

Monday, May 20th 2019

Workshop n° 3

By Dr. José Pablo Bonilla (AyA, Costa Rica), Dr. Dan Goode (USGS, US), Jana Sallwey (TU Dresden, Germany), Dr. Catalin Stefan (TU Dresden, Germany), Dr. Arnaud Sterckx (IGRAC, the Netherlands).

Theme: MAR suitability mapping

Title: Utilization of spatial analysis techniques for the identification of potential MAR areas: challenges and opportunities.

Themes

- Definition of common terms and concepts regarding GIS-MCDA.
- Methods for creating MAR suitability maps based on GIS-MCDA.
- Overview of most common criteria and weights in MAR suitability mapping.
- Current application of MAR suitability maps and potential validation.
- Outlook for future implementation of MAR suitability maps.

Objectives

1. Initiate a network of scientists and stakeholders to share experiences on MAR suitability mapping.
2. Improve the use of common GIS-MCDA concepts and terms in the construction of maps for identifying and recognizing suitable areas for MAR.
3. Discuss the importance and applicability of maps for identifying and selecting suitable areas for MAR.
4. Discuss the data quality (availability, resolution, formats, etc.) and methods for integration of the criteria.
5. Propose the formulation of MAR suitability mapping guidelines.

Description

The workshop aims to initiate the discussion between scientists and stakeholders regarding the applicability and usefulness of the spatial analysis for identifying suitable MAR areas. Learning from the experience of the participants is essential, thus, participation will be encouraged by interactive activities.

To establish the common terms and concepts, the workshop will start with the introduction to spatial analysis techniques for mapping the suitability for MAR. An overview on criteria, weights and analysis techniques that are commonly

used in such studies will be provided. Several case studies are going to be presented as examples.

Used criteria and weights (as well as the participants judgement) will be captured and analyzed with the idea of creating a potential standardisation concept. This will be discussed with attendees during the workshop, with the intention to validate it for the compilation and construction of a scientific-based guideline for future works.

PROGRAM. The workshop program includes:

0. Introduction of agenda and workshop objectives (Stefan).
1. Presentation: Common terms and concepts regarding GIS-MCDA (Bonilla).
2. Presentation: Overview of frequently used criteria and assigned weights for different MAR schemes (Sallwey/Bonilla).
3. Interactive session: participants' preferences and opinions regarding criteria to be used (Sallwey/Bonilla).
4. Flash presentations: current applications of MAR suitability maps for Costa Rica, Jordan and Europe – 5 min each (Bonilla/Goode/Sterckx).
5. Presentation: Findings related to critical data (Goode).
6. Interactive session: quality and quantity of criteria (scale, resolution, sources of origin, interpolation) (Goode/Bonilla).
7. Interactive session: bridge between MAR suitability maps and implementation of MAR schemes (Sterckx).
8. Interactive session: criteria and weights for a standard MAR suitability tool (All attendees).
8. Discussion (All attendees).
9. Collective summary & final photo (Stefan).

Proposer CV:

Dr. José Bonilla works at the Costa Rica's water utility company (AyA) where he is currently formulating the first MAR scheme in Costa Rica.

Dr. Dan Goode leads the USGS MAR in the Middle East and North Africa Project. He has a broad experience in groundwater hydrology.

Jana Sallwey works as a scientific associate at the Junior research group INOWAS at TU Dresden, Germany.

Dr. Catalin Stefan leads the Research Group INOWAS at TU Dresden, which has implemented free web-based tools for planning MAR schemes

Dr. Arnaud Sterckx joined IGRAC in January 2018, where he has taken the responsibility for the development of MAR Portal and MAR suitability mapping activities.