



Proceedings of the Resilient Cities 2014 congress

Session B3: Adaptation on the ground in Bologna, Italy

SEAP and LAP (Local Adaptation Plan) development Participatory Process: Critical points and Opportunities

Pelizzaro, P.

Abstract:

This article focuses on the role of local institutions in mitigation and adaptation to climate change, considering learning experiences in promoting public-private partnerships in to resilient actions. It does so under the belief that climate impacts will affect disadvantaged social groups and small-communities more disproportionately, and that local institutions centrally influence how different social groups gain access to and are able to use assets and resources. Looking at the increasing awareness that global temperatures will raise, a mentality "Climate-smart" must be adopted by all levels of decision-making. This approach involves the search for synergies between climate change mitigation and adaptation, wherever is possible. As for mitigation, for adaptation we consider similar pre-conditions. Base on this pre-conditions we identify Public Private Partnerships as a challenge possibility to finance decentralized renewable energies and green infrastructure for resilient communities. The article aims to demonstrate two main unclear topics in existing understanding about institutions and climate change responses: the correlation among Public Private Partnerships and participatory process and how it lead to win-win climate responses funding, a learning experience from Sustainable Energy Action Plan - Within the MED Programme project ZeroCO₂¹ - and Local Adaptation Plan development – within the LIFE+ project BLUE AP².

Keywords:

Adaptation, Mitigation, Participatory Process, Climate Change, Resilience, Risk

¹ Kyoto Club was partner of the MED Project ZERO CO₂ www.medzeroco2.eu

² Kyoto Club is partner of the LIFE+ Project BLUE AP Bologna Local Urban Environment Adaptation Plan for Resilient City – www.blueap.eu

Introduction

Local institutions play an essential role in mitigation and adaptation to climate change based on the learning experiences in promoting public-private partnerships in to resilient actions. It does so under the belief that climate impacts will affect disadvantaged social groups³ and small-communities more disproportionately, and that local institutions centrally influence how different social groups gain access to and are able to use assets and resources.⁴

Looking at the increasing awareness that global temperatures will raise, a mentality "Climate-smart" must be adopted by all levels of decision-making. "Climate-smart" is a term that originated in agriculture, to describe those interventions in the agricultural sector that are able to increase the resilience of adaptive capacity to climate change and at the same time reduce emissions of greenhouse gases⁵. A mentality "Climate-smart" incorporates the analysis of climate change taking place in the definition of strategies and operational decision-making processes. This approach involves the search for synergies between climate change mitigation and adaptation, wherever is possible. What we learnt by mitigation actions is that climate change is inevitably local and that institutions influence mitigation and climate responses and vulnerability in three critical ways:

- a) They structure impacts and vulnerability,
- b) They mediate between individual and collective responses to climate impacts and thereby shape outcomes of actions;
- c) They act as the means of delivery of external resources to facilitate responses, and thus govern access to such resources.

As for mitigation, for adaptation we consider similar pre-conditions. Based on these pre-conditions we identify Public Private Partnerships as a challenge possibility to finance decentralized renewable energies and green infrastructure for resilient communities.

An essential constraint for PPP implementation is the lack of a common European legislation framework. Within the MED Programme project ZeroCO2⁶, a first harmonized scheme has been produced, in order to

³ Kates, R. 2000. Cautionary tales: Adaptation and the global poor, *Climatic Change* 45 (2000) (1), pp. 5–17.

⁴ Intergovernmental Panel on Climate Change (IPCC) 2007a: *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). New York: Cambridge University Press.

⁵ Intergovernmental Panel on Climate Change (IPCC) 2007b: *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds. Cambridge: Cambridge University Press.

⁶ Kyoto Club was partner of the MED Project ZERO CO2 www.medzeroco2.eu

overcome the existing barriers for PPP in the energy sector. We selected mitigation initiatives using PPP to identify possible investment schemes for adaptation, especially due to the existence of win-win solutions. Considering the 2013 EU Adaptation Strategies and the attached document, *Adapting infrastructure to climate change*, the PPP scheme has been considered a key tool to finance resilient actions. To do this bottom-up approach is needed to be adopting for the actions identification. The LIFE+ project BLUE AP⁷ considers the MED ZeroCO2 results as example for Adaptation purpose, using a participatory process since the planning phase to improve the private participation. More than this, win-win solutions to climate change are identified linkage Bologna SEAP actions and adaptation needs.

