners (presented in Table 1), and common challenges will be highlighted. Table 2 depicts the collection of challenges from these European projects and studies.

Table 2: Hindering factors to the implementation of projects and studies on cooperative energy.

	LIST OF CHALLENGES AND BARRIERS: PROJECTS AND STUDIES ON COOPERATIVE ENERGY
FINANCIAL	**Lack of funding and support infrastructure's transparency.** It refers to the lack of good financing mechanisms that can easily raise capital, associated with a lack in support systems, including availability subsidies, incentives, participating financial institutions, limited knowledge on business models as well knowledge on the organization of private and public energy models. Furthermore, shifting support schemes may lead to insecure market situation for investors. ∗ AREA 21 partners identified it as "**lack of funding transparency**" (See table 1). ∗ Element present in: Proficient, Co2mmunity, REMOUrban, and SmartEnCity.
	Taxation requirements. E.g., in Finland, it is a barrier perceived by distributed energy projects and leads to concerns for the profitability of municipal power plants (Ruggiero, Varjo, & Rikkonen, 2015). ∗ AREA 21 partners identified it as "**funds are available, but city or regional regulations prevent its activation**" (See table 1). Both refer to financial limitations due to regulation. ∗ Element present in: Distributed Energy in Finland.

FINANCIAL	**High cost of investment associated with perceived financial risk.** Longer payback periods and demanding time for realization contribute to a perception of financial loss and low profitability of projects, which reduces the attractiveness of investments for project sponsors. In addition, the private sector does not start developing full solutions until there is a clear understanding of who will pay and operate, which often leads to local administrative set-up of systems at a higher cost. ∗ AREA 21 partners identified it as "**lack of willingness or lack of financial capability to invest**" (See table 1). ∗ Element present in: CITyFiED, CoolHeating, Co2mmunity, REMOUrban, SmartEnCity and Swedish Energy Communities.
	Difficulty in securing loan grants. A high dependence on subsidies associated to the difficulty of access to loans to fund investment projects poses this as a significant barrier. ∗ AREA 21 partners identified it as "**lack of financial support opportunities or insufficient financial opportunities**" (See table 1). ∗ Element present in: Co2mmunity and SmartEnCity.
	Competitiveness of renewable energy. Fossil fuel dominance, associated to additional costs required for networks, no long-term guarantee in a price reduction for renewable heat and electricity, with often a short depreciation period for infrastructure, fluctuations in the market, and competition with less expensive fossil fuel options pose barriers to implementation of renewable community energy initiatives. Competitiveness can also arise from financial models for the selling and producing of energy (Magnani & Osti, 2016). ∗ Element present in: CoolHeating, REMOUrban, SmartEnCity, and Italian Energy Cooperatives.
TECHNICAL OR TECHNOLOGICAL	**Data collection for monitoring of performance.** The issue relates to difficulties to design data collectors that are relevant, informative and easy to use for consumers and operators, while also protecting users' privacy. Other challenges relate to low engagement, high running costs to monitor platforms, and trust issues with data transparency, cyber-attacks, and energy pricing. ∗ Element present in: CITyFiED, and SmartEnCity.
	Long-term usability of energy infrastructure. It refers to redundancy of infrastructure as a threat in the long-term, with the rise of more competitive alternative energy forms. ∗ Element present in: CoolHeating.
	Lack of standardization. Lack of guidance to integrate a new system into an existing model. Specifically, the standardization for interfaces of between different equipment, management protocols, regulations about electrical deployment, recharging infrastructure and electrical reselling, besides standard procedures for grid connection and metering integration.

	∗ Element present in: REMOUrban and Distributed Energy in Finland.
ADMINISTRATIVE OR LEGISLATIVE	**Restrictive bureaucracy.** It relates to onerous regulations and processes for the implementation of new energy systems. E.g., restrictive national legislation regarding renewable energy systems, complex management and procedures, and restrictions from metering legislation.
	∗ Element present in: CITyFiED, CoolHeating, Co2mmunity, REMOUrban and SmartEnCity.
	Energy efficiency as a city-level topic. E.g., in Finland, complex and varying building permit procedures consist of a barrier, as municipalities have broad autonomy over permit regulations for renewable energy installation (Ruggiero, Varjo, & Rikkonen, 2015).
	∗ AREA 21 partners identified it as "**energy efficiency as a city-level topic**" (See table 1).
	∗ Element present in: Distributed Energy in Finland.
	Inadequate Administrative Processes. In Sweden, municipalities have autonomy in planning and give little incentive for community energy establishment (Magnusson & Palm, 2019).
	∗ AREA 21 partners identified it as "**lack of regulation for district level**" (See table 1).
	∗ Element present in: Swedish Energy Communities.
	Central state ownership in energy. E.g., in Italy, a small number of large companies controls the electricity market, which leaves limited space for new actors (Magnani & Osti, 2016).
	∗ AREA 21 partners identified it as "**central ownership in energy**" (See table 1).
	∗ Element present in: Italian Energy Cooperatives.
	Lack of resources within legislative and administrative systems. It relates to the availability of resources to assist the organization and implementation of new energy systems. E.g., gaps in competencies to carry out energy retrofitting, weak experience by municipality, low awareness about sustainable energy transitions with the elected, limited communication between local governing departments, and a fear of new innovative actions due to lack of technical knowledge.
	∗ AREA 21 partners identified it as "**lack of tools to implement set-up goals**" (See table 1).
	∗ Element present in: CITyFiED, Proficient and REMOUrban.
	Complexity of selling procedures and requirements. Identified as a key challenge in Italy, due to the number of actors involved, as well as the lack of availability of specialized knowledge and organization to small cooperatives (Magnani & Osti, 2016).
	∗ Element present in: Italian Energy Cooperatives.

