

NSDI NEWSLETTER

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NSA to co-Chair a United Nations Expert Group

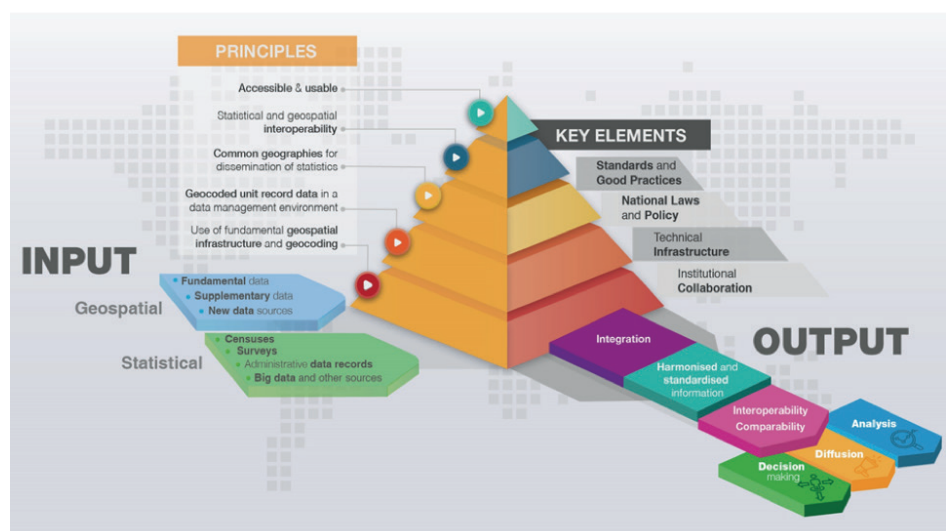
For the first time since the formation of the United Nations Global Geospatial Information Management (UN-GGIM) Committee of Experts, an African is appointed to co-Chair an Expert Group on the Integration of Statistical and Geospatial Information (UN EG-ISGI) under the UN-GGIM and United Nations Statistics Commission (UNSC). Mr Alex Muluti Mudabeti, the Executive responsible for Geographic Information System (GIS) and National Spatial Data Infrastructure (NSDI) at the Namibia Statistics Agency (NSA), will for the next 3 years co-Chair the UN EG-ISGI alongside Ms Kathrin Gebers from Germany statistics office. The appointment was made by the Expert Group in Manchester, UK on 09 October 2019.

The UN EG-ISGI was established by the UN-GGIM and UNSC with the mandate to develop an international statistical geospatial framework as there is consensus for an urgent need for a mechanism to facilitate consistent production and integration approaches for geo-statistical information. In August 2019, the UN-GGIM endorsed a Global Statistical Geospatial Framework (GSGF) to provide a common method for geospatially enabling statistical and administrative data that ensures data from across a range of sources can be integrated based on location.

The GSGF has five principles as follows:

- Principle 1: Use of fundamental geospatial infrastructure and geocoding.
- Principle 2: Geocoded unit record data in a data management environment.
- Principle 3: Common geographies for dissemination of statistics.
- Principle 4: Statistical and geospatial interoperability – Data, Standards and Processes.
- Principle 5: Accessible and usable geospatially enabled statistics.

The GSGF comes at an important time as statistical and geospatial agencies work to modernise and transform their models of operation and infrastructure. The Global Framework will also be critical to support the work occurring on the 2020 Round of Population Censuses and the 2030 Agenda for Sustainable Development. The figure on the right provide a summary of the GSGF and its key elements. With the framework now endorsed by the UN, Mudabeti and Gebers are tasked to direct its global adoption and implementation in UN member states.



Earth Observation for International Development (GeoSens) Summer School







The Earth Observation for International Development (GeoSens) summer school took place from the 26th to the 29th of August 2019 in Würzburg, Germany. The four-day course at the University of Würzburg within the Department of Remote Sensing focused on teaching participants the full process of designing and implementing satellite-based monitoring approaches in the context of international development tasks. The GeoSens Summer School aimed to increase the knowledge of Earth Observation (EO) techniques in International Cooperation, both from a project management and technical perspective.

Despite the fast evolution of Earth Observation tools, there are still burdens to the use of the data and products. It was for this reason that the NSA together with its implementing partners (UNDP and GIZ Namibia) for the Sustainable Development Goals (SDGs) in Namibia was obliged to attend this summer school. The aim was to broaden the understanding and implementation of EO technologies, for both technical and managerial level staff, in addition to building close working relationships with German institutions implementing the latest in EO technologies for sustainable development.

Key takeaways from the summer school

EO for Sustainable Development Goals: EO can be a tool for monitoring the progress in achieving the SDGs by quantifying changes nationally. This quantification aims to produce indicators within the SDG indicator framework. The overall process in this framework related to EO consists of the measurement by the satellite, data analysis, production of geo-information and derivation of quantitative SDG indicators that can serve as a basis for (political) action. For many SDG indicators EO can contribute directly or indirectly to their quantification.

