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Facultad de Minas  
Sede Medellín



UNIVERSIDAD  
**NACIONAL**  
DE COLOMBIA



# CARE

empowering  
climate  
resilience

## CARE Technical note on Intensive Course for Students Medellín, Colombia March 5<sup>th</sup>- March 14<sup>th</sup>, 2018



<b>Task:</b>	<b>TECHNICAL NOTE ON INTENSIVE COURSE FOR STUDENTS</b>
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<b>Date:</b>	<b>MARCH 5<sup>TH</sup>- MARCH 14<sup>TH</sup>, 2018</b>





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## 1. MEETING PROGRAMME

### Monday 5<sup>th</sup>

14.00-15.00: Registration of students and professors (Coordinator: UNAL)

15.00-16.00: Welcome and Introduction to workshop objectives and method: Jesús Vargas Molina (UPO) and Santiago Arango (UNAL).

16.00-18.00: Partners' meeting: presentation of the approved intermediate financial and technical report and revision of Medellín intensive course agenda: Josefina López Galdeano (UPO), Jesús Vargas Molina (UPO) and Flavio Camerata (UPO)

### Tuesday 6<sup>th</sup>

9.00-10.00: Plenary session: Introduction to CARE project: what is climate resilience and what is the CARE project: Mara Cossu and Josefina López Galdeano (UPO)

10.00-10.45: Why concept mapping and presentation of CARE e-platform: Flavio Camerata (UPO) and José Chira (UIM).

Coffee break

11.00-13.00: Introduction to concept mapping: Flavio Camerata (UPO).

Lunch break

14.30-15.15: Topic 1: CC & urban/rural nexus "Sustainable rural energy and climate resilience - Tolima case" Speaker: Liliana Delgadillo (UNIBAGUE)

15.30-16.15: Topic 2: CC & community engagement: "Adaptation to climate change and the imperative of integrated planning" Speaker: Jonathan Barton (UC)

16.30-17.15: Topic 3: CC & urban environment "Community and Civil Defence and Resilience in Sao Bernarda da Campo - Santa André" Speaker: Katia Canil (UFABC)

17.15-18.00: Topic 4: CC & urban governance "Climate Change and Urban Governance in Uruguay" Speaker: Adriana Goñi (UDELAR)

### Wednesday 7<sup>th</sup>

9.00-13.00: Parallel exercise sessions: Concept mapping (mapping students' previous knowledge)

9.00-13.00: Parallel Sessions: Publication of CARE book. Coordinator: Mara Cossu (POLIEDRA) and Jesús Vargas (UPO)

Lunch break

14.30-15.15: Topic 4: CC & urban governance "Urbanisation governance and territorial conflicts in Easter Amazon" Speaker: Jose Julio Lima/Ana Claudia Cardoso (UFPA)



15.30-16.15: Topic 3: CC & urban environment "Multiscale dimension of the urban climate" Speaker: Cristian Henriquez (UC)

16.30-17.15: Topic 2: CC & community engagement "Experience of Community Participation in Quito" Speaker: Fabrizio Pieri/María di Marco (CRIC)

17.15-18.00: Topic 1: CC & urban/rural nexus "Unequal urbanisation: rivers, media and ecological urbanisation" Speaker: Luciana Travassos (UFABC)

### **Thursday 8<sup>th</sup>**

9.00-13.00: Parallel exercise sessions: concept mapping (mapping a CARE case study)

9.00-13.00: Parallel sessions: Open Training Modules. Coordinator: Mara Cossu (POLIEDRA)

Lunch break

14.30-15.15: Prof. Sergio Orrego. Formulation of the Action Plan for Change and Climate Variability in the Aburrá Valley

15.30-16.15: Personal del SIATA (Carlos David Hoyos / Lina Ceballos) System of Early Warning of the Valley of Aburrá (SIATA): Experiences and learnings

