

PRELIMINARY ASSESSMENT OF THE VULNERABILITIES IN URBAN ECOSYSTEMS AS A RESULT OF THE MANIFESTATION OF THE EFFECTS OF CLIMATE CHANGES. CASE STUDIES

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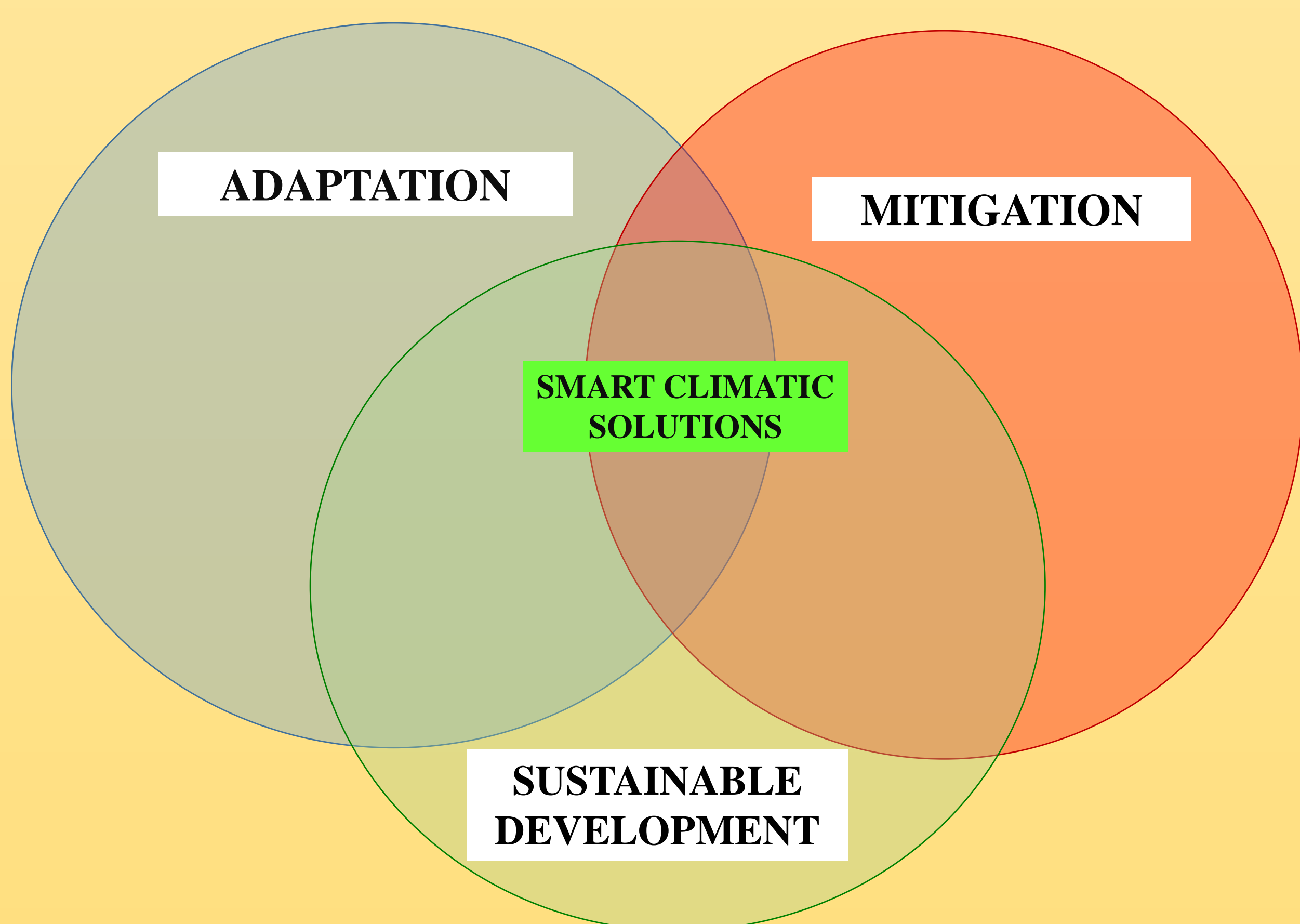
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Introduction

The current context of the increasingly of the manifestation of climate change in the form of extreme weather phenomena, prioritizes efforts in order to find solutions as quickly as possible to ensure adaptation to these new conditions and to achieve climate resilience. The phenomena are worrisome, they usually cause many material damages, and therefore knowing the particularities of each urban or extra-urban environment where they occur can ensure the finding of viable and sustainable solutions in the long term.