Base on existing experiences we will now exploit two main unclear topics in existing understanding about institutions and climate change responses: the correlation among Public Private Partnerships and participatory process and how it lead to win-win climate responses funding, a learning experience from Sustainable Energy Action Plan and Local Adaptation Plan development.

Support greater role for institutional partnerships in facilitating mitigation and adaptation

Institutional partnerships are crucial to local mitigation practices, such as for adaptation. If for mitigation ensure the realization of actions as Solar Purchase Pool, Hot-Water Heater Purchase Pool, Frame Purchase Pool to mitigate CO2 emission in residential private buildings, support for such partnerships can greatly enhance informal institutional processes through which adaptation occurs. Partnerships among local public and civil society institutions are associated more closely with adaptation practices related to diversification and communal pooling. Partnerships between private and civil society institutions are relatively uncommon and need greater encouragement. Within adaptation practices, they tend to be more closely associated with exchange and storage based. Mobility, although often neglected in adaptation literature, is essential to deal with high levels of climate variability.

SEAP development: ZeroCO2 Participatory process

There were several benefits deriving from different stakeholders involvement in ZeroCO2 decision-making process. In very general terms, ZeroCO2 engagement improves the likely outcomes of decision-making in small-communities such as the municipalities involved. This improvement is generated trough:

⁷ Kyoto Club is partner of the LIFE+ Project BLUE AP Bologna Local Urban Environment Adaptation Plan for Resilient City – www.blueap.eu

1. Facilitating clear communication and exchange of information, with all parties involved developing a more thorough understanding of issues, potential solutions and alternative perspectives.
2. Improving the effectiveness of decision-making processes, by gaining better insight into potential equitable outcomes, solutions to conflicts, and effective planning.
3. Strengthening the resources of involved groups, by increasing awareness, confidence, skills and co-operation.
4. Improving the sustainability of any initiatives, by increasing the quality of decisions and their acceptance amongst stakeholders.

This list of benefits seems compelling; however the use of engagement is by no means the norm in decision-making processes. There are many reasons for this, but particularly important are the facts that engagement is intensive in time, resource and skill requirements, and engagement involves giving up a degree of control to people beyond the instigating group or organization, which can threaten the adoption of a preferred outcome.

An improvement methods of the participatory process is also under-going in Foiano della Chiana, the monitoring and evaluating process is running with the supporting tools realized by AzeroCO2 – ESCo - the private partner in the development territory strategies of the municipality. In this case, the Tuscany Regional law n.69 December, 27 – 2007 created the legal framework for the citizens involvement with the introduction of mandatory obligation to design participatory process for territorial planning actions such as Energy Plan, Infrastructure Plan, and Investment Scheme.

Enhance local institutional capacities

Although local institutions play a critical role in supporting mitigation and adaptation, the intensity of adverse future climate impacts is likely to increase – thereby also increasing vulnerability and reducing existing adaptive capacity. External interventions in the form of new information and technology aimed at improving coping capacities, institutional coordination for better articulation (connections among institutions) and improved access (connections of institutions with social groups), and inflows of finances support for local leadership will be critical to strengthen local institutional capacities.

ZeroCO2 Public-Private Partnerships:

The Regional and Provincial partners of the ZeroCO2 project are promoting sustainable development and renewable energies through direct lending, changes to legislation, financial incentives, and building and construction regulations and indicators. Implementing their Sustainable Development Strategies it

comes up that PPP - Public-Private Partnership - financing is often the appropriate answer to renewable energy investment. In fact PPP models offer a number of benefits, including:

1. RISK REDUCTION - public authorities are able to share the risk of investment with private companies;⁸
2. KNOWLEDGE - private organizations may have technical expertise that city governments lack or vice versa;
3. A LOCAL FOCUS - compared to centrally-lead development scheme, Public Private Partnerships are designed for the urban area, employ local actors, and allow local authorities greater freedom and control over service provision.
4. ADDED SOCIAL, POLITICAL AND ECONOMIC BENEFITS - the use of local organizations can encourage civic engagement and job creation in the area.⁹

As a result, they decided to test and improve the existing scheme through the MED Programme, and involving a number of municipalities on their territory. Fourteen municipalities were selected to set-up a model of Public-Private Partnerships to finance renewable energies and energy efficiencies, testing a variety of forms based on the needs of those involved and the parameters of the country legislation. The diversity of PPPs is also evident through the emergence of Energy Service Companies (ESCOs) and Multi-utility Service Companies (MUSCOs), organizations composed of public and private partners established to finance, build and manage joined-up energy and utility services in urban areas.

