

Project Overview: "South Cotabato Convergence Data Bank"

Here is a comprehensive overview of the capstone project, focusing on the creation of the application as described in your document.

1. The Core Problem: A Data-Rich, Information-Poor System

The Province of South Cotabato's "Convergence Approach for Transformation and Change Unification Program" (CATCH-UP) is a data-intensive initiative. It gathers extensive community-level information (from demographics and income to water access and project status) from approximately 200 vulnerable sitios.

The problem this project solves is that this valuable data is currently "manual and fragmented."

- Data is stored across multiple spreadsheets and local devices.
- This makes analysis—like identifying high-priority areas—"time-consuming and error-prone."
- Project tracking is hindered by the "absence of an automated tracking mechanism or visual dashboard."
- The current solution, a Google Sites page, is "static" and lacks interactive search, visualization, or mapping features.

In short, the province's data potential is "underutilized," making effective, data-driven decision-making difficult.

2. The Solution: A Web-Based Dashboard System

To solve this, the project proposes the "**South Cotabato Convergence Data Bank**"—a centralized, web-based dashboard system. The application is designed to "streamline data management, visualization, and monitoring" for the CATCH-UP program.

It moves the province from a static, manual process to a dynamic, interactive tool with two primary facets: an administrative backend and a public-facing frontend.

3. Key Features & Functionality of the Application

The application is being built with several key objectives, which define its core features, particularly distinguishing between administrative management and public transparency:

1. **Admin-Facing Project Management:** This is the core administrative hub. Authorized personnel will have a secure interface to:
 - **Create & Update Data:** Directly "encode, view, and update" all sitio demographic profiles and project data.
 - **Manage Projects:** Handle the complete lifecycle of project information, from creation to updating implementation status and uploading related files.

- **Streamline Entry:** Support bulk importing from spreadsheets to simplify data management.
2. **Public-Facing Project Tracking & Visualization:** To promote transparency and keep the public informed, the system will feature a "public-facing dashboard." This dashboard will:
- **Display Project Status:** Allow any user to "view and track" the progress of various CATCH-UP initiatives in real-time.
 - **Automated Data Visualization:** "Generate automated data visualizations," such as charts and summaries, showing demographic profiles, project distributions, and progress indicators.
 - **Map-Based Module:** Feature an interactive "map-based module" that "displays sitio locations and project implementation status," allowing for "improved spatial analysis" and easy public understanding of where interventions are happening.
3. **Advanced Filtering & Reporting (Internal & Public):** The application will enable all users (both admins and the public) to "filter, search, and generate reports" based on criteria like year, sitio, or project category, supporting both internal planning and public accountability.

4. Scope of Data Managed

The application will be designed to handle the 12 key categories of data specified in the "South Cotabato Convergence Profile," including:

- Demographics (population, households)
- Economic Conditions (employment, income)
- Agriculture (farmers, crops)
- Potable Water Sources
- Sanitation and Waste Management
- Housing Quality and Ownership
- Utilities and Energy Access
- Project Implementation Status

5. The Technology Stack (The "How")

The document specifies a modern technology stack chosen to ensure the application is fast, scalable, and reliable, even in potentially low-bandwidth areas:

- **Main Framework (Frontend/Backend): SvelteKit** (chosen for its efficiency and for creating fast, dynamic user interfaces).
- **Database: PostgreSQL** (selected for its "robust data integrity" and advanced query capabilities, ideal for large LGU datasets).
- **Backend as a Service (BaaS): Supabase** (used to provide "real-time database interaction and authentication services," simplifying backend operations and securing role-based access).
- **Hosting & Deployment: Vercel** (for continuous integration and rapid updates).

- **File Storage: Amazon S3** (for securely and scalably storing uploaded documents and media).