



Biometric Assessment Report Research Brief



Knowledge, Evidence and Research

The **Knowledge, Evidence, Research & Learning (KERL)** component of the **Girls' Education South Sudan (GESS)** Programme aims to generate knowledge on best practices in education to discover what works and does not work when promoting girls' education in South Sudan. The KERL component seeks to develop an evidence base for GESS interventions, linking inputs to outcomes and impact, as well as acting as a broader information hub on girls' education.

To support decision-making, accountability and continuous programme improvement, GESS research employs longitudinal, point or cross-sectional and large-scale nationally representative surveys across all ten states and three administrative areas of South Sudan.

GESS commissioned the biometric feasibility study to generate information on the integration of biometrics technology into the cash transfer component of the programme. GESS and the Ministry of General Education and Instruction (MoGEI) are considering biometric technology, an identification method used to verify identities using characteristics of individuals, i.e., iris, fingerprints and voice patterns. The aim of this is to strengthen the registration and attendance monitoring of learners and improve cash transfer management.



Research Objective

The objective of this study was to generate existing evidence on the use of biometrics technology in programmes in fragile

and conflict affected settings (FCAS), development and humanitarian programmes and provide justification for the introduction of biometric technology in the GESS programme, how it can be used to improve cash transfer processes. This report is the outcome of a pilot study in a small sample of schools in Juba during the 2022 academic year as well as literature review of biometric use in South Sudan and other similar contexts.



Methodology

The study consisted of a comprehensive literature review of published and unpublished literature on biometric technology, including journals, articles, reports and studies. The framework for literature presented by Brocke et al (2009) was used to focus the study. Key pieces of literature and data on biometric technology functionality and current usage were then extracted and analysed.

Headlines

- Biometric technology has been increasingly implemented in FCAS, development and humanitarian contexts, including the successful incorporation of biometrics in programmes in South Sudan.
- The benefits of using biometric technology outweigh the risks and are the most accurate method of identification available, to create a reliable register and enable efficient cash transfer delivery.
- The literature review shows that integrating biometric systems will improve the precision and efficiency of the cash transfer component of the GESS programme.



Key findings

Integrating biometric technology

Biometric technology is used increasingly in humanitarian and development contexts, including in South Sudan. The integration of biometrics is pushed by sector widespread deployment, the increased pressure of international donors, the growing preference for cash-based interventions, the changing regulatory environment which requires stricter monitoring and reporting, and hype around tech innovation in the sector.

In South Sudan, biometric technology has been implemented in United Nations Office of Project Services' (UNOPS) South Sudan Safety Net Programme (SSSNP) implemented a biometric system using a figure print authentication method to pay cash to programme beneficiaries in collaboration with Alpha Bank.

In addition, the International Organisation for Migration's (IOM) Displacement Tracking Matrix in partnership with the World Food Programme (WFP) conducted a biometric registration exercise in 2019. The evidence indicates that the biometric system works in the South Sudan context.

Benefits of biometric technology

There are considerable benefits to integrating biometrics into development assistance programmes.

- **Identifiability and traceability:** Biometrics can help identify and register the people targeted for assistance. Biometrics also facilitate more immediate traceability of aid delivery because it can collect real-time data on attendance at schools, movements and received cash transfers.
- **Accuracy and integrity:** Biometric technology can help to reduce fraud and duplication in cash assistance. For example, it can prevent double registration of beneficiaries, inflation of enrolment and human error.
- **Simplicity and efficacy:** Biometrics simplify registration and identification of beneficiaries because there is less time lag between registering and authenticating paper

identity documents/information. This could reduce the lengthy processes currently used to process enrolment and beneficiary validation, as timely cash transfer payments can be crucial for the improvement of the enrolment of girls.

Throughout GESS, we have used paper 'Cash Transfer Enrolment Forms' to identify learners.

Once validated, each learner receives a white copy of the cash transfer enrolment form which is used during the payment process to identify them. Without this copy of the form, the girl will not be paid.

Biometric technology would help to avoid the pitfalls associated with paper-based identification.



Downsides of biometric technology

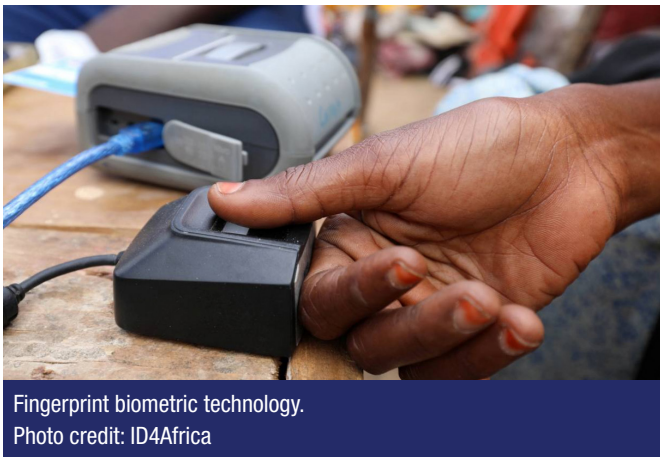
There are concerns and considerations around using biometric technology.