16.30-17.15: Prof. Patricia Jaramillo. Prioritization methodologies for climate change adaptation measures

17.15-18.00: Prof. Verónica Botero. POMCAS: Watershed Spatial and Management Plan

### **Friday 9<sup>th</sup>**

9.00-13.00: Parallel exercise sessions: concept mapping (mapping a scientific paper)

9.00-13.00: Parallel sessions: Project's sustainability (CARE network; future projects) Coordinator: Josefina López Galdeano

Lunch break

14.30-16.15: Plenary session: presentation of selected group works. Coordinator: Flavio Camerata (UPO), Daniel Henao Arango (UNAL)

16.30-18.00: Plenary session: presentation of CARE CMap 2.0 and first discussion with students. Coordinator: Flavio Camerata and Jesús Vargas Molina (UPO)

### **Saturday 10<sup>th</sup>**

09.00-13.00: Study visit: Visit to the Articulated Life Unit (UVA) Aguas Claras. This UVA is located near a wastewater treatment plant and integrates a very interesting urban and cultural component. UVA administrator staff will give a talk about the development of it. Coordinator: Daniel Henao Arango (UNAL)



## Lunch break

15.00-18.00: UNAL will give directions for people to visit the Arví Park. This Park is on the outskirts of the city, and can be reached using the city's public transportation system (Metro and MetroCable). Coordinator: Daniel Henao Arango (UNAL)

## Sunday 11<sup>th</sup>

09.00-13.00: Study visit: Visit to the EPM Water Museum. This museum is in the Parque de los Pies Descalzos (a benchmark for visits in Medellín) and is managed by Empresas Publicas de Medellín (the company in charge of public services in the city). Each person would pay the entrance to the Museum. Coordinator: Daniel Henao Arango (UNAL)

## Lunch break

15.00-18.00: Study visit: Visit Grafitour. Grafitour consists of visiting Comuna 13 in Medellín, an icon of social and urban regeneration. Coordinator: Daniel Henao Arango (UNAL)

## Monday 12<sup>th</sup>

9.00-13.00: Parallel exercise sessions: Exercise on CARE CMap 2.0

9.00-13.00: Partners' meeting. Coordinators: Flavio Camerata (UPO), Jesús Vargas (UPO) and Josefina López Galdeano (UPO)

## Lunch break

14.30-18.00: Parallel film sessions & debates

16.00-18.00: Steering Committee. Chair by Josefina López Galdeano (UPO). Quality Committee. Chair by Oswaldo Moscoso Zea (UTE)

## Tuesday 13<sup>th</sup>

9.00-13.00: Plenary session: presentation of selected group works on CARE Cmap 2.0. Coordinator: Flavio Camerata and Jesús Vargas Molina (UPO)

## Lunch break

14.30-18.00: Parallel exercise sessions: Final tests and selection of best groups for prizes.

14.30-18.00: Wrap up Parallel Session. Coordinator: Mara Cossu (POLIEDRA) and Josefina López Galdeano (UPO)

## Wednesday 14<sup>th</sup>

09.00-13.00: Plenary session: Final discussion & wrap up. Coordinators: Jesús Vargas Molina (UPO) and Santiago Arango (UNAL)



## 2. NUMBER OF PARTICIPANTS

The Intensive Course for Students of the CARE Project was held at Facultad de Minas of Universidad Nacional de Colombia, in Medellín, Colombia. Students and professors from the 16 partners of the project attended. The table shows the number of participants of each partner.

