Climate Data Collection Analysis and Reporting

Scope of the Business Process

Business Process*: Climate Data Collection, Analysis, and Reporting*

Objective:

The main purpose of this business process is to manage the gathering of complete climate-related information, validation, storage, and analysis, hence helping policymakers, researchers, and environmental organizations make informed decisions. This process aims at optimizing data management and improving the effectiveness of reporting with practical insights related to climate trends to address and alleviate the impacts of climate change.

Relevance to MIS:

The whole process encompasses several dimensions of MIS, as it will involve the processing, storing, and retrieval of data that would be relevant to making informed decisions. MIS forms a base for the collection, management, and analysis of climate-related data, hence providing insight through reports that would help in achieving organizational objectives in climate change research and policy development.

Expected Outcomes

- ***Centralized Climate Data Repository:*** *A structured and secure database to store diversified climate data including greenhouse gas emissions, temperature fluctuations, biodiversity impacts, and mitigation activities.*

- ***Validating data through effective and timely collection methodologies:*** *ensures that data is derived from reliable sources, checked for accuracy, and then structured for analysis—all to maintain the integrity and quality of the data.*

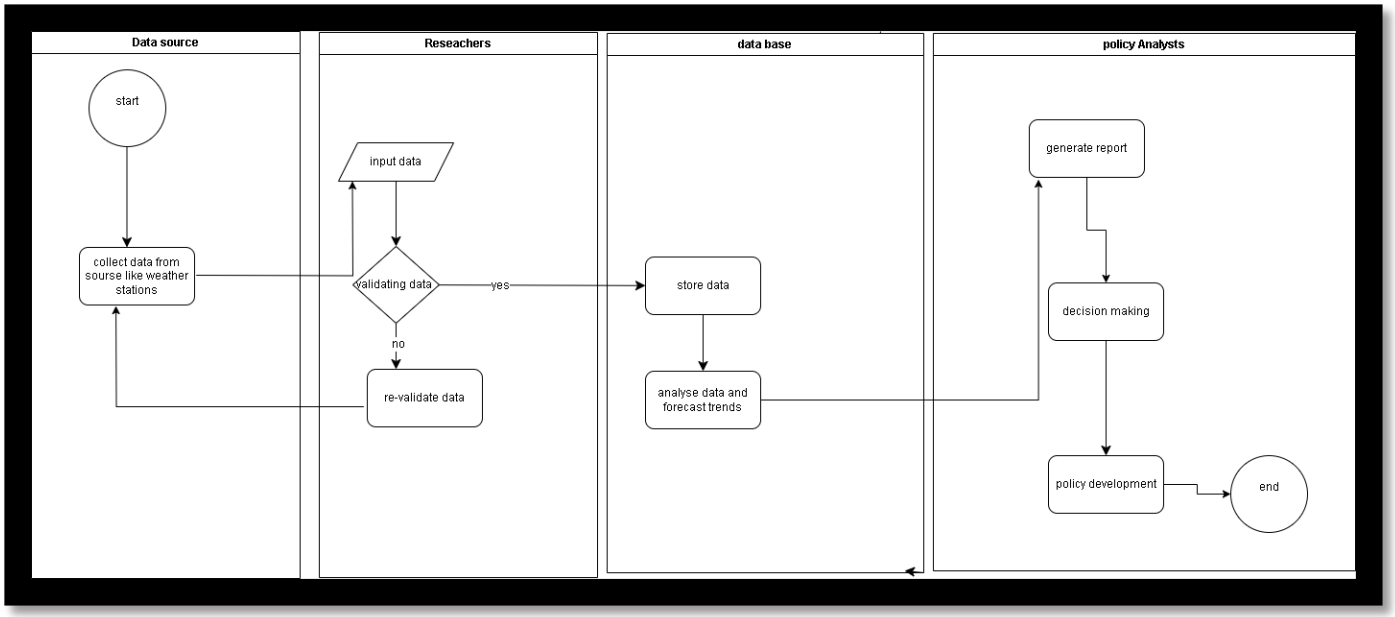
- ***Effective Data Analysis and Prediction:*** *This process will identify climate trends, make predictions, and yield findings necessary for proactive planning concerning climate action through the use of PL/SQL and numerous analytical tools combined within the actual database.*

- ***Tailored Reporting for Stakeholders:*** *Reports can be generated based on criteria such as geographical location, time scope, and specific types of data. This helps researchers, policymakers, and analysts to easily access relevant information needed for decision-making.*
- ***User-Friendly Interface for Data Engagement:*** *An interface that should enable data querying, trend visualization, and report generation; ensuring stakeholders can access and engage with the data without needing in-depth technical skills.*
- ***Improves the Quality of Decision:*** *The process enables the stakeholders to make decisions and formulate policies related to issues on climate change, assess the environmental impact, and distribute resources in the best way.*

