Consultancy Services to Support the Design, Testing and Implementation
of Digital Census Services

Contract No: 2500303688

CONSULTANCY PERIOD: 01-Jul-2022 to 30-Sep-2022

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Overview of the Assignment

The main objective of the consultancy service, as specified in the contract, mainly revolves around the design, testing, implementation, and deployment of digital census services to support countries in conducting successful and efficient censuses. In view of achieving the objective, three main areas have been identified as below:

- Support of the census tablet provisioning exercise;
- Implementation, deployment, training and operational support of census dashboard for target countries; and
- ICT readiness assessment for census operation in target countries

The following are the detail activities assigned to me as outlined in the contract:

Develop and Support the Census Monitoring Dashboard

- Complete the development and testing of the ECA dashboard ensuring that the indicators, graphical representation and design meet countries requirements for planned use in their 2022 Census;
- Support country census technical team in implementing live dashboards for live use in their pilot and real Census;
- Train technical staff in configuration, troubleshooting and use of the dashboard.

ICT Readiness Assessment

- Undertake survey of hardware, software, human resources and capability required for the 2022 census taking
  - System security assessment,
  - Data transfer and flow between systems,
  - Assessment planned IT resources and capability,
  - Disaster recovery plans,
  - Data storage capacity and configuration.
Activities Performed During the Contract Period

During the three months contract period starting 01-Jul-2022, I performed the assigned activities in collaboration with the technical team members at the ACS/UNECA. The core lines of activity I was involved in can be grouped as below:

- Participating in various weekly meetings to discuss matters related to digital census services;
- Attending missions to target countries;
- Developing, deploying, training and providing assistance on census monitoring dashboard;
- Assessing the IT infrastructure for census operation and consult target countries on improvements.

Attending Missions to Target Countries

In this contract period, I traveled to Nigeria (July 9 to 22, 2022) and Zambia (August 14 to 22, 2022) on mission.

My mission to Nigeria was to configure the census monitoring dashboard and assist users in the utilization of the dashboard during their trial census. Accompanied with other two ACS/UNECA staff, we conducted discussions with the team at Nigerian National Population Commission (NPC) on various issues including further improvement of the dashboard to include new indicators and incorporate the capability of monitoring reinterview and PES exercises, integration of the dashboard with in-house developed listing application, and security related issues among others. Intensive training was also provided to NPC team at different levels on the use of the census monitoring dashboard. My team actively participated in the daily situation room meetings which were conducted during the trial census period. We have contributed in the interpretation of the indicators to the meeting participants and forwarding suggestions and recommendations in relation to the census monitoring exercise. The team from ACS also participated in the official launching event of the census monitoring dashboard and mobile device management system presided by higher officials with national TV coverage (news coverage on the event are available http://nationalpopulation.gov.ng/national-population-commission-launches-dashboard-
mobile-device-ahead-of-2023-census/ and https://www.youtube.com/watch?v=3xHOgqVoCyE.

In Zambia, accompanied with ACS staff, we presented the already developed census monitoring dashboard to ZamStat team and deployed the dashboard into their server. We provided intensive training to ZamStat staff at different levels. We also deployed the UNECA’s newly developed census helpdesk tool into ZamStat server and provided users training.

**Develop and Maintain Census Monitoring Dashboard**

I have been assigned to work with three countries namely Zambia, Nigeria and Liberia. After a thorough engagement with the respective countries to understand their requirements, I have customized the dashboard to respond to their specific needs. The following are target countries I was engaged in to customize the dashboard:

- **Zambia**: The dashboard for Zambia has been developed and presented to the team in Lusaka. All new improvements were incorporated into this instance of the dashboard. SSL was configured to secure access to the dashboard, automatic email dispatch to users during invitation was enabled, users were advised to enable two factor authentication for enhanced security, dashboard performance was improved.
  
  We deployed the dashboard on a server leased from Infratel (a government institution which manages data centers). The breakout process configuration was also enabled to migrate data from the csweb server (a Microsoft Windows platform) to the dashboard (Ubuntu server).

  We provided users training at different levels and advised the management on the effective utilization of the census monitoring dashboard.

  I provided continuous support to the team in Lusaka during the census operation which was conducted from August 18 to September 14, 2022. The support includes interpretation of indicators, adjustment of computation formulas, modifying targets, and fixing bugs among others.

  The dashboard is accessible at https://dashboard.zamstats.gov.zm/ for registered
users. The following are a couple of screenshots from the Zambia census monitoring dashboard.
Nigeria: Another assignment in the period of this contract was to work on the census monitoring dashboard for Nigeria. Our dashboard was instrumental in monitoring the trial census conducted in July 2022.

With the help of ACS team, I customized the census monitoring dashboard to respond to the requirements of NPC. Focus was given to the security of the dashboard in which we have done vulnerability test with the tools used at UNECA. The dashboard was deployed on the cloud which was leased by NPC. The dashboard utilizes data coming from the listing exercise as target value. In addition to the housing and population census, we developed indicators to monitor the reinterview exercise.

Once the dashboard is customized and developed, dashboard users training was provided to state DQMs and management and census team at the head office.

We also provided support and maintenance services during and after the trial census field operation.

The dashboard is accessible from https://ngcensusdashboardnpcng.com/ for registered users. The following image shows a sample of developed indicators.
• Liberia: I have been engaged with the development of census monitoring dashboard for the pilot census at the LISGIS (Liberia Institute of Statistics and Geo-Information Services) server. The main census is rescheduled to be conducted from October 22
to November 7, 2022. Hence, I was actively engaged with the LISGIS team to upgrade the dashboard by aligning it with the modified questionnaire and incorporating new features which were developed in other implementations of the dashboard.

**IT readiness assessment**

In all my engagements of deploying the dashboard to target countries, our team assesses the IT infrastructure and overall IT readiness assessment to evaluate the capacity of the host to operate the dashboard and provisioning tool. We also provide recommendations to the host team to upgrade infrastructure and conduct capacity building activities.

**Major Accomplishments**

I have been fortunate to work with a mix of technology experts and statisticians with deep census related knowledge. With the help of my colleagues at ACS and experts in the target countries, I have accomplished the following major outcomes:

- Improvements to the census dashboard;
- Introduction of the dashboard to potential countries so that they can consider utilizing the dashboard to monitor their census activities. The introduction as well as capacity building activities conducted in respective countries has created a huge interest to utilize the census monitoring dashboard even beyond census for other survey activities;
- Introduction of field operation helpdesk tool to target countries;
- Contribution to improved engagement of ACS to support NSO’s census related activities.

**Conclusions**

It is an immense pleasure to be part of this vibrant team at ACS in order to support and implement digital census services. Witnessing the fact that all regional and head office census supervisors fully depend on our dashboard in countries like Mauritius and Seychelles during their actual census gave me at most satisfaction and I am indebted to ACS for offering me this impactful opportunity.
The digital census services technology ecosystem is in a state of continuous improvement evolving to a regional platform to be publicly available for everyone to utilize. In a short term, my impression is that even those activities which I am assigned to require extra effort beyond the contract period. I would like to bring to the attention that the following require follow-up activities on my accomplishments:

- **Nigeria**: Finalize the dashboard and assist the team at the National Population Commission (NPC) of Nigeria on their main census operation to be conducted in April 2023.
- **Liberia**: Finalize dashboard and provide users training to make the solution and users ready for the census to be conducted in October 2022;