- **Reliability:** The system is not fallible and there is a potential for false matches and inaccuracies in the process of recording.
- **Reusability:** The possibility that biometrics could be used by other actors and for unimagined purposes.
- **Security:** Biometric data places a large burden on organisations to maintain an elevated level of security, and to prevent theft, loss, or misuse of biometric data. Storing data in centralised databases could place beneficiaries fleeing persecution at serious risk.
- **Social impact:** There is a potential for exclusion if beneficiaries are reluctant to provide biometric samples. Acquiring the data can be more difficult for people with disabilities or of darker skin colour.

Biometric technology capabilities & usage

The commonly used biometric authentication methods include fingerprint, facial recognition, hand geometry, iris, and voice recognition. The desk review showed that fingerprint scanning is the most used biometric authentication method.

There are five sub-systems in a biometric authentication system, these are data collected through individual characteristics, the transmission of data, signal processing including extraction of images and quality control, the decision on a match between sample and template, and storage of the collected data.



Fingerprint biometric technology.
Photo credit: ID4Africa

Recommendations

This study recommends the use of biometric technology in the GESS programme. The use of biometric technology in the implementation of cash transfers improves precision and efficiency by making sure that the right payments get to the right beneficiaries at the right time.

GESS will conduct a biometric technology pilot in six schools of Central Equatoria State. On successful piloting, GESS will then roll out the programme nationally. The section below describes the proposed biometric technology integration in the GESS programme.

- 1. Registration and enrolment:** This is the most critical phase as all the following processes depend on data being captured and entered onto the biometric database. In absence of ID systems, a good start is the beneficiary list from the South Sudan Schools' Attendance Monitoring System (SAMS). Verification of identity will be ensured by the enrolment team seeing the beneficiaries physically and identity proofing through other means, such as community witnesses or alternate documents.
- 2. Verification:** Once the identity is verified, a record of a person's unique characteristics is captured and kept in a database. Every girl will get a unique number, get

photographed, fingerprinted and possible an Iris scan.

- 3. Attendance:** The biometric devices will be housed at State Anchor offices so that staff can make independent, unannounced attendance checks once a month for each school. Cash transfers will be paid based on the presence and attendance check report.
- 4. During payment day:** During payment, the girl will identify herself through her fingerprints and receive the payment if she qualifies and is verified by the agent with a Point of Sale (POS) terminal. The POS devices will be prepopulated with all beneficiary details and the amount they require.
- 5. Grievance resolution mechanism:** There will be a beneficiary accountability mechanism as part of the overall Grievance Resolution Mechanism policy of GESS.

The biometric system will ensure a more precise and up-to-date registration and payment system. However, there are up-front system costs, including purchasing and installing equipment, training, documentation, and changes to integrate the biometric system into existing systems. There will also be ongoing costs for software, hosting, security, and maintenance among other costs. The sustainability of the system is essential given the highly personal nature of the data.

Finally, the pandemic requires the GESS programme to consider reducing physical contact to minimise the potential risk of COVID-19 transmission as much as possible. Therefore, GESS will consider where possible contactless biometric solutions, such as iris scanners.

The full report is available on our website:
www.girlseducationsouthsudan.org



INSPIRE EDUCATE TRANSFORM

AIM

Girls' Education South Sudan (GESS) is an inclusive programme that will transform the lives of a generation of children in South Sudan – especially girls and those in the margins of society – through education. The second phase of the GESS programme will run between May 2019 – March 2024.

The outcomes of the Programme will be an improvement in girls' educational attainment from that already achieved in the first phase of GESS: building further gains on school enrolment, reducing barriers to education and promoting equity in access for all children.

MANAGEMENT

The GESS programme receives funding through UK aid from the UK Government, the Government of Canada through Global Affairs Canada, the U.S. Agency for International Development (USAID), the European Union (EU), the Swedish International Development Cooperation Agency (Sida) and Norway Ministry of Foreign Affairs. At the time of the research, GESS was funded by UK aid from the UK Government, the Government of Canada through Global Affairs Canada, USAID and the EU.

The Ministry of General Education and Instruction (MoGEI) supports the GESS programme, which is managed by implementing partners who provide technical advice. These implementing partners include Cambridge Education/Mott MacDonald as the consortium lead, BBC Media Action and Windle Trust International.

At State and County level, the State Ministries of General Education and Instruction (SMoGEI) take the lead in programme implementation, supported by partner NGOs, or what we call 'GESS State Anchors'.



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For additional information, contact:

