

PAPER • OPEN ACCESS

## Capacity Building vs Climate Change. A laboratory for the community in transition and the resilient city in the southern suburb of Reggio Calabria

To cite this article: A Leuzzo and C Nava 2020 *IOP Conf. Ser.: Earth Environ. Sci.* **588** 032040

View the [article online](#) for updates and enhancements.

## 239th ECS Meeting

with the 18th International Meeting on Chemical Sensors (IMCS)

**ABSTRACT DEADLINE: DECEMBER 4, 2020**



May 30-June 3, 2021

**SUBMIT NOW →**

# Capacity Building vs Climate Change. A laboratory for the community in transition and the resilient city in the southern suburb of Reggio Calabria

A Leuzzo<sup>1</sup> and C Nava<sup>2</sup>

<sup>1</sup> Arch, PhD Student, Mediterranean University of Studies of Reggio Calabria, dArTe  
Department of Architecture and Territory, PhD visitor, TU/e, AUDE

<sup>2</sup> Arch, Researcher Professor, Mediterranean University of Studies of Reggio Calabria, dArTe  
Department of Architecture and Territory

E-mail: leuzzoalessia@gmail.com

E-mail: cnava@unirc.it

**Abstract.** In the climate change scenario, can *active* transfer of knowledge to and skills empowerment of peripheral communities trigger a locally rooted transition toward an agile periphery? The ongoing project *KnowledgeVsClimateChange* [1] is contributing by transferring knowledge and by building competences through an urban laboratory in the southern suburb of Reggio Calabria (Italy). The laboratory is set in line with the “knowledge city” tactic by Pensando Meridiano Association (PM)[2]. The aim is to enhance local actions of climate change adaptation; therefore, global issues are locally framed through a multi-sectoral urban approach. Accordingly, the adopted strategy focuses mainly on: Urban Sustainability, Up-cycle, Circular Economy, Citizen Transition and KETs. Actions are envisaged in congruence with the SDGs: 4, 9, 11, 12, 13. The “learning by making” method is calibrated with respect to different typologies of targets: it includes training/information seminars on topics, but also direct actions for capacity building. Although this method has been proven in the specific context shown above, it still needs to be investigated if an operative transition model can be extrapolated and recontextualized in other urban contexts. For this investigation, this paper evaluates the first social impacts of the methodology by monitoring the acquisition of knowledge and skills by makers. Based on the results of this paper, it can be concluded that this methodology can contribute in structuring urban agenda programs for the built environment transition, towards the model/prototype of “agile and resilient city”.

## 1. Introduction

The entanglement between living conditions, processes for management/production in the built environment and climate change is currently widely discussed; adaptation and mitigation techniques are the main areas of research for the most effective approaches. Although, in many cases the condition of urban periphery, i.e. marginality [3], represents a disturbance in the efficacy of such techniques. In fact, much more attention is usually given to the urban centers, leaving to peripheral communities lower levels of spaces and quality of life, because of the weak government of territory. As a result, as people learn from what is experienced from urban life, peripheral communities generally recognize even less the emergency of tackling global issues. Nevertheless, "from urban criticalities, [...] contemporary suburbs evolve [...] into significant components of



Content from this work may be used under the terms of the [Creative Commons Attribution 3.0 licence](https://creativecommons.org/licenses/by/3.0/). Any further distribution of this work must maintain attribution to the author(s) and the title of the work, journal citation and DOI.

transformations in the context of the metamorphosis of cities" [4]. This is considered to be also the case of the southern suburb of Reggio Calabria (hereinafter RC). As a result, in a transition context like in RC, the efficacy of technologies for the architecture does not lay just in their efficiency, but in strengthening people capacities. Thereby, it is essential to know how to build knowledge and skills for them on urban climate change related issues, to allow a radical change in the way of living and thinking cities. The urban laboratory through the "learning by making" method is here discussed as an appropriate way to investigate climatic implications and technologies for resilience with young makers and the peripheral community. With reference to the crisis full of values [5], the scientific community recognizes an unexpressed potential in peripheries, capable of initiating virtuous processes that can be later recontextualized in other urban realities.

