

# Digitising census forms and creating a government database

“We were impressed by the Xerox ability to deliver a programme of this gigantic scale, as well as their technical know-how, impressive understanding of processes and lessons it has brought for future projects.”

– Mr. Md. Shafiul Alam, Project Director (Additional Secretary), Bangladesh Bureau of Statistics



## ABOUT THE BANGLADESH BUREAU OF STATISTICS

The Bangladesh Bureau of Statistics (BBS), part of the Statistics and Informatics Division, Ministry of Planning, Government of Bangladesh, is the centralised official bureau for collecting statistics on demographics, the economy and other facts about the country, and disseminating the information on behalf of the government. It was responsible for delivering the 2017–18 Bangladesh Household Census Project.

## CASE STUDY SNAPSHOT

### The Challenge

- Deliver an integrated OMR/OCR/ICR\* solution for end-to-end data capture, management and control, and provide clean output data with high accuracy.
- Execute a large-scale programme with stringent time lines and multiple service providers.
- Ensure consistency and validation of field data with a national database.
- Ensure all BBS enumerators and IT team are effectively trained.

\*OMR – optical mark recognition.  
OCR – optical character recognition.  
ICR – intelligent character recognition.

### The Solution

- Intelligent questionnaire design to handle high-volume printing and processing.
- Training of BBS master trainers and IT teams.
- Partnering to provide best-in-class solutions and technology for automated content (OMR, OCR and ICR) extraction.
- Digital repository and archiving via in-house Xerox® DocuShare® Content Management platform.
- In-house Document Tracking Solution used to track all activities.

### The Results

- 45 million questionnaires printed, and 76 million document images processed over three phases of six months.
- Demonstration of the Xerox capability and value to large-scale programmes.
- End users can access questionnaires digitally without the physical search of a warehouse.
- 100% control and monitoring of the end-to-end processes and receipt of performance statistics.

## THE CHALLENGE

To address chronic poverty and vulnerability, the Government of Bangladesh implements public social safety (SSN) programmes. Despite these valuable initiatives, past household surveys suggest that many poor people still remain out of reach of the SSN programmes and that there is opportunity for better targeting of benefits to those who need it most.

The Government of Bangladesh, with the support of World Bank funding, decided to implement a new project: safety net systems for the poorest (SNSP), aimed at improving the equity, efficiency and transparency of major SSN programmes so that the poorest households could reap their benefits.

To help establish a better targeting system for SSNs, the BBS needed to collect nationwide household information to create a poverty database within an overall Bangladesh National Household Database.

To facilitate this, Xerox was invited to deliver a programme to provide BBS with a state-of-the-art process to digitise forms and create a government database. Execution of such a large-scale programme, to stringent time lines, would involve coordination with other service providers, liaising with government departments and training of BBS enumerators and teams.

Xerox had to build, from scratch, the first ever OMR/OCR/ICR capability in the country. An integrated solution would need to deliver end-to-end data capture, management and control, and provide clean output data with high accuracy.

And the data provided from the field needed to be validated against the National ID and Birth Registration databases' APIs to ensure consistency.

## THE SOLUTION

Xerox built the OCR/ICR factory, from a clean-sheet design, inside the client's secure premises and firewall. This included facilities build, staff onboarding, IT build and training.

Xerox, the prime firm, partnered with best-in-class experts to deliver the programme: IOE (Bangladesh) Ltd. for printing, hardware (servers, high-end scanners, etc.) and resources (key and data entry operators); and Top Imaging Systems for the OCR/ICR engine.

The plan was for BBS to carry out the census door-to-door, capture the data, and return it to a central office, so Xerox designed ICR technology-compliant questionnaires that could be printed in volumes up to 45 million, and then scanned and delivered as a clean database.

As no OCR/ICR engine currently recognises the Bangladesh language, Xerox built a dictionary to provide the transliteration of names written in English to Bangla.

Xerox used its DocuShare platform to create digital versions of the forms and track them through every step of the process. An in-house document tracking solution used unique questionnaire barcodes and QR codes to track all activities during the programme life cycle and facilitated internal controls.

Xerox also captured granular statistics and data that allowed BBS to drill down on detailed information and make plans on how best to deliver services to benefit the poor. This service, beyond contracted service, is providing valuable insight.

## THE RESULTS

Working closely with BBS senior management and their helpful teams ensured a succession of positive results.

- 45 million questionnaires printed, and 76 million document images processed over three phases of six months each by working for 22.5 hours per day.
- Demonstration of the Xerox capability and value to large-scale programmes ensuring 100% data security, adherence to quality requirements and delivery of superior quality of data output.
- Archived questionnaires in DocuShare can be easily accessed by end users instead of searching physical documents from the warehouse.
- 100% control, governance and monitoring of the end-to-end processes and receipt of performance statistics.

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