Materials and Methods

The current knowledge of the phenomena related to pollution, as well as the variation of some climatic parameters, such as temperature and humidity, can bring valuable information for understanding the phenomena that appear against the background of the manifestation of climatic changes in urban environments and those adjacent to them. The analysis presented in this article refers to 3 cities in Romania (Ploiesti, Galati and Tulcea), analysed as case studies, for understanding climatic vulnerabilities in parallel with a quantification of the quality of environmental factors, in an integrated air, water and soil approach.



In these areas, the manifestation of natural factors, together with the anthropic footprint, particularly more evident in the urban environment, offers the possibility of an objective, quantifiable evaluation of the studied areas. Current societal challenges require the adoption of a set of systemic solutions to adapt to climate change. The solutions to these challenges are those that simultaneously bring adaptation, mitigation, environmental benefits (figure 1)

Figure 1 -Representing the synergy between adaptation, mitigation and sustainable development

Results and Conclusions

The RCUP project started from in deep documentation of the urban spaces and those in their proximity for a better knowledge of the particularities that characterize each of the 3 cities included in the analysis. RCUP project will be carried out until the end of 2026, which will allow the collection of data on the quality of environmental factors, as well as climatic parameters to highlight long-term parameter evolution and a analyze the manifestation of meteorological factors, which at least in the last decade present different manifestations extremes, from high temperatures to heavy rains, true meteorological anomalies, against the background of the climate change.