Looking at the Italian case study of PPP setting-up and the benefit produced by the statutory provisions to protect the environment and landscape in infrastructure, while mitigating the environmental risk in the other hand, increase the likelihood of the occurrence of risk administrative. In fact, this risk must be understood as any delay resulting in the project, generally, inefficiency government or by the complexity of administrative procedures earmarked for the implementation of the project. Here the SEAP implementation facilitates the creation of an adequate administrative structure as requested by the Covenant, and is reinforced by the monitoring process indicators for administrative structure work. Hence the need for contracting authorities, to pay particular attention to the management of these types of risks during the planning of operations; in the Italian Legislation is also a mandatory rule for the award of PPP contracts. This is clear evidence that in the PPP projects, the existence of private capital means that there is greater

⁸ IPCC (2012): Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., et al (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA. 582 pp.

⁹ World Bank (2011). Conflict, Security and Development: World Development Report 2011. Washington D.C., USA.

attention to the environmental risk of private investors that could result in long delays and increased costs to mitigate the risks and gain the consent ex post the implementation of the work.

In other words, the environmental risk is embodied in any extra cost and delay implementation of the infrastructure due to a lack of identification (or proved that during construction) of the risk of environmental sustainability. Again the monitoring of the SEAP indicators for the actions included in the plan could generate a direct testing of the PPP environmental risk index. That means a reducing possibility for a partial or total environmental risk with the consequence of reaching even to block the execution of the work itself. From the foregoing it is evident that the environmental risk in PPP projects, can be mitigated through a properly-controlled setting of the process and administrative proceedings by all public bodies involved, as SEAP implementation could guarantee.

Let us, finally, to indicate some of the tools for the mitigation of environmental risk¹⁰, aimed at reducing the occurrence of risky and, therefore, to contain the time and cost of the PPP implementation within a SEAP implementation:

- a) The implementation of comprehensive environmental studies of territorial framework and infrastructure to be implemented (Baseline Emission Inventory for mitigation responses and Local Climate Impact Profile for adaptation responses);
- b) The preparation of feasibility studies. The Covenant of Mayors practices for small-communities dimension could improve the identification of the instrumental works to meet the public needs and indicate the functional, technical, managerial and financial-economic for the climate responses. [*The LCIP - Local Climate Impact Profile has also to contain the same analysis of the actual state of all components and of any intervention in its historical and artistic, architectural and landscape, and its components of environmental sustainability, socio-economic, administrative and technical matters, that could be enhance down streaming adaptation measures.*]
- c) The participatory process enhance the timely and correct preparation of the program of public works through consultation between the institutions and involving the citizenship a more realistic identification of the precise location of the intervention is realize; this also ensure that all the actions could be implemented and compensation works, to be determined ex ante in the design phase, are identify with the community interest by the opera;
- d) Covenant Supportive structure, as the Province of Massa Carrara for ZeroCO2, and Kyoto Club, as Covenant associated partners, guarantee the involvement of different levels of government to share the benefits arising from the implementation of infrastructure within the participatory process activities, jury presence, facilitate the coordination among the different agencies involved;

¹⁰ EEA (European Environmental Agency) Environmental Indicators: Typology and Overview, Technical Report, Copenhagen: EEA, 1999.

- e) The Climate Caravan and Information Campaign increase the involvement of citizens (as individuals and / or associates) and the provision of a timely and transparent communication between all parties involved;
- f) Finally the pro-acting approach of municipalities' council as support the creation of a social and political consensus to create ex ante. Of course, we talked about here is no accident risk mitigation.
- g) Sustainable Energy Action Plans with adaptation actions and climate proofing investment downstream to each of the actions identify.

The tools listed are used to define properly the risk then that should best be allocated. Generally, given the nature of climate risk and the related difficulties in finding adequate insurance coverage, this form of risk is allocated in the hands of the contracting authority.¹¹

Understand local institutional articulation and access patterns before providing resource support in any development project.