Acronym	Partner	Professors	Students	TOTAL
UPO	Universidad Pablo de Olavide	3	0	3
UIM	Unión Iberoamericana de Municipalistas	1	0	1
POLIMI	Politecnico di Milano	2	0	2
POLIEDRA	Centro di Ricerca POLIEDRA	3	0	3
CRIC	Centro Regionale d'Intervento per la Cooperazione Onlus	2	0	2
TWENTE	Universiteit Twente	2	0	2
UC	Pontificia Universidad Católica de Chile	3	10	13
UDEC	Universidad de Concepción	2	10	12
UFPA	Universidade Federal do Pará	2	10	12
UFABC	Universidade Federal do ABC	4	10	14
UNIBAGUE	Universidad de Ibagué	3	10	13
UT	Universidad del Tolima	3	10	13
UNAL	Universidad Nacional de Colombia	2	9	11
UDELAR	Universidad de la República	3	8	11
UTE	Universidad Tecnológica Equinoccial	3	10	13
UTEQ	Universidad Técnica Estatal de Quevedo	2	6	8
TOTAL		40	93	133





### 3. INTENSIVE COURSE FOR STUDENTS – PRESS RELEASES

Medellín, March 5<sup>th</sup>-14<sup>th</sup>, 2018

Universidad Nacional de Colombia. Carrera 80 # 65 – 223. Medellín

#### **CARE, el proyecto de la Comisión Europea que alberga la Facultad de Minas**

Publicado: 06 Marzo 2018



Desde el pasado lunes 5 de marzo y hasta el 14 del mismo mes, se realizará un curso intensivo con estudiantes de diferentes países latinoamericanos y europeos sobre la resiliencia al cambio climático.

En total 150 personas estarán en la Facultad de Minas creando estrategias que permitan mitigar los efectos del cambio climático.

Desarrollar experiencias educativas innovadoras para mejorar el conocimiento del potencial que la resiliencia urbana tiene para combatir los efectos del cambio climático, es el principal objetivo del Proyecto CARE: Empowering Climate Resilience patrocinado por la Agencia Europea para la Educación y la Cultura (EACEA).

Santiago Arango Aramburo, director del CARE para Colombia, aseguró que también se pretende con el curso, incrementar el conocimiento y habilidades de profesores y estudiantes respecto a los desafíos en resiliencia urbana; así como crear estrategias y recursos educativos que generen una red entre Latinoamérica y Europa que permita avanzar en la solución de uno de los principales retos del planeta.

De Europa participan 6 países, representados en el Politecnico di Milano, Centro Regionale D'intervento per la Cooperazione Onlus, Universidad Pablo de Olavide, Unión Iberoamericana de Municipalistas, Centro di Ricerca Poliedra y la Universiteit Twente.

De América asisten 10, representados en Pontificia Universidad Católica de Chile, la Universidad de Concepción, Universidade Federal do Pará, Fundacao Universidade Federal do ABC, Universidad de Ibagué, Universidad del Tolima, Universidad Nacional de Colombia, Universidad de la República, Universidad Tecnológica Equinoccial y la Universidad Técnica Estatal de Quevedo.

El profesor Arango Aramburo afirmó que los asistentes al curso trabajarán con la estrategia de Mapas Conceptuales, específicamente en temas como resiliencia urbana, gestión del riesgo climático, resiliencia social, planeación social estratégica, monitoreo y valoración de planes y políticas.

Link: <https://minas.medellin.unal.edu.co/noticias/facultad/1884-care-el-proyecto-de-comision-europea-que-alberga-la-facultad-de-minas>



## Care: Proyecto de Cambio Climatico



Link: [https://www.youtube.com/watch?time\\_continue=2&v=dLc7-HQFoRU](https://www.youtube.com/watch?time_continue=2&v=dLc7-HQFoRU)

