

## Using special analytic hierarchy process

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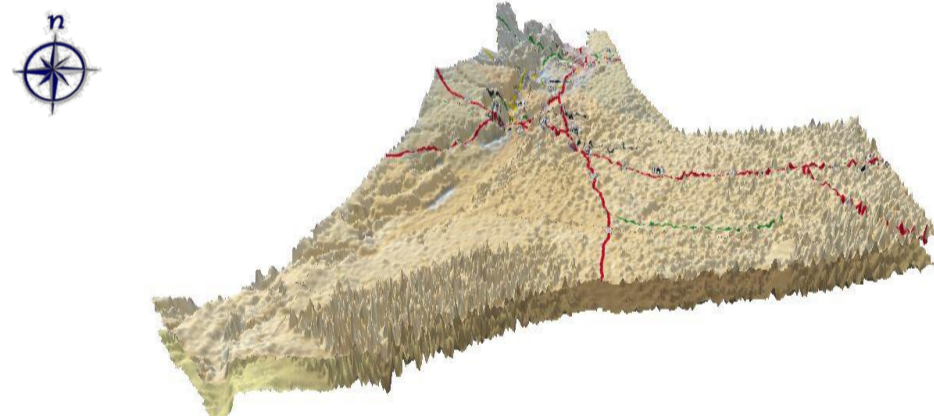
### I. Introduction

Hydrogen energy is one of the most important components of renewable energy, which is an important source of clean energy sources in several areas, including the transport sector .  
In this work, we chose to develop a hydrogen infrastructure in the transport sector as a clean fuel at regional scale which we will apply to **the region of Ouargla** , by using the combination of spatial data in a **Geographic Information System (GIS)** with **mathematical methods of AHP**, that help us to develop a methodology that will allow us to select favorable areas for hydrogen production project and locate the new hydrogen services stations by developing an intelligent road map **by using network analysis** .

### II. Research Questions

- how to introduce the hydrogen into the transport sector?
- and how to develop a hydrogen infrastructure in the Ouargla region?

