User
The Government of Nepal,
Central Bureau of Statistics (CBS)

Partner
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Challenge
Conduct first economic census
to count all entrepreneurial units
in the county with little GIS data
and rapid-changing landscape.

Solution
Implementation of ArcGIS to edit
enumeration boundaries and use
the platform's basemaps and
satellite imagery for urban areas.

Results
CBS conducted Nepal's National
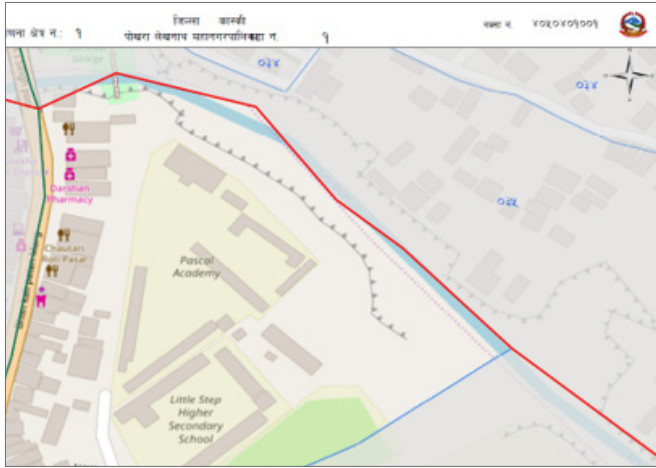Economic Census 2018 in
approximately six weeks.

Economic Census: Nepal Case Study

The Government of Nepal's Central Bureau of Statistics (CBS) provides government agencies data for planning, policy-making, and economic growth measurements. Using household surveys and national census methods to collect data, CBS assesses Nepal's socioeconomic conditions and measures economic growth. Within the government services, the bureau is a technology leader. It investigates new technologies to improve methods for more scientific and reliable data collection, processing, and analysis.

Challenge

In 2018, CBS conducted its first economic census to count all entrepreneurial units in the country. The information provides the government insight into the status and financial aspects of the nation's enterprise business activities. In addition, the census establishes a baseline for measuring business growth and gives entrepreneurs intelligence for creating better business strategies.

CBS asked its GIS team to produce enumerator area (EA) maps for the entire country. The team, consisting of two GIS professionals, faced multiple challenges. GIS data about the country is scarce. In urban areas, landscapes rapidly change. Internet connections are not stable and power outages are common. Because Nepal's street systems are not built on a grid, defining specific EAs is complicated. The team could not reuse the EAs outlined in the previous census because new government leaders had changed administrative boundaries. What's more, streets do not have names, making it difficult for enumerators to navigate streets.

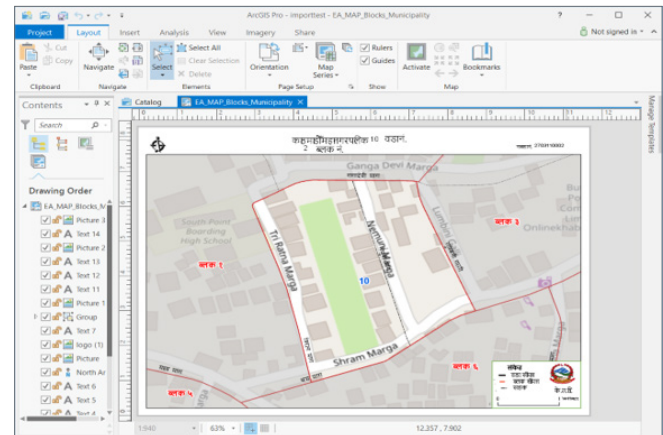Nepal Statistics Enumeration Area Delineation

Solution

The team used ArcGIS to complete the task. To edit enumeration boundaries, they used the platform's basemaps and satellite imagery for urban areas. They also accessed OpenStreetMap data, which contains content contributed by users from around the world. The interface map is written in the country's official language and script, Nepali. The team chose ArcGIS Pro to output maps because of its high-performance capability.

Although Nepal's Internet infrastructure is improving, it is not yet reliable for large projects. When the connection is working, the team downloads geospatial data, such as Esri's satellite imagery, and performs editing tasks offline. Because administrative boundaries tend to change, CBS uses statistics software to process attribute values. Using these values, ArcGIS dissolves and merges old boundary polygons to update the boundaries.

Using ArcGIS Online, the GIS team built a web application that helps enumerators use their tablets in the field to navigate through mazes of nameless streets. The app identifies EAs by area number and lays out a route to the location.

Results

During the spring, CBS conducted Nepal's National Economic Census 2018 in about six weeks. The GIS team used imagery and open content to create enumerator maps for the country. It also built mobile apps that helped enumerators navigate locations and enabled them to survey businesses throughout the country.

Nepal Statistics Enumeration Area Editing

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