Different small communities, social groups and individual households have varying levels of access to existing institutions. Vulnerable groups in general have lower institutional access than do those who are more powerful or better off. Before external support for greater adaptive capacity is made available, therefore, an analysis of the nature of institutional linkages and access for different social groups becomes critical. Only after a clear understanding of such relationships is available should particular institutions be selected as intermediaries for channeling resources.

Supporting Territorial Development: the Italian climate synergies

Revisiting the issue of governance in ZeroCO2 Project from the local perspective, practices have shown that PPPs in their various forms have proven especially appropriate for securing economic, social, and community development in the current period showing tendencies towards expansion of local governance. Partnerships have been considered as effective forms of governance, first because they can build collective responsibility pertaining to the combined process of activity development: planning, decision-making, problem solving, project implementation and evaluation. In many instances they have created networks to share knowledge, resources, and common goals. PPPs¹² have also served as catalysts of sustainable community dialogue, integrated solutions, and long-term local change. A flexible design and a

¹¹ Giupponi, C., A. Sgobbi, J. Mysiak, R. Camera, and A. Fassio, NetSyMoD - An Integrated Approach for Water Resources Management. In: Meire, P., M. Coenen, C. Lombardo, M. Robba, and R. Sacile, (ed.), *Integrated Water Management*, 69-93, Netherlands: Springer, 2008.

¹² World Bank (2007). *CDD in the Context of Conflict-Affected Countries: Challenges and Opportunities*. Report. No. 36425-GLB. Washington D.C., USA.

constant feedback mechanism have proven critical to their success by and large. In summary, partnerships can be considered innovative tools of policy and action because they can account for both (i) the activity and its resolutions and (ii) the implications on the broader community development. However, as practice indicates, partnerships must be carefully designed and operated to produce efficiency and benefits for all. For the ZeroCO2 project – Italian Case studies - an important role has been playing by the four main actors involved in the PPP scheme identification and design, through a participatory process as indicated in the literature to ensure an effectiveness of the scheme implementation. During the activities all the actors were involved, a cross-cutting expertise was requested, from awareness to technical capabilities: Local Authorities of different institutional scale (Province of Massa Carrara as ZeroCO2 partner; Bagnone, Comano and Fivizzano as Small-Communities pilot case; the Ministry of Economic Development and Tuscany Regional Government as stakeholders), Citizens, No Profit Consultancy (Kyoto Club Service – ZeroCO2 partner) Civil Organization (Legambiente – ZeroCO2 partner and Legambiente Lunigiana – Environmental Association as stakeholders) and Private Company (Local manufacturing and industry as well as AzzeroCO2 ESCo – as stakeholders)

Improve institutional coordination across scales

Existing national plans for mitigation and adaptation in Italy, Spain, Greece and Portugal seem to have attended only in a limited fashion to the role of local institutions in designing, supporting, and implementing mitigation and adaptation. However, if mitigation could be implemented at national and regional level, adaptation is inevitably local; there is a great need to involve local institutions more centrally in planning for and implementing adaptation policies and projects¹³. At the very least, there must be far greater coordination between adaptation policies and measures adopted by institutions and decision makers at the national level, and their counterparts at the local level.

BLUE AP - Bologna Adaptation Process

Starting by the ZeroCO2 toolkit that could play a pilot role and so could improve and innovate other cities' practices in the forms of government, particularly regarding sustainable development and climate change policies. In Southern European countries, and in Italy in particular, it is a strategic need, due to the large number of cities potentially affected by climate change impacts and due to the large number of cities formally engaged (more than 1.000 Covenant of Mayors signatories), but still not experienced in adaptation strategies development. The Bologna Adaptation Process (BLUE AP) intends to meet these needs, which

¹³ Agrawal, A. (2008) The Role of Local Institutions in Adaptation to Climate Change. Prepared for the Social Dimensions of Climate Change, Social Development Department. Washington, DC: World Bank. March 5-6.

may be generalized to other European local contexts and the demonstrative character of the process, which could be of interest for an international audience.¹⁴

The process that will be implemented is based on mitigation responses participatory process and aims at demonstrating that:

1. A local – comprehensive and integrated – scale analysis and a “tailor made” planning process are the right ways to deal with environmental problems generated at global level, but with a direct local impact.
2. Awareness-raising campaigning and a participated and inclusive dynamic between private and public bodies are the most effective ways to activate local policies to tackle climate change adaptation needs and manage adaptation strategies.
3. Offering to local enterprises and stakeholders a coaching support (such as auditing, feasibility analysis, cost assessment, problem-solving actions) is useful to start concrete and positive pilot actions leading to the full implementation of local adaptation plans.