### III. Study Area



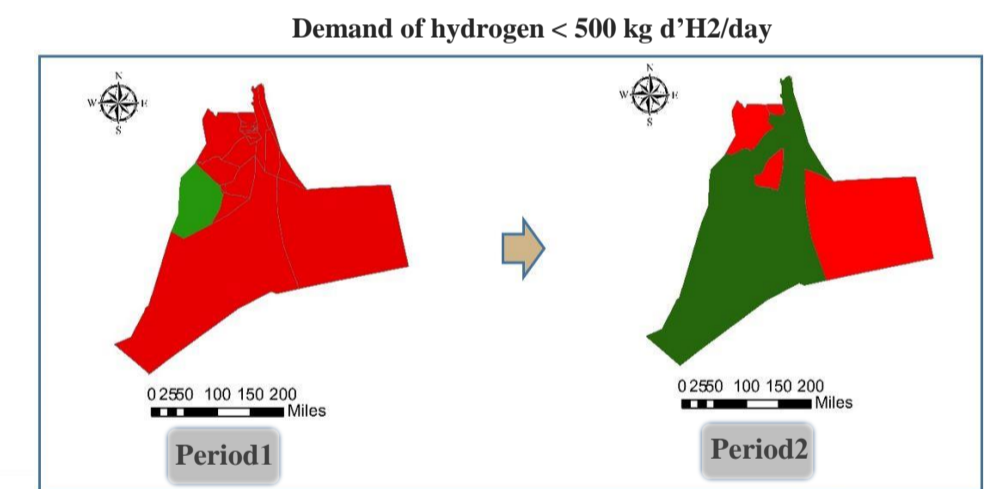
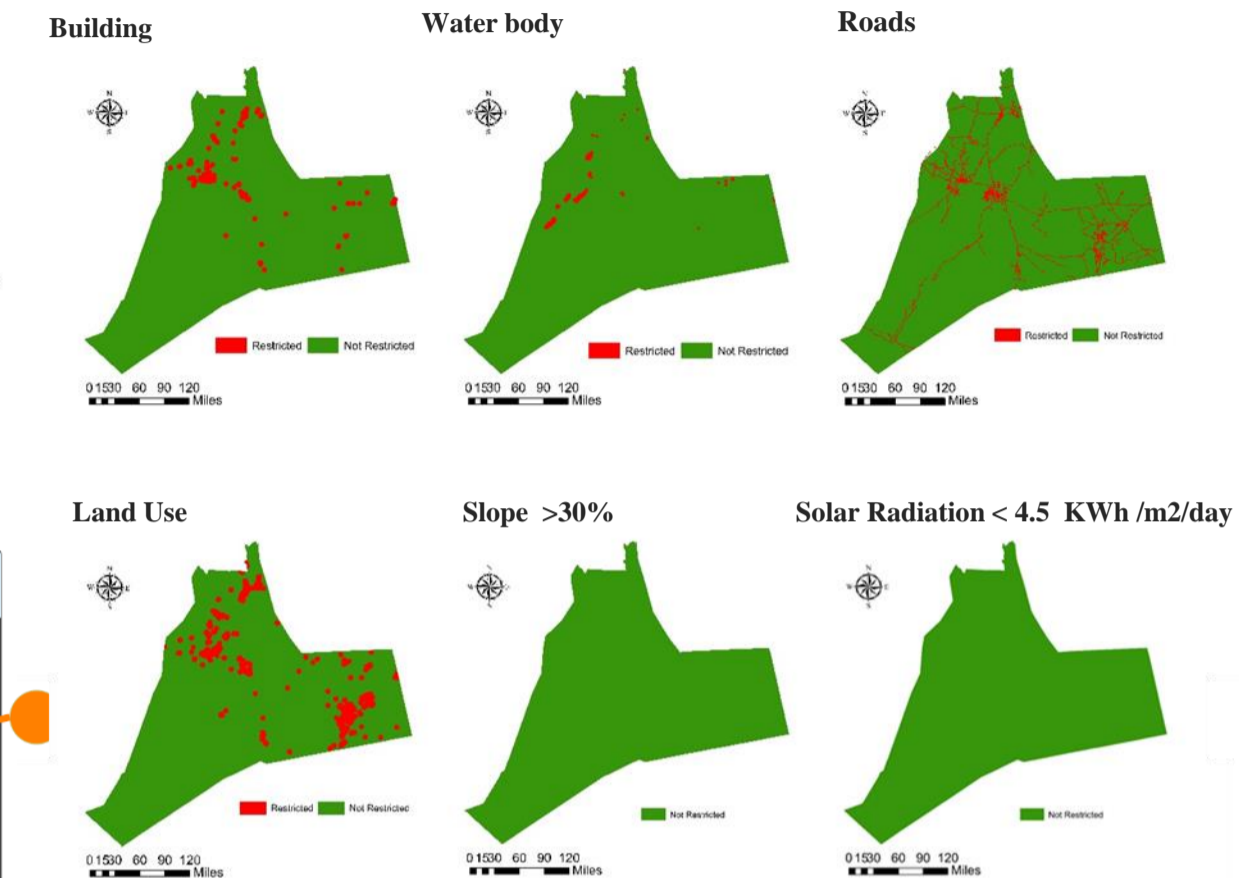
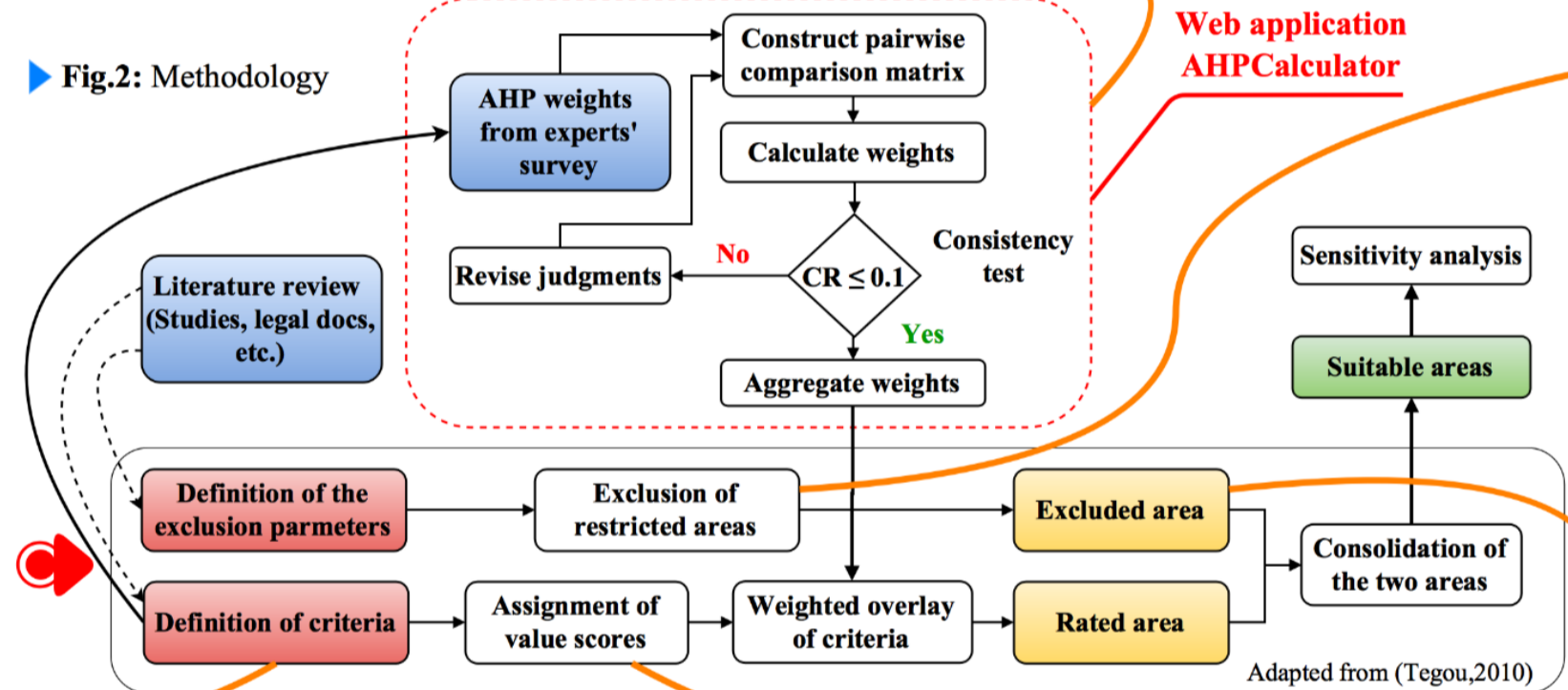
▲ Fig.1: 3D representation of the study area