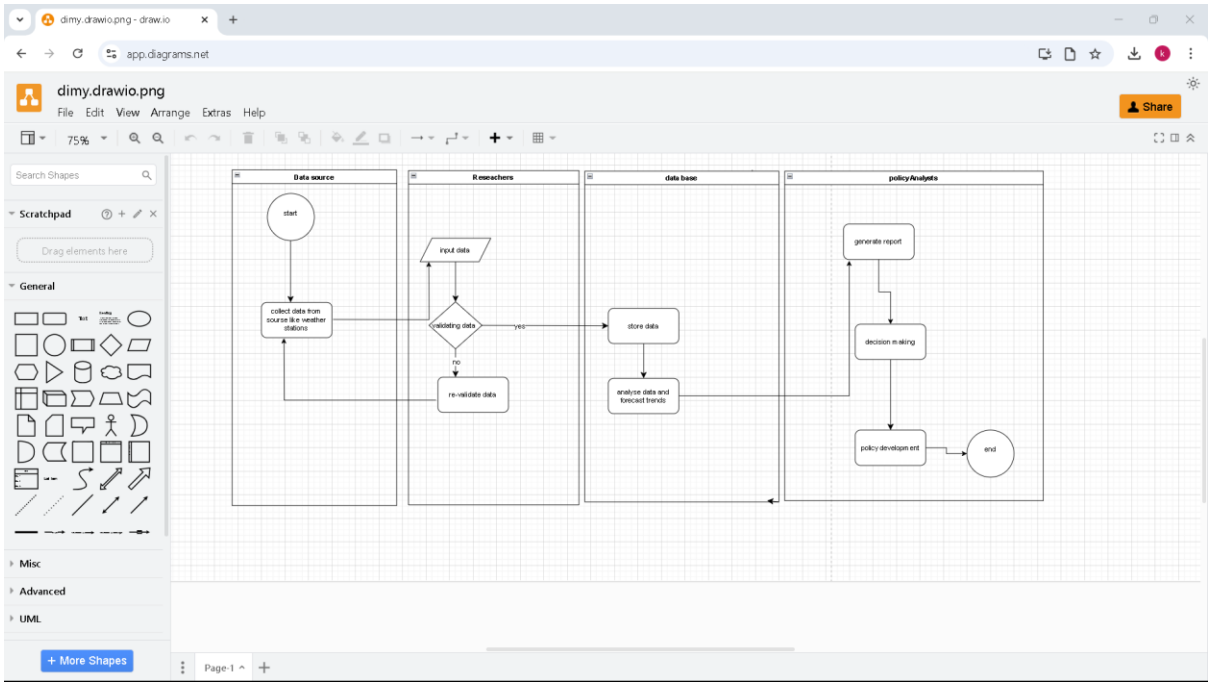
BPMN for Climate Change Data Management System