PPP scheme are already implemented in re-forestation projects named GAIA, that aim to make industrial are more resilient to the changing climate.

BLUE AP will also attempt to demonstrate that co-operation and the sharing of responsibilities between public and private sectors¹⁵ can be effective when supported by a mutual, step-by-step management cycle (commitments subscription, target setting and planning, monitoring, reporting). In addition the project demonstrates that local governments engaged in the development of adaptation strategies enhance their urban planning strategies with regard to water management, green areas, health and social services. The benefits of the proposed approach will be shown through the participatory planning process in the Municipality of Bologna and by means of pilot scale applications. Bologna has environmental and economic characteristics that can be relatively easily compared to most Italian and European medium-size cities facing similar climate change effects on urban ecosystems. These characteristics will be functional in developing a common approach easily adaptable to different local conditions.¹⁶

The bottom-up methodology and the on-the-field approach represent strong factors of success for the transferability of the system developed and the guidelines that will be drawn-up from these experiences.

¹⁴ Kaylen, M. S., J.W. Wade, and D.B. Frank. 1992. Stochastic trend, weather and us corn yield variability. *Applied Economics* 24 (5): 513–18.

¹⁶ Figueira, J., and B. Roy, Determining the weights of criteria in the ELECTRE type methods with a revised Simos' procedure, *European Journal of Operational Research*, 139(2), 317-326, 2002.

BLUE AP Protocol, to structure Bologna stakeholders' engagement process

Kyoto Club and Ambiente Italia, with the support of the Municipality of Bologna¹⁷, designed the "BLUE AP Protocol, for Bologna stakeholders engagement on climate adaptation"¹⁸. The assumptions of the Protocol are:

- Climate impacts and vulnerabilities are highly context-specific.
- Top down generated plans do not work.
- Adaptation plans implementation requires the activation of a number of differentiated actors.
- Stakeholders' engagement is essential, but must be mainly targeted to those groups potentially able to have a direct and proactive role in implementing the Plan actions.

The Protocol has the aim to clearly structure the process, with the scope to build up stakeholders and decision makers:

1. Clear awareness of climate change dynamics and of the degree and nature of vulnerability to climate change. The Local Climate Profile provides a scientific vulnerability assessment, Best Practices Guidelines as a whole, manages the knowledge transfer to stakeholders. Task 2 has been structured to ensure that the information is tailored for stakeholders' needs.
2. Sense of responsibility. A fundamental pre-condition of all engagement is a level of willingness to be involved among the stakeholders. Task 2 give overview of the level of willingness and contribute to strength it (Surveys and focus groups).
3. Adaptation planning itself requires a capacity for strategic planning, which is not present in all stakeholders. Task 2, thanks to peer review and exchanges help the development of this skill.

Tools to identify Stakeholders' needs and resources (Surveys and District meetings)

The aims for stakeholders and community's involvement are:

1. To raise awareness about climate change and the need for climate change adaptation.
2. To involve the community of stakeholders in identifying the potential responses most appropriate and effective for the local situation.
3. To develop with stakeholders the necessary condition for the Plan start up and implementation.

¹⁷ www.kyotoclub.or, www.ambienteitalia.it, www.comune.bologna.it, www.arpa.emr.it/sim/

¹⁸ Janssen, M.A., M.L. Schoon, W. Ke, and K. Borner. 2006. Scholarly networks on resilience, vulnerability, and adaptation within the human dimensions of global change program. *Global Environmental Change* 16: 240-52.