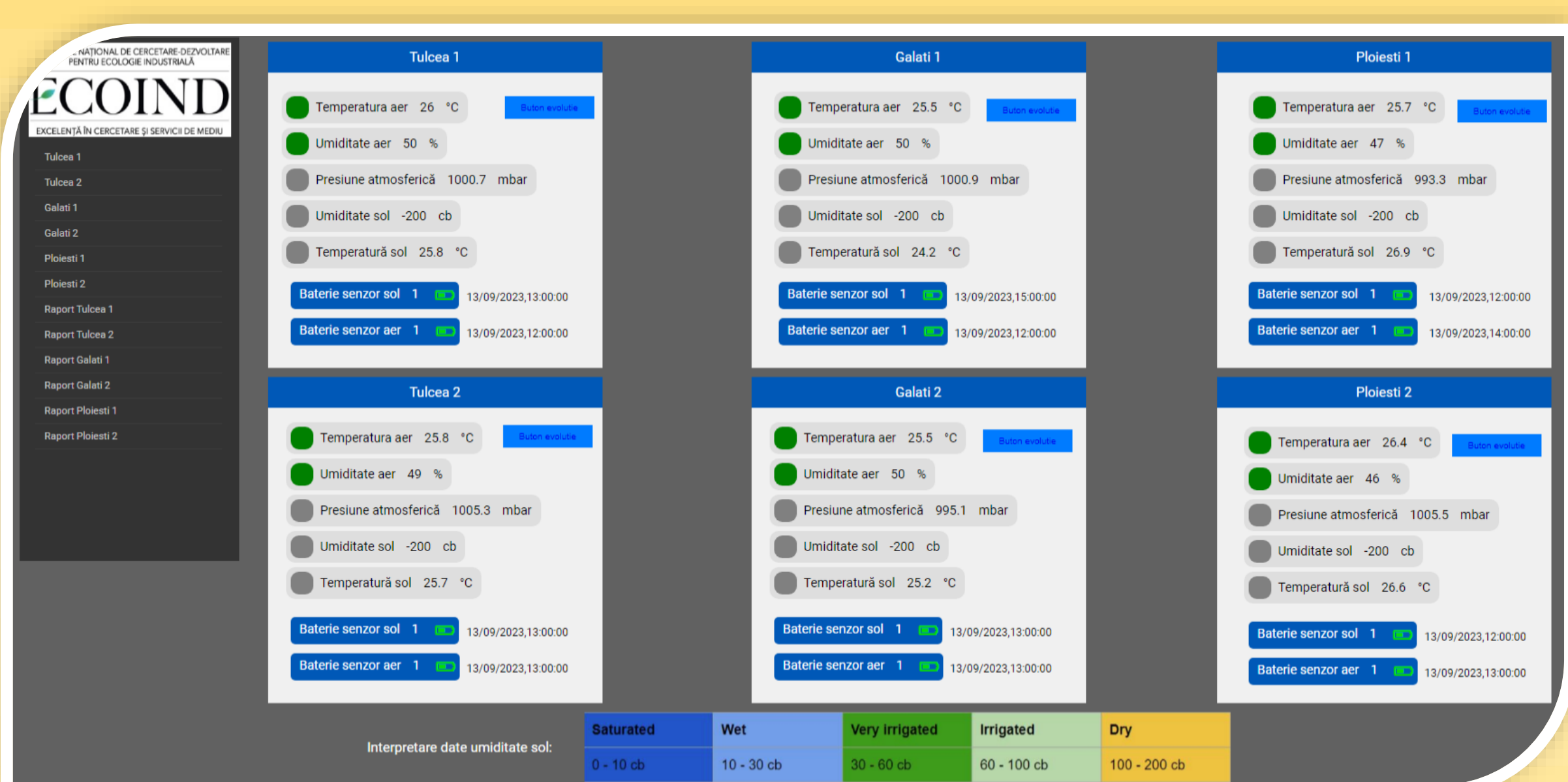
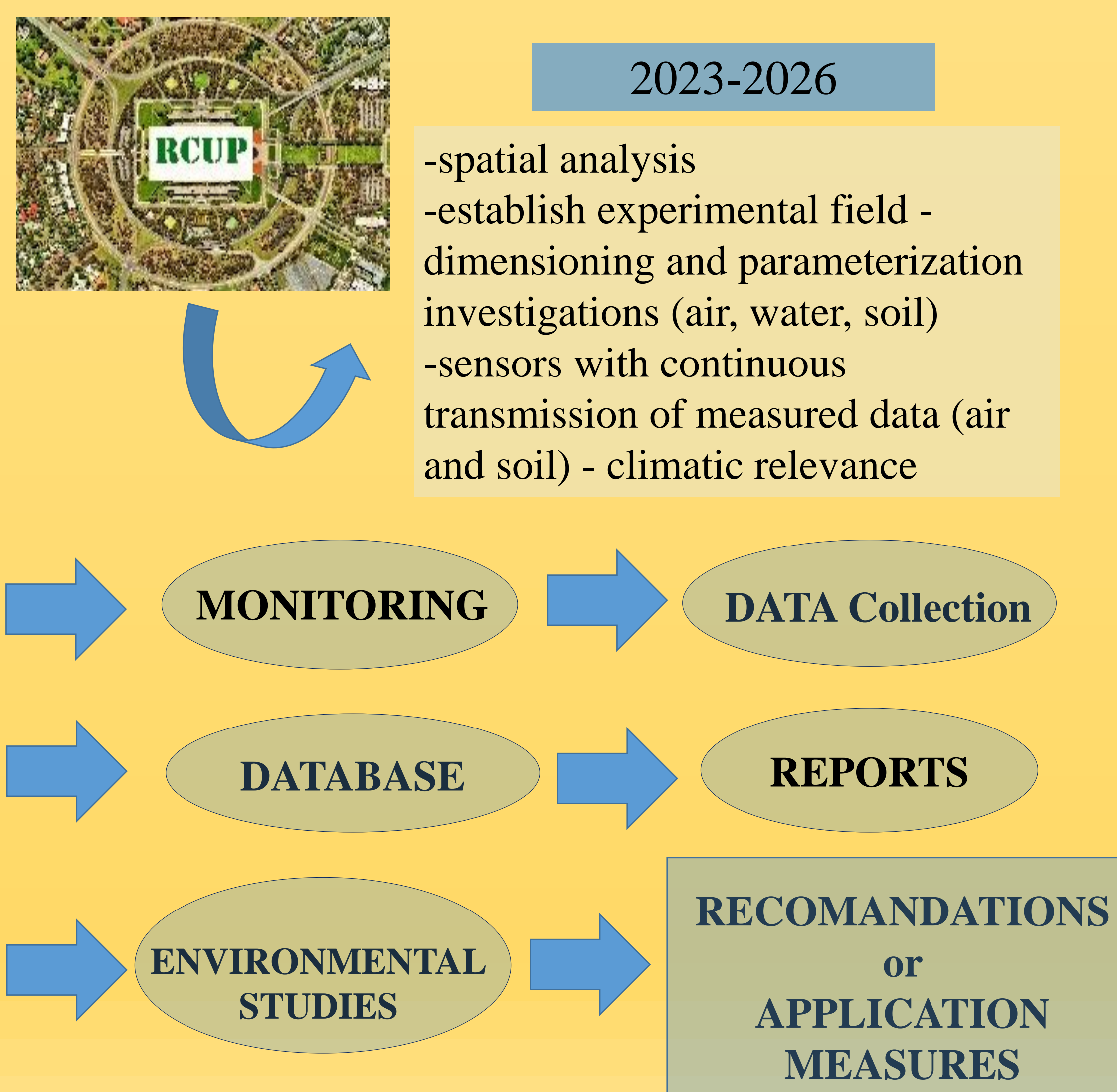


Figure 2 –Dashboard panel of air and soil sensors in cloud platform

In the research of the RCUP project, sensors are used that record every hour the temperature, pressure and humidity in the air, as well as the temperature and humidity of the soil, in 6 points (figure 2). The data are transmitted to a cloud platform where they can be accessed, analyzed, evaluated and processed. The use of these sensors gives the possibility of quantifying extreme meteorological phenomena, the information being correlated with the quality of environmental factors, with direct observations obtained in the terrain and other influencing factors, naturals or anthropic with a local specificity.

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