## Proyecto CARE, finalizó con éxito en la Facultad de Minas



Link: <https://www.youtube.com/watch?v=B5cu2IFtZu8&feature=youtu.be>



#### **4. PERFORMED ACTIVITIES, METHODOLOGY APPLIED AND ACHIEVED RESULTS (TANGIBLE AND INTANGIBLE)**

*Monday, March 5, 2018*

The opening ceremony of the Intensive Course for Students of the CARE Project was held with the presence of the Board of the School of Mines of Universidad Nacional de Colombia, the hosting partner. Most of the students and professors from the 16 participating partners attended to this ceremony, in which Jesús Vargas Molina, representing Universidad Pablo de Olavide, greeted the attendees and expressed his gratitude to UNAL for all the work done to prepare the course. Similarly, the Academic Director of the Medellín Campus of Universidad Nacional de Colombia, expressed her satisfaction for the development of the Intensive Course, emphasizing that Latin American countries, although they are not the ones that generate the most emissions of GHG, are the most vulnerable to the effects of climate change, so she stressed the relevance of this course. Finally, Professor Santiago Arango, Vice dean of Research and Extension of the School of Mines, told the audience the metaphor of the toad in the pot with the aim of exposing the relevance of adapting to the effects of climate change.

*Tuesday, March 6, 2018*

During the morning, the POLIEDRA and UPO teams gave a brief introduction of the project to the students: objectives, work packages, general activities. This with the aim of contextualizing the students regarding the importance of this Intensive Course in the context of the project. Subsequently, a representative from each university made a brief presentation of the professors and students attending (regarding their training, their previous work with the CMaps and their expectations of the course).

After the break, José Chira from UIM made a brief presentation of the online learning platform that is being developed and which will host the results and deliverables of the project in a format suitable for use in educational contexts. The platform is not yet available for public access, as it is being nurtured with the results of the Intensive Course.

Then, Flavio Camerata from UPO gave a general introduction to the methodology of concept mapping. Emphasis was placed on the linkage between concepts with the purpose of showing their interrelationship, therefore allowing the generation of new knowledge from previous knowledge. The methodology starts with a focal question that is intended to be solved through the relationship between concepts.

In the afternoon session, there were four presentations, one from each thematic topics of the project. Professor Liliana Delgadillo, from UNIBAGUÉ, spoke about cases of resilience in the department of Tolima (Colombia), highlighting the degree of vulnerability of this department in the Colombian context. Jonathan Barton from PUC made a presentation on adaptation to climate change and the need for integrated urban planning. Luciana Travassos and Katia Canil from UFABC



presented on geotechnical maps for urban planning as instruments for the prevention of risks and disasters. Finally, Adriana Goñi from UDELAR talked about governance, in an interactive presentation, in which she was exposing the topics and students asked questions or comments.

#### *Wednesday, March 7, 2018*

During the morning of Wednesday 7, the participants were divided into five groups: four of students and one of the professors. In each of the 4 groups of students (addressing the 4 thematic topics of the project), Latin American and European teachers began to tutor the students in the concept mapping methodology. The professors met to discuss the publication of a book with the main results of the project.

In the afternoon, a plenary session was held where four professors presented projects related to their areas of expertise, framed in the thematic topics of the project: Maria di Marco and Fabrizio Pieri, from CRIC, presented on experiences of community participation in risk management in Ecuador. Cristian Henríquez, from PUC, spoke about the multiscale dimension of urban climate. Ana Claudia Cardoso, from UFPA, spoke about urbanization, governance, and territorial conflicts. Finally, Luciana Travassos, from UFABC, spoke about unequal urbanization and ecological modernization. The students and professors assumed a deliberative, participative and constructive attitude, and made significant contributions to the experiences discussed by the speakers.

#### *Thursday, March 8, 2018*

On Women's Day, the students continued their morning work divided into the four work groups. They worked on concept maps of resilience case studies reported by project partners in previous months. The professors continued to work in parallel sessions: this time they discussed academic programs related to the topics of the project, and the resilience network that will be created as a project deliverable.

In the afternoon, the participants met at the Alejandro López Auditorium to learn about several experiences in the city of Medellín on issues related to the project: Julieta Gómez from Área Metropolitana del Valle de Aburrá explained the role of this entity in risk management, in its different variants in the Aburrá Valley. Lina Ceballos, from SIATA, discussed some measurement tools developed in the entity to have climate information in real time. Professor Patricia Jaramillo, from UNAL, presented a general framework for the formulation and prioritization of adaptation and mitigation measures to climate change. Finally, Professor Verónica Botero, from UNAL, presented a plan for the integral management of watersheds in Colombia.