The target

The Local Climate Profile provides an extensive information system with areas and population sectors particularly vulnerable. Three major groupings of vulnerability are identified: water management, heat island and primary industries, enterprises and communities. The main targets of the stakeholders' engagement program are:

1. Specific communities, urban areas or District Zones which are vulnerable on the basis of their location and social characteristics.
2. Single Buildings or Services or associated groups.
3. Local agencies responsible for the management of water, energy, green areas, building property, warning and emergency management.
4. Business associations and companies, specifically and potentially interested in playing an active role in defending their own properties.
5. Associations, experts and non-governmental organizations, committed in climate, built environment and natural environment protection.
6. Local decision-makers.

The Tools

100 "Stakeholders Challenges" Surveys delivered to private companies and organizations aim to collect objective data and subjective perceptions about vulnerability, risks and local resilience resources. The survey complements the analysis developed in Local Climate Profile, but is directly targeted to the stakeholders listed above. The emerging data will contribute to identify similarities and differences in stakeholders' perception, to refine the Maps and the overall assessment developed in Action 1.

100 "Financing Challenges" Surveys, delivered to private companies and organizations aim to determine whether and how each main stakeholders category could contribute, activating financial opportunities, to start up specific adaptation actions which may support the whole Local adaptation Plan implementation. A pooling of potential funding options will be provided to help stakeholders and the Bologna municipality to understand and explore which funding schemes could be activated for their specific situation (PPP model, local loans, revolving funds, EU financing options such as JESSICA and JASPER, Structural funds). A report will be prepared as outcome to present main results.

Series of local or thematic dialogues with stakeholders and financing institutions is on going. Local workshops (2 times in each one of the 9 District Zones) and thematic focus groups will be organized with the aim to explore more area-specific aspects with the involved stakeholders and with the aim to validate

the Adaptation strategies development, before the formal adoption of the Plan. These workshops will include various actors representing different interests and potential technical and financing solutions.

Workshops and focus groups with stakeholders together with relevant local or regional Green Blue Infrastructures management agencies or building companies and potential funding institutions (e.g. local / regional / national banks) will contribute to start up Adaptation plan implementation. The main discussion results will be collected and shared.

Tools to create and mobilize local planning capacity: peer review and good practice exchanges

The Peer Review is a process of presenting a project or process to the scrutiny of others who are experts in the same field, in order to improve it. The Scientific Board set up by the project will act as peer reviewers (“critical friends”). The work conducted in this Task include:

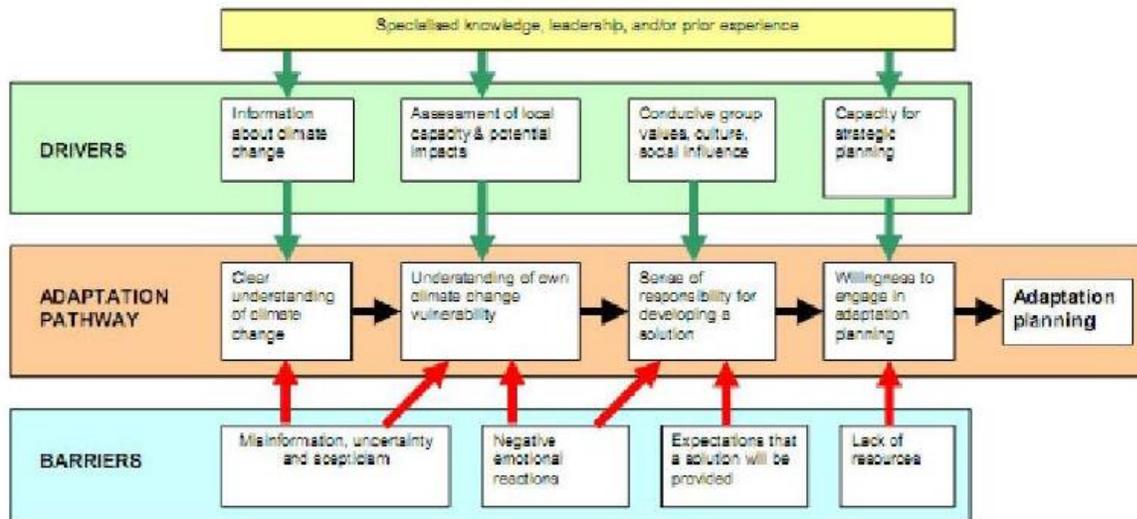
1. Preparation of audit and review documentation.
2. Advice by the Scientific Board representatives on the possible strategy generation or improvements.
3. Enhanced understanding by the Bologna officers and politicians in developing and implementing the Adaptation Plan.
4. Preparation of a list of actions/recommendations that if implemented will accelerate and improve the Bologna Adaptation Plan development/implementation.
5. Preparation of a list of suggestions on communication issues (how to reach consensus, improve visibility, transparency and relations with citizens).
6. Discussion/analysis in the partners’ meetings on the outcome of peer reviews.
7. At least 1 discussion session with other cities that have already developed an Adaptation Plan and 2 round tables with climate change adaptation experts involved in EU LIFE+ and other relevant EU adaptation projects. Cities and experts will also be involved in 1 intermediate public event (Bologna) and in the Final Conference (Rome or Bologna) organized to disseminate lessons learned.

