**Part 1: SDG Selection and Problem Definition**

**SDG Selection: SDG 6 - Clean Water and Sanitation**

**SDG 6** Aims to ensure the availability and sustainable management of water and sanitation for all. This goal addresses multiple water-related issues, including access to safe and affordable drinking water, sanitation, and hygiene.

**Problem Definition**

An actionable problem within SDG 6 to create a data-driven solution. Here’s a refined problem definition:

**Specific Problem: Lack of Access to Clean Drinking Water in Rural Communities**

**Detailed Problem Description**

Many rural areas face challenges in accessing clean and safe drinking water. This issue is often exacerbated by factors such as:

* **Inadequate Infrastructure**: Limited or poor-quality water sources like wells or ponds.
* **Water Contamination**: Presence of harmful contaminants such as bacteria, chemicals, or heavy metals.
* **Insufficient Monitoring**: Lack of regular testing and monitoring of water quality.
* **Ineffective Interventions**: Delays or inefficiencies in implementing water purification or repair interventions.

**Data-Driven Approach to Address the Problem**

\*\*1. **Track and Manage Water Sources:**

* Identify and catalog water sources in rural communities.
* Assess their conditions and determine their reliability.

\*\*2. **Monitor Water Quality:**

* Regularly test water quality for contaminants.
* Track test results over time to identify trends and issues.

\*\*3. **Manage and Evaluate Interventions:**

* Record and monitor interventions like purification efforts or infrastructure repairs.
* Evaluate the effectiveness of these interventions in improving water quality and accessibility.

\*\*4. **Assess Community Access:**

* Determine the level of access to clean water for different communities.
* Identify communities with limited or no access to clean drinking water.

**Example Data Points to Address the Problem**

* **Community Information**: Name, region, population, access to water.
* **Water Source Details**: Type, condition, location, associated community.
* **Water Quality Test Results**: Date, contaminants present, test outcomes.
* **Interventions**: Type, date, status, effectiveness.

**Key Questions to Address**

1. **Which communities lack access to clean drinking water?**
2. **What is the condition of water sources in these communities?**
3. **What contaminants are present in the water?**
4. **What interventions have been made, and how effective have they been?**
5. **How can data help prioritize resources and actions for improving water access?**

By addressing these questions through data, we can develop targeted strategies to improve water access, quality, and management in rural communities, directly contributing to SDG 6.