▼ Fig.5: System architecture



### IV. Methodological

► Fig.2: Methodology

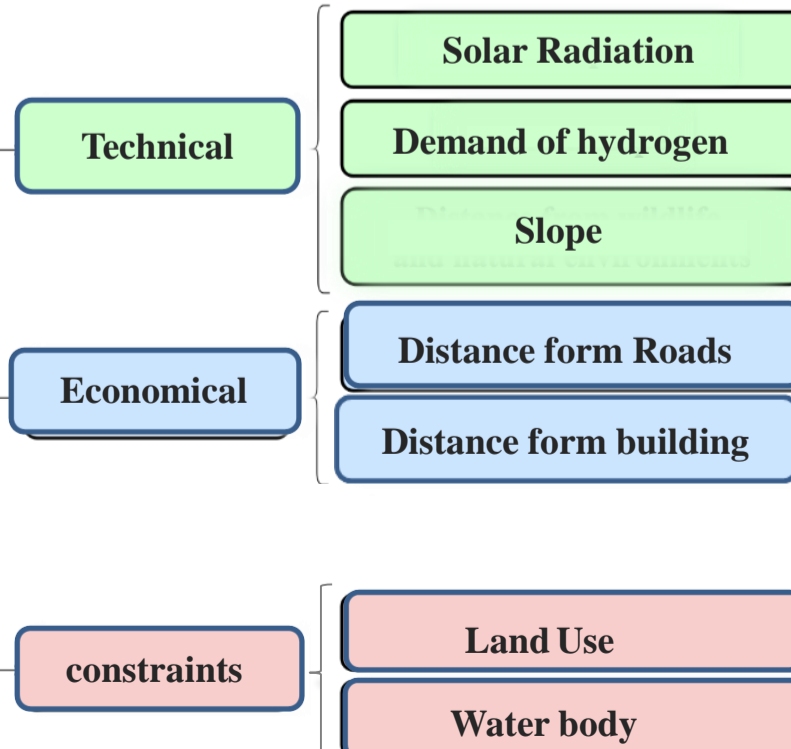


► Fig.4: Reclassified suitability maps according to each criteria

Table.1: The AHP table for an expert

	1	2	3	4	5	6
Demand of hydrogen	1	3	0,2	1/3	5	7
Solar Radiation	1/3	1	1/9	1/7	2	3
Distance form Roads	5	9	1	2	8	9
Distance form building	3	7	1/2	1	6	7
Water body	1/5	1/2	1/8	1/6	1	2
Slope	1/7	1/3	1/9	1/7	1/2	1

### Suitable sites for hydrogen production project



▲ Fig.3: Criteria to take into consideration are classified into three categories: Technical, Economical et constrains