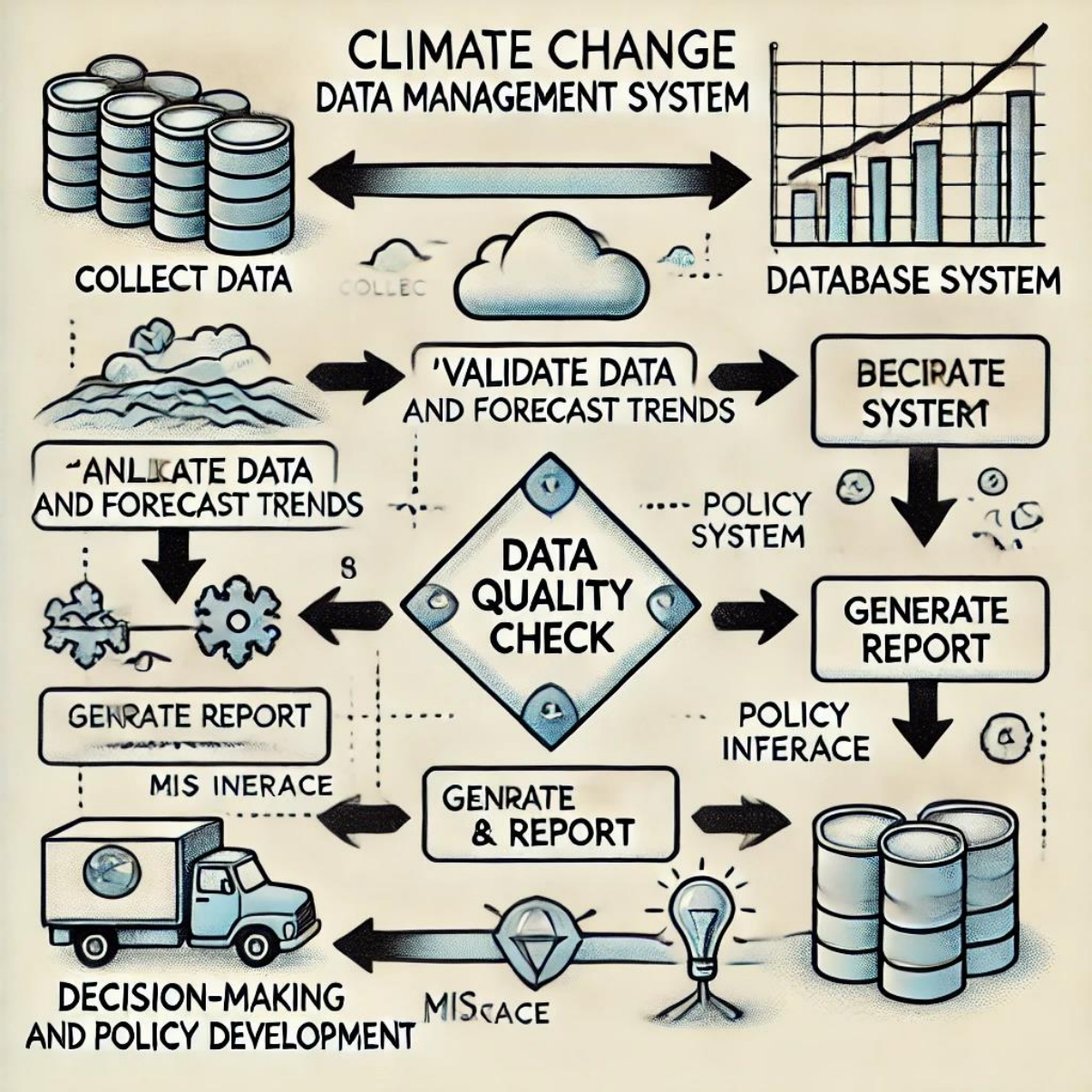
Each role or department involved in the process should have a separate swimlane to clarify responsibilities and the flow of tasks. For this project, the main swimlanes are:

1. ***Data Sources*** *(e.g., external databases, weather stations, and environmental agencies)*
2. ***Researchers*** *(responsible for validating and inputting data)*
3. ***Database System*** *(handles data storage, analysis, and processing)*
4. ***Policy Analysts*** *(generate and interpret re*



https://app.diagrams.net/ we used this while drawing this BPMN





Logical Flow of the Diagram

1. **Start Point** - **Data Collection**:
   Climate data, such as temperature records, emission levels, and biodiversity data, is gathered from various **Data Sources** (e.g., sensors, weather stations, environmental agencies).
2. **Data Validation**:
   Researchers review and validate the incoming data for accuracy and reliability. This step is crucial to maintaining data integrity before analysis.

   Data Quality Check decision is made here.

   - **yes**: If data is accurate, it moves to the storage phase.
   - **no**: If data has issues, it's re-evaluated or possibly discarded, looping back to the validation step.
3. **Data Storage**:

Data is stored in structured tables within the **Database System**. This system is built to securely handle large volumes of climate data.

4. **Data Analysis and Forecasting**:
   The system performs analysis and forecasting using PL/SQL procedures and functions, identifying trends like temperature changes or emission increases over time.
5. **Report Generation**:
   Policy Analysts use the MIS interface to query specific data sets and generate customized reports based on parameters like location, time frame, or emission levels.
6. **Decision-Making and Policy Development**:

   Policy analysts review these reports to inform strategies, policies, and actions aimed at mitigating climate change.

7. **End Point** - The process completes with **Decision-Making and Policy Development**, marking the full cycle from data collection to policy impact.

Explanation of the Diagram and its Role in MIS

The BPMN illustrates a systematic procedure within the Climate Change Data Management System, arranged according to specific roles (represented in swimlanes) and tasks presented in a coherent sequence. Every stage is characterized by distinct inputs, outputs, and decision-making junctures, thereby facilitating the precise and effective movement of data throughout the system.

Significance of Process in relation to MIS: This diagram shows how the concepts of MIS are applied to manage climate data. MIS will therefore aid in the secure compilation, storage, processing, and reporting of huge climate datasets that provide support for research, policy, and organizational goals. Key MIS roles include:

Climate data, verified and systematically organized, are availed to the system for researchers and policymakers to make well-informed conclusions for effective climate change mitigation.

Data Integrity and Reliability: Decision points and validation steps ensure that only accurate data reaches analysis—a must for producing reliable forecasts and reports.
Organizational Goals and Climate Initiatives: Through systematic data management, the framework supports organizational goals, which not only promote environmental policies but also address climate issues, thereby enhancing data-driven strategies for future planning.