QUESTIONNAIRE FOR HYDROLOGISTS

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OVERVIEW & PURPOSE

Before creating any Machine Learning model, we need to create a math problem statement that can help reach our business goals.

Our **business goal** is to use AI to find the **best location to drill a shallow well by hand, that will provide sufficient water for the longest time possible.**

This task is usually performed by hydrologists all around the world. For a specific village/location, they will draw a Groundwater map that will help determine where to drill a well.

But in order to achieve the same or better results with a Machine Learning model, we first need a good business understanding, and the questionnaire is a tool to get that business understanding, by gathering hydrologists expertise.

The questionnaire has 5 parts:

1. Possible problem statement
2. Process description
3. Process control
4. Data
5. Business results

POSSIBLE PROBLEM STATEMENT

1. Our research revealed that there is no universal definition of Groundwater mapping, how would you define Groundwater mapping? (variations of groundwater storage? Likelihood of water to be found? Highest yield?)
2. What are the key issues related to the process of Groundwater mapping?
3. Is a Groundwater map enough to give an indication of the best location to drill a water well, or are there other considerations to take into account?

PROCESS DESCRIPTION

1. Can you provide a brief description of the process you use to build a Ground water map?
2. What are the key features you take into consideration to build the map?
3. How many stages are there in the process?
4. What is the usual size of the map you do? (15km x 15 km?) Why?
5. How long does it take you to build a Groundwater map of that size? Does the time depend a lot on the size?
6. Do you work with other people or other teams, or is it basically a job done all by yourself once you have the data?
7. How do you evaluate the final map you produced?

PROCESS CONTROL

This part is probably not very relevant for our project.

1. Is part of your work automated?
2. If so, what are the parameters you can modify in this automation?

DATA

1. Where do you get the data for each feature?
2. How do you evaluate the quality of the data you use as input for your map? What do you do if some data is missing for one or more features?

3. Which tool do you use to visualize/work with the data?
4. Say we do not care about which country we want to do our project, what would be the countries with the best available free data to conduct Groundwater mapping?

BUSINESS RESULTS

1. How much do you charge to build a typical Groundwater map?
2. How much time does it take you to build that map? (already asked above, but important for business result too)