Conference organizers: ICLEI – Local Governments for Sustainability

In cooperation with the City of Bonn and the World Mayors Council on Climate Change

ICLEI does not accept any kind of liability for the current accuracy, correctness, completeness or quality of the information made available in this paper.

<http://resilient-cities.iclei.org/>



Focus on territorial development strategies taking both vulnerabilities and capacities into account

Interventions for improving adaptive capacity in the context of small-communities projects need to attend better to mitigation and adaptation practices facilitated by different forms of external support. The multiple linkages among external interventions and local adaptations can only be understood through a focus on the mediating role and linkages among different institutions in a given territory, and their influence on production and adaptation possibilities.¹⁹

ESCo: delivering Win-Win solution for climate responses

Since now, ESCo interventions where mainly consider as mitigation responses to climate change, the possibilities to compensate CO2 emission trough the realization of “Green Infrastructures” and to operate in the carbon voluntary market and white certificate scheme (e.g. Italy, Portugal for ZeroCO2 country partners) for energy efficiency and renewable energies interventions define a clear role for the ESCo in the territorial development and in this dedicated case studies, for PPP scheme. The ESCo market has been develop in the last 5 up to 10 years, depending on countries, supporting the exploitation of RES and RUE objectives. Now, adaptation is nowadays needed and has to become an attractive business for local companies. Adaptation responses as similar characteristics as mitigation had at the time when ESCo and

¹⁹ Giupponi, C., Decision Support Systems for implementing the European Water Framework Directive: The MULINO approach, Environmental Modelling & Software, 22(2), 248-258, 2007.

RES and RUE market were created, above a list of the key-factors that during the project implementation we observe as crosscutting issue between mitigation and adaptation:

1. Local companies engaged to participate in setting up the Adaptation Plan and climate proof building codes will strength their relationship with the local government and will create highly dynamic and competitive advantages – this is comparable with the SEAP development and implementation, in fact energy efficiencies actions are strictly connect to an Energy Plan and Building codes.
2. Local companies by demonstrating sensitivity to different social and environmental issues can also support the wider EU Sustainability Strategy. Indeed the challenge of this Strategy is to maintain a dynamic that mutually reinforces economic growth, social welfare and environment protection.
3. Local companies need to respond to general market pressures. Thus the possibility of participating in a network of social partnership, of accessing know-how and innovative skills, of being supported and guided in the development and implementation of innovative environmental solutions and management instruments, is a relevant advantage for companies.
4. Local companies engaged in adaptation practices, will gain benefits also in terms of their “positive image” on the market;

Conclusion: Adopt an adaptive perspective on institutional development

As climate change and its impacts become more obvious, it is increasingly important to integrate concerns for managing risks faced by households and communities into earlier concerns for growth, poverty alleviation, equity, and sustainability. In the ZeroCO2 Italian experiences the need for integrating climate risk management in development as adaptive development become an effective need after the three extreme flooding occurring in the two years project. Adaptive development will require a greater role for local institutions in both planning and implementation of development projects. If for mitigation the state of knowledge is sparse about the most effective ways in which institutions can facilitate local mitigation, for adaptation is even more complicate because the blueprints available at the moment for developed country are under monitoring and can be advanced for planning adaptive development. An adaptive perspective on development will require the willingness to experiment, capacity to take the risk of making mistakes²⁰, and flexibility to make space for social and institutional learning.