## 2. The project

The "KnowledgeVsClimateChange" project (KvsCC) has the general target of strengthening knowledge and building capacities of working for urban sustainability, upcycle, circular economy and possible actions for climate change adaptation. The project is working for the community in the southern suburbs of RC, through the application of "agile" enabling technologies. Among these technologies 3D printing, Arduino systems, informative augmented urban mapping, virtually navigable visions are included. Such technologies trigger virtuous processes of microtransition toward the urban resilient transition. This technologies relate to the EU Commission's KETs (Key Enabling Technologies) and are here defined as "agile" because they are built from open data, easy to access, easy to learn; thereby, they are entirely built by our makers. In order to do this, the laboratory started in November 2019, by training 13 young people under 35 (makers) to elaborate techniques for activities based on sustainable urban innovation strategies. Furthermore, once learned, makers are working in the area intervening in involvement and transformation with other locals. As a result, in the capacity building chain, the first laboratory targets are the makers working for the final target (local community). Coherently, knowledge transfer and capacity building are oriented toward the specific issues of the periphery in RC. Here the quality of life, in relation to climate change, derives from poor planning and management of soil and water resources: malfunctioning of urban metabolism flows, ordinary heat island effects during summertime and floodings in winter, indifferent soil consumption and its waterproofing. There are also issues related to construction techniques thus disposing of dissipative buildings and uncooperative models. Furthermore, the project refers its approach to the SNSvS (National Sustainable Development Strategy) and the Agenda2030 [6]; The supported SDGs are: Goal 4 for Open seminars and Graduation class, Goals 9 and 12 for the «Innovation Capacity Building» open-school and Goal 11 for the physical workshop; all of them transversely refer to Goal 13. This focus has also helped Pensando Meridiano Association (hereinafter PM) receiving the patronage of the ASviS (Italian Alliance for Sustainable Development).

### 2.1. The networking of knowledge

The project proposal, selected by Punto.Sud and co-financed by a EU action on the subject, is presented by PM, with project manager the Pres. Arch. PhD G Mangano. The partnership includes: Reboot Association (for public-private networking) and the ABITAlab interuniversity Center (dArTe Department of the Mediterranean University of studies of Reggio Calabria - UniRC). In addition, within the network other collaborations are incorporated with: the innovative startup PMopenlab srls (semplified Ltd.), the Built Environment Dep. of the TU/e (NL), the Municipality of RC, local/national neighbourhood associations, collaborative actions with primary and secondary schools. The involvement of the interested parties took place as follows: under 35 members of PM, Reboot and neighborhood associations through an open call; university students by enrolling in the "Sustainability and Innovation of the Project-SID"

course with Prof. C Nava (UniRC, ABITAlab dArTe); other students, PhD students and young people by invitation; the ABITAlab Center through an institutional agreement. Finally, 10 more collaboration contracts for human resources, identified by PM and by PMopenlab srls, are stipulated. Therefore, the competent and multilevel network reflects the innovation of the project: itself implements the co-design practices typical of *impact design*, useful for resilient regeneration [7]. Coherently, the second prime aim of KnowledgeVsClimateChange project is the network building, as the capacity to go beyond the project itself, creating different parallel outcomes.

## 2.2. Phases of the project

Three results have been identified for the realization of the project: R1/R2/R3. The project will take place in 12 months; its phases can be summarized as follows:

- PHASE 1: (1<sup>st</sup> / 2<sup>nd</sup> / 3<sup>rd</sup> / 4<sup>th</sup> month) Planning and organization of 2 information seminars and 2 technical seminars, communication activities;
- PHASE 2: (5<sup>th</sup> / 6<sup>th</sup> / 7<sup>th</sup> / 8<sup>th</sup> month) Planning and organization of courses of Sustainable Innovation Capacity Building;
- PHASE 3: (9<sup>th</sup>/10<sup>th</sup>/11<sup>th</sup>/12<sup>th</sup> month) Actions of regeneration, recycling and transformation of peripheral areas under climate change.

## 2.3. Actions, impacts and evaluation of the project

From the realization of the project we expect a strengthening of knowledge together with the construction of individual and collective skills and network building. We believe that these factors together can trigger virtuous local processes. As regarding the assessment of the targets achievement: for the R1 phase, social and personal impacts were measured by monitoring the acquisition of knowledge and skills by the makers; the R2 and R3 phases are involving also environmental and urban impacts.. The impacts are measured on physical and virtual community. As regarding physical community, within the R1 phase, the permanent workshop involving the under 35 of the team project, focused on social communication, direct urban walks and social blog (preparing virtual and real community for the physical workshop). Actions currently concluded are: two project approaching activities (the Zero Seminar and Project dissemination) and five open information seminars. The *Zero Seminar*, linking stakeholders at PMopenlab, involved: the team project, representatives of environmentalist and third sector associations (i.e. Action Aid) and C Nava as Arch. Researcher (uniRC, ABITAlab) and expert on sustainability and innovation. The expected number of participants was 13; we had 22. The *Project dissemination* occupied the team project in 14 hours of involvement of target students inside the UniRC, for the open activities of *KvsCC*. We obtained 57 adherences among the 2 dArTe and PAU departments. Although, for the Seminar#1 we reached 71 people. Seminar#1 «Climate Change and Resilient Design in Dutch Cities», with unexpected participation, was held by I Curulli (TU/e of Eindhoven, expert in water-related architecture and landscape architecture) and A Leuzzo (PhD student at UniRC and visitor at TU/e). Among participants five invited UniRC institutional figures and four spontaneous university associations were present. The efficacy of this kind of event is readable in its capacity of opening to international network; in fact, the opportunity to entangle stronger collaborations on climate change issues between the two universities emerged. As regarding the other initiatives, the Covid-19 emergency forced the conversion of 5 appointments into webinars. Webinar#2 was held by C Rizzi (Unibas) on «Convivium-City. A paradigm for community capability in fragile territories». Webinar#3 was held by D Vespier (Vespier Architects) on «The reasons of a method and project». Webinar#4 was held by R Hopps (LEED Expert) on «Health and Wellbeing: the Contribution of the LEED and WELL Protocols». One extra very appreciated webinar was added: «Habitat 5.0»held by