	Time requirement for administrative processes. Energy planning is time consuming for the cities involved and requires a high level of actor involvement, and short-term administrative changes can strongly disrupt the process. Furthermore, the correct timing of investments is fundamental to success and complex procurement and procedures often slow down the process. ∗ AREA 21 partners identified it as "**lack of long-term programs**" (See table 1). ∗ Element present in: CITyFiED, CoolHeating, Co2mmunity, Proficient, and REMOUrban.
SOCIAL	**Lack of knowledge about district-level energy planning and environmental awareness.** Stakeholders can be resistant to changes because of the disruption to their daily lives associated with their lack of familiarity with new technologies and their lack of awareness about its benefits. Furthermore, consumers may not consider the source of their energy, and be led by their entrenched habits to use the most known (monopoly) providers (Magnani & Osti, 2016). ∗ AREA 21 partners identified it as "**lack of awareness on energy consumption and climate change**" (See table 1). ∗ Element present in: CITyFiED, CoolHeating, Proficient, REMOUrban, SmartEnCity, and Italian Energy Cooperatives.
	Mistrust by "costumers". The skepticism may derive from previous experiences in other sectors such as the liberalization of phone services, which resulted in delays and service problems ∗ Element present in: Italian Energy Cooperatives.
	Communication and coordination with stakeholders. Difficulty in engaging stakeholders to inform them about district-level energy planning initiatives. It can relate to stakeholder mistrust, and varied ownership of buildings with a complex structure of ownership (owners vs. tenants). Limited resources for professional communication may also hinder this process, since energy advisors and experts need competency in explaining the benefits of renewable energy and retrofitting projects to raise awareness. Communication about energy is also complex because it requires a certain level of technical knowledge on the technology as well as regulations (Magnani & Osti, 2016). Finally, lack of interest to coordinate and network with umbrella organizations may create barriers to internal communication and diffusion of knowledge (Magnusson & Palm, 2019). ∗ Element present in: CITyFiED, Co2mmunity, Proficient, REMOUrban, Italian Energy Cooperatives, and Swedish Energy Communities.

Source: Own table, data collected from (CITyFiED: Home: News: Articles & Interviews: Top tech not enough for district renovation success!, 2017) (CITyFiED, n.d.) (Overview: Sustainable. Community. Energy., n.d.) (CoolHeating.eu, n.d.) (RepliCable and InnovaTive Future Efficient Districts and Cities. Project Information., 2015) (European Commission: Horizon 2020: REMOURBAN, 2019) (European Commission: Horizon 2020: SmartEnCity, 2019) (Home: Project, 2012) (Koene, 2016) (Lanceta, Hasselaar, & Royo, 2016) (Magnani & Osti, 2016) (Magnusson & Palm, 2019) (News: Key ingredients for a smart urban district, 2019) (Rivada, et al., 2016) (Ruggiero, Isakovic, Busch, Auvinen, & Faller, 2019) (Ruggiero, Varjo, & Rikkonen, Transition to distributed energy generation in Finland: Prospects and barriers, 2015) (Sforza, 2018) (Sunko, et al., 2017) (Sørensen, Sørensen, & Bendtsen, 2016)

Section 3: Literature Review

Within the Energy Improvement Districts concept, the AREA 21 partners identified potential district-level actions or objectives in four dimensions:

. Community energy production (e.g. installation of PV panels on rooftops);
. Cooperative retrofitting of buildings (e.g. improvements to building envelope, reducing energy losses);
. Cooperative improvements to public infrastructure (e.g. renovation of district heating network, preventing energy losses); and
. Community awareness building for reduced energy consumption patterns.

To reach such objectives, it was established a need for cooperation among various stakeholders – from housing associations to energy companies and public authorities.

This section of the report focuses on scientific literature about these four dimensions and theory of cooperation. I.e., it provides an overview of specific challenges to community energy production, cooperative retrofitting of buildings, improvements to public infrastructure, awareness building for reduced energy consumption patterns, and cooperation structures.

Community Energy Production

The production of renewable energy within a specific community (or district) is the first dimension to fostering more energy efficient districts. The generation of energy is just one type of activity that communities can act on, according to the United Kingdom's Department of Energy & Climate Change, which also identifies energy management, reduction of electricity consumption and collective purchasing of energy as other possible activities (2014, p. 4). In their report's summary, they identify as prospective benefits of community energy the potential for higher effectiveness in comparison to the public authorities, energy security and the tackling of climate change, financial advantages, besides broader social and economic benefits (e.g.: stronger communities, acquiring of knowledge, etc.) (Department of Energy & Climate Change, 2014, pp. 4-6). According to Walker, the English projects can be completely community owned or shared with the private sector through co-ownership arrangements, and they can either finance energy production to enter the grid or combine locally-owned production and consumption (2008, p. 4401).

