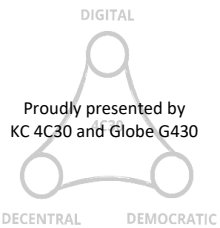


# Augmenting the spatial resolution of climate-change temperature projections for city planners and local decision makers



## Potential Climate/ Disaster Impacts addressed and Justification for this Approach

The need for downscaling methods and procedures to accurately assess and depict scenarios for climate change (CC) at urban/local scales of 12.5–50 km and below. However, downscaling methods remain poorly explored in urban planning because urban planners and climatologists do not usually work together to tackle the effects of CC at small scales. In Latin America, and especially Ecuador, several institutional frameworks have been developed which seek to incorporate CC criteria into public management at various sectors and scales. Initiatives for incorporating CC into the local development narrative have so far been addressed mostly in CIS's city partners (Ambato, Cuenca, Lago Agrio, Latacunga, Loja, and Portoviejo). However, land-use planning at several administrative scales, particularly when considering the Paris Agreement and the New Urban Agenda, still require low-cost methods and procedures that accurately assess and depict scenarios for CC at urban/local scales. Additionally, if CC projections are to be incorporated into the spatial planning processes and be used by the spatial planning departments at the municipal level, municipal departments and technicians require spatial representations of CC and the relationships between the land-use planning elements.

## Process of Implementation

Using the city of Portoviejo and its river water catchment, we aim to develop a method for augmenting the resolution scale of dynamic CC projections and maps by the Ministry of Environment (MAATE), from a resolution of 10 km (10 × 10 km) to 30 m (30 × 30 m) using digital elevation models and Landsat 4/5/7/8 satellite imagery. Interagency data exchange, development of the model (research institute), validation, and consultation workshops in Portoviejo on usability and application for urban planning.

### Project Title

Sustainable intermediate cities (CIS I-II)

### Project Number

2020.2169.9

## Results and Impacts

Augmented resolution of climate change projections from 10x10km to 30x30 m (compatible with those of Min Environment), low-cost procedure for informing land-use and urban planners, as well as local development decision-makers, of temperature anomalies due to climate change.



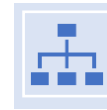
### TYPE OF APPROACH

Information & Data Management



### COUNTRY

Ecuador



### LEVEL OF INTERVENTION

city



### TYPE OF RISK MANAGEMENT

resistance, transformation



### MAIN HAZARDS ADDRESSED

Heat Wave



### URBAN FUNCTION PROTECTED

Basic existential functions (water, electricity, etc.), Housing,



### SPHERE OF INTERVENTION

socio-political sphere/ governance, environment



### RESOURCES REQUIRED

1 CIM/IF, 1NFK



### COOPERATION PARTNERS

IIGE, GIZ, Min. Environment



### LINKS

<https://iopscience.iop.org/article/10.1088/1748-9326/abf7f2>