²⁰ Agrawal, A., and M. Lemos. 2007. A Greener Revolution in Making? Environmental Governance in the 21st Century.” *Environment* 49(5): 36-45

References:

- Agrawal, A., and M. Lemos. 2007. A Greener Revolution in Making? Environmental Governance in the 21st Century." *Environment* 49(5): 36-45
- Agrawal, A. (2008) The Role of Local Institutions in Adaptation to Climate Change. Prepared for the Social Dimensions of Climate Change, Social Development Department. Washington, DC: World Bank. March 5-6.
- EEA (European Environmental Agency) Environmental Indicators: Typology and Overview, Technical Report, Copenhagen: EEA, 1999.
- Figueira, J., and B. Roy, Determining the weights of criteria in the ELECTRE type methods with a revised Simos' procedure, *European Journal of Operational Research*, 139(2), 317-326, 2002.
- Giupponi, C., Decision Support Systems for implementing the European Water Framework Directive: The MULINO approach, *Environmental Modelling & Software*, 22(2), 248-258, 2007.
- Giupponi, C., A. Sgobbi, J. Mysiak, R. Camera, and A. Fassio, NetSyMoD - An Integrated Approach for Water Resources Management. In: Meire, P., M. Coenen, C. Lombardo, M. Robba, and R. Sacile, (ed.), *Integrated Water Management*, 69-93, Netherlands: Springer, 2008.
- Intergovernmental Panel on Climate Change (IPCC) 2007a: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.). New York: Cambridge University Press.
- Intergovernmental Panel on Climate Change (IPCC) 2007b: Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds. Cambridge: Cambridge University Press.
- IPCC (2012): Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change [Field, C.B., et al (eds.)]. Cambridge University Press, Cambridge, UK, and New York, NY, USA. 582 pp.
- Janssen, M.A., M.L. Schoon, W. Ke, and K. Borner. 2006. Scholarly networks on resilience, vulnerability, and adaptation within the human dimensions of global change program. *Global Environmental Change* 16: 240-52.
- Kates, R. 2000. Cautionary tales: Adaptation and the global poor, *Climatic Change* 45 (2000) (1), pp. 5–17.
- Kaylen, M. S., J.W. Wade, and D.B. Frank. 1992. Stochastic trend, weather and us corn yield variability. *Applied Economics* 24 (5): 513–18.
- World Bank (2011). *Conflict, Security and Development: World Development Report 2011*. Washington D.C., USA.
- World Bank (2007). *CDD in the Context of Conflict-Affected Countries: Challenges and Opportunities*. Report. No. 36425-GLB. Washington D.C., USA.

Conference organizers: ICLEI – Local Governments for Sustainability

In cooperation with the City of Bonn and the World Mayors Council on Climate Change

ICLEI does not accept any kind of liability for the current accuracy, correctness, completeness or quality of the information made available in this paper.

<http://resilient-cities.iclei.org/>

The author:

Professional Master

Piero Pelizzaro

Head of the International Cooperation Unit

International Cooperation Unit

Kyoto Club

Email: p.pelizzaro@kyotoclub.org ; piero.pelizzaro@gmail.com

Www: www.kyotoclub.org

Bio:

Piero Pelizzaro (32 years-old) is Acclimatise Associate Italy and responsible for the International Cooperation Unit and member of the Working Group Local Authorities for Kyoto at Kyoto Club No Profit, since April 2010. Currently is an external consultant for The Ministry of the Environment and Protection of Land and Sea of Italy. Expert on Adaptation Policy and Resilience to Climate Change and further specialization in Energy Scenario and Climate Change Impact Models through his past working experience at Stockholm Environment Institute – Tallinn Office. In past years he collaborated with EU MP, Umberto Guidoni and at the moment his writing for different magazine and web-portal on climate change issue. Leading projects supported by European Commission. At the moment is leading the LIFE+ project BlueAP Bologna Local Urban Environment Adaptation Plan for a Resilient City (Senior Expert), LIFE+ RECOIL Recovered waste cooking oil for combined heat and power production (Technical Director), MED ZeroCO2 Small communities for big changing.



Conference organizers: ICLEI – Local Governments for Sustainability

In cooperation with the City of Bonn and the World Mayors Council on Climate Change

ICLEI does not accept any kind of liability for the current accuracy, correctness, completeness or quality of the information made available in this paper.

<http://resilient-cities.iclei.org/>