Walker established that community energy projects are highly complex, highlighting the importance of support structures that go beyond networking and information provision (2008, p. 4402). Therefore, the lack of these structures may consist of a barrier to community energy enterprises. Furthermore, it is important that the projects generate an adequate income, as maintenance costs can be significant in the longer term (Walker, 2008, p. 4402). According to the document produced by Walker, Hunter, Devine-Wright, Evans and Fay (2007), key committed individuals can support local institutions, playing a fundamental role in successful project implementation (as cited in (Walker G. , 2008, p. 4403)). Hain, Ault, Galloway, Cruden and McDonald add that the cost of market entry will be a disadvantage to small renewables in comparison to large conventional energy generators (2005, p. 1201) – which supports the "central ownership of energy" as a challenge, mentioned both in the AREA 21 and European Case Studies' lists of challenges. Other potential barriers mentioned by Walker are "the lack of incentive for network operators to connect to small generators (…), the costs of trading, and the difficulty of obtaining access to green energy certificates" (2008, p. 4403).

Cooperative Retrofitting of Buildings

Gerőházi, Hegedüs and Szemző defined the term community self-organization (CSO) as “the activity of groups of individuals that have a decisive role in planning and implementing their new homes” (n.d.), and the Proficient project (explored in Section 2) produced new structures for energy efficient CSO residential buildings (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 276). This structures, provided by Proficient are what the AREA 21 intends to adapt, empowering housing associations to occupy a central role in the retrofitting of their buildings, while collaborating with key stakeholders.

The multiplicity character of the housing associations is the initial challenge to be faced within this process, as this collective group participates actively at all stages of design and implementation (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 277). Piaia et al add that traditional planners are likely to have difficulties working for multiple clients, and that the complexity of the process requires more explanation than what would be necessary when dealing with a single client (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 277).

Cooperative Improvements to Public Infrastructure

Work in progress

Community Awareness Building for Reduced Energy Consumption Patterns

The United Kingdom’s Department of Energy & Climate Change identified actions towards reduction of electricity consumption as a possible way for communities to tackle energy issues and climate change (2014, p. 4). The IPCC publication on buildings pointed out that there is high agreement that “behaviors informed by awareness of energy and climate issues can reduce demand by up to 20% in the short term and 50% of present levels by 2050” (Lucon, et al., 2014, p. 675). The proposal from AREA 21 is to inform and raise awareness to the importance of reducing energy consumption, triggering behavior changes towards reduced energy consumption patterns.

Behavior patterns are not easily changed; they take time and effort to adjust (Csobod, Grätz and Szuppinger 2009, 9). Shifting intrinsic habits towards pro-environmental behavior is even more complex, since “such [pro-environmental] behavior often brings no tangible benefit to those who engage in it” (Stern 1999, 463). Moreover, even the inclusion of benefits or incentives to help behavior change may backfire: the crowding-out effect illustrates the conflict between extrinsic and intrinsic motivation. I.e., if a behavior is adopted due to a powerful intrinsic motivation (pleasure or satisfaction from performing one’s duty), the overlapping of extrinsic incentives (e.g., financial incentives) to incentivize the same behavior can crowd-out the pre-existing satisfaction and lead to the abandonment of the desired behavior (Frey and Oberholzer-Gee 1997, 746-747). Furthermore, Maréchal (2009) points out that ingrained habits may play an important role in the non-adoption of energy saving behavior even when citizens are aware of energy-related environmental issues (as cited in (Maréchal, 2010, p. 1104)).

Cooperation Structures

The cooperation structures for the project fit the definition of collaborative governance, regarding its idea of engaging public and private stakeholders in a collective decision-making process (Ansell and Gash 2008, 544) (Emerson, Nabatchi and Balogh 2012, 2). Although the definitions of collaborative governance refer to the implementation of public policies or the management of public programs or assets (Ansell & Gash, 2008, p. 544), the structures modelled for these purposes could apply to

private endeavors as well.

Bryson, Crosby and Stone collected some of the conditions and challenges for the establishment and success of collaboration processes. According to these authors, saying that “cross-sector collaborations are complex entities that defy easy generalization is an understatement” (Bryson, Crosby, & Stone, 2006, p. 52). Some potential challenges to successful collaboration mentioned throughout the text are the lack of leadership at various levels, the recognition of legitimacy of the cooperation among internal and external stakeholders, trust issues among stakeholders, need of resources and strategies for conflict management, thorough and resourceful planning, instability of collaborative structure (e.g.: changing level of involvement of stakeholders), power imbalances among stakeholders, competing institutional logics and lack of accountability systems (Bryson, Crosby, & Stone, 2006, pp. 47-52).

Conclusion

Work in progress.

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