#### *Friday, March 9, 2018*

On Friday morning, the students continued to work in groups: based on the work of the previous days, they developed CMaps of scientific articles. This was a great challenge for them, in which they had to agree to select the most relevant concepts of the article and how to connect them to adequately summarize the idea they



wanted to transmit. The professors, in parallel, discussed possible future projects derived from the CARE experience.

In the afternoon, all the participants met at the Alejandro López Auditorium, where a group from each of the thematic topics presented the CMap that they elaborated. Professor Flavio Camerata, from UPO, commented on the structure of the maps, the clarity with which they presented the information of the article, and the assistants also participated with contributions on each map.

#### *Saturday, March 10, 2018*

Saturday morning was spent in the Articulated Living Unit (UVA) Aguas Claras, managed by EPM Group (Medellín's utilities company) and located in the city of Bello, 20 minutes north of Medellín. In this unit, staff from Fundación EPM made an "icebreaker" integration with the attendees and then gave them a guided tour of the facility. During this tour, the attendees learned about the activities carried out in the UVA for the benefit of the community and learned some details about the Wastewater Treatment Plant that is built next to the UVA. At the end of the morning, Architect Horacio Valencia, from EPM, presented the history of the UVA Projects, which focused on opening to the community spaces owned by EPM that surrounded water tanks. The urban component of each of the 14 UVAs that were built and how they are part of the life of the community was highlighted.

After lunch, participants were free to visit some of the city's touristic attractions. Most of them visited Parque Arví, a natural reserve east of the city, accessible using the Metrocable. This gave the participants an opportunity to use the city's public transportation system, which has been a case study worldwide.

#### *Sunday, March 11, 2018*

This day, participants were also free to discover the city and its surroundings. Some went to Guatapé, a town 2 hours southeast of the city, a water reservoir, while others stayed in town and visited Comuna 13 (a world example of urban resilience), or Museo del Agua, which is dedicated to explaining how water management is performed by EPM.

#### *Monday, March 11, 2018*

In the morning the students continued to work in groups around the Cmap methodology. The teachers met to discuss financial aspects related to the publication of the book and the OTM. In the afternoon the Quality Committee was held. Professor Oswaldo Moscoso, from UTE, coordinator of the Quality work package explained the activities carried out and pending to be carried out in the Quality Committee. After the Quality Committee, the Steering Committee was held. The main ideas were discussed according to the work packages. After these reports, the dates of the Final Conference in Chile were discussed. It was proposed for the last week of September.



### *Tuesday, March 12, 2018*

Tuesday morning was spent at Alejandro López Auditorium, where representatives from each working group presented their final CMap. The session was conceived as a friendly competition between the groups. A jury made up of six professors evaluated the groups' maps. At the end of the morning, an overall "score" was given to each map, and the best three received a mention.

In the afternoon, the participants participated in a contest led by Professor Flavio. Its purpose was to assess the general understanding of the attendees of the most relevant concepts of the CMap methodology, and the talks given by the professors and invited speakers.

### *Wednesday, March 14, 2018*

The last day of the Intensive Course was dedicated for last-minute comments and the Closing Ceremony. This ceremony was held at Alejandro López Auditorium, where the Dean of the School of Mines, Professor Pedro Nel Benjumea, Jesús Vargas Molina, representative of UPO, and Professor Santiago Arango, from UNAL, greeted the participants and congratulated them for their commitment to the success of the event. Professor Benjumea highlighted the importance of this Intensive Course and expressed his satisfaction with the accomplishment of it at Universidad Nacional de Colombia. After the ceremony, the group picture of the event was taken. The professors participated in a social dinner where they celebrated the success of the Course.