M Ricci (Unitn). In general, against the odds, the translation into webinars has allowed the involvement of several participants at international level. We had an average of 90 participants with peaks of 125. Also, impacts have been assessed on the *Graduation class* and *SID course*, with 16 students, concluded with very high results in June. They also participated to the experimentation through the *Open-school on Innovation Capacity Building* (scheduled for 40 hours)). For 4 days the school offered training on 3D printing, Storytelling, Information Design and Open Source Platforms. Accordingly, the students will also participate to the *Sustainable Advanced Design Workshop* directly on the periphery. As regarding virtual community, the team project is working on the platform and the social media page, disseminating the project through different canals to different targets. In the period November 2019-July 2020 we registered 1.549 project followers, 337 posts reporting 12.283 interactions, reaching 112.094 people from RC and near territories and obtaining 1.523 total likes including *Punto.Sud* and the *European Commission - Development & Cooperation - EuropeAid*. Highest involvement was registered among the age average of 25-34 (34%) and 35-44 (23%). The media are produced by the team project and include: clear photo-glossaries of the periphery, link reposts (#GoodPractice, #FromTheWorld, #PM4ClimateChange and #AboutLearning) and thematic videos (mobility, flooding events, demographic density and soil sealing). The most liked posts are the ones presenting visions for the periphery from dArTe students (#PM4ClimateChange). In the evaluation, this assumes high weight as visions are products of people trained during the project and liked by the virtual community approaching the physical workshop. Accordingly, gradually short to long-time outcomes expected are: growing network of local people, institutions and entrepreneurs who want to work for the application of adaptation and mitigation measures; enhance of local awareness on specific climate change issues; trigger of community actions for adaptive urban planning and high quality of life on the building and neighborhood scale.

#### 2.4. Conclusions

Even small differences in expected and actual participants are meaningful for a community that hardly deals with climatic and urban issues; this condition, strengthens the perception that further good results can still be achieved, especially in the physical workshop on the peripheral area. In fact, as claimed by Walker and Salt [8] in reference to social catastrophes due to climate change, "if local communities knew more about the ecological drivers of the regions in which they live, [...] they would have the power to take their own decisions about what type of development is appropriate for their area, and if they could be given the responsibility of learning to adapt [...], then it is likely that they would be better prepared to deal with the disturbances". This statement, together with the possibility of transferring the presented practice to similar areas, is the ambition of the project underway on the southern suburb of Reggio Calabria.

#### References

- [1] <https://www.knowledgevsclimatechange.com>, from *NoPLANetB, Project "B Circular Fight Climate Change! - 2"*, <https://it.noplanetb.net/project/b-circular-fight-climate-change-2-edizione/>
- [2] <https://www.pensandomeridiano.com/citt-della-conoscenza->
- [3] Mangano G and Leuzzo A 2019 *Outskirts and inner areas as legacy for future city* R.E.D.S. LEGACY 2019 (Rome: Gangemi) pg 76
- [4] Carta M 2013 *Periferie, riserve di resilienza per le città in evoluzione* Preface to Barbara Lino, *Periferie in trasformazione. Riflessi dai «margini» delle città* (Florence: Alinea)
- [5] Zevi B 1999 *Landscape and the zero degree of architectural language* (Venice: Canal & Stamperia Editrice)
- [6] <https://unric.org/it/agenda-2030/>
- [7] Nava C 2019 *Città-Laboratorio, Città della Conoscenza, Città Rigenerative e Impact Design*, Lezione/applicazione II, *Ipersostenibilità e Tecnologie Abilitanti. Teoria, Metodo e Progetto* ed Nava C, Mangano G, Leuzzo A (Rome: Aracne)
- [8] Walker B and Salt D 2006 *Resilience thinking, Sustaining Ecosystems and People in a Changing World* (Washington: Island Press) pgg 153-4