Satellite Measurement	Data	Information	Indicator	Action
				



Disruptive Technologies: While data traffic in general is growing, EO data in particular generates increasing data amounts. One trend in recent years has been the move to cloud-based systems, either customised or using the service of existing platforms. With this high volume of earth observation data, large storage and high computation power is needed to fully harness the true potential of this data. This is certainly the case for a developing country like Namibia where there are limitations on storage, internet bandwidth and human capabilities. New cloud based processing platforms like Google Earth Engine, Amazon Web Services and Sentinel Hub Playground make it possible to process and analyse large volumes of EO data over space and time by making use of the storage and processing power provided by the different platforms.

Datacube: Analysis Ready Data (ARD) is a key

to reduce the barrier to working with EO data. Datacubes facilitating such ARD may be a solution for continuous monitoring, e.g. reporting in the framework of sustainable development. The aim of datacubes is to centralise and standardise the storage and pre-processing of EO data in a certain region. Datacubes integrate EO data continuously and apply common pre-processing steps such as atmospheric correction, reprojection, cloud masking and resampling. The whole data stack in a datacube is fitted into a pre-defined grid. This creates a multidimensional stack (space, time, data type) of spatially aligned pixels used for efficient and effective access and analysis.

Executive Directors urged to speed up NSDI implementation



The Statistician-General (SG) on Thursday, 3rd October 2019, made a presentation to the Executive Directors' Forum (ED Forum) on the implementation of the National Spatial Data Infrastructure (NSDI). The SG advised the EDs to sign the NSDI memorandum of understanding with the NSA to formalise their institutional participation in this government initiative as a matter of urgency. The ED Forum took note of the SG's call and entreated institutions which have not signed to do so as this is a very critical infrastructure for the country. As usual, the NSA received good support from the chairperson of the ED Forum, Dr. George Simataa, secretary to cabinet.

Training and roll out of DigitalGlobe high resolution satellite imagery basemap

NSA with contributions from UNFPA, Ministries of Mines and Energy and Urban and Rural Development, in May 2019 subscribed to a one-year government-wide NSDI license to the DigitalGlobe EarthWatch high resolution satellite imagery base map for mapping purposes. The primary purpose for subscribing to the service is for government Offices, Ministries and Agencies to update their national spatial databases. NSA is in the process of carrying out census mapping. This presents an opportunity to participating institutions to access and use the

platform for data collection purposes.

The NSDI Secretariat embarked on a training and license roll out program of the DigitalGlobe satellite imagery basemap product for participating NSDI institutions. Institutions have been trained on how to access the DigitalGlobe basemap in different GIS environments, mainly ArcMap and QGIS. The trainings were conducted at the institutions' premises, allowing the trainings to be more hands on and interactive.



Digital Globe Imagery Training at Cenored, Otjiwarongo



Digital Globe Imagery Training at Swakopmund Municipality, Swakopmund (Trained: Walvisbay Municipality, Swakopmund Municipality and Erongo Regional Council)

The table below indicates the progress made thus far on license allocation and trainings.

No.	Institution	License Allocated Yes/ No?	Number of Licenses allocated	Number of staff trained
1.	Ministry of Mines and Energy	Yes	5	9
2.	City of Windhoek	Yes	2	12
3.	Ministry of Environment and Tourism	Yes	2	5
4.	CENORED	Yes	1	6
5.	Swakopmund Municipality	Yes	1	7
6.	Erongo Regional Council	Yes	1	3
7.	Walvis Bay Municipality	Yes	1	2
8.	Ministry of Land reform	Yes	5	8
9.	Namibia University of Science and Technology	Yes	4	NUST students trained
10.	University of Namibia	Yes	2	UNAM students trained
11.	Roads Authority	Yes	1	Not yet trained
12.	Ministry of Agriculture, Water and Forestry	Yes	3	18
13.	Telecom	Yes	2	Not yet trained
14.	Katima Mulilo Town Council	Yes	1	9
	Total		31	79

German SDI (BGK) meeting

On the 30th of August 2019 three NSA delegates met with the Federal Agency for Cartography and Geodesy, Bundesamt für Kartographie und Geodäsie (BKG) in Frankfurt, Germany to discuss possible collaboration channels and share challenges as well as ideas on Spatial Data Infrastructure (SDI) implementation in the two countries.



From Left: Pier-Giorgio-Cheddu, Enrico Bezuidenhoudt, Alex Mudabeti, Alex Shimuafeni and Andreas von Domming

The SDI development in Germany is more advanced in terms of coordination between different data producers in the regions and the national coordination office. The German SDI model is in line with what Namibia wants to achieve,

where local SDI's eventually feed into the national SDI. Avenues for further collaboration can be staff exchanges to further the knowledge in spatial data infrastructure architecture design, working group administration and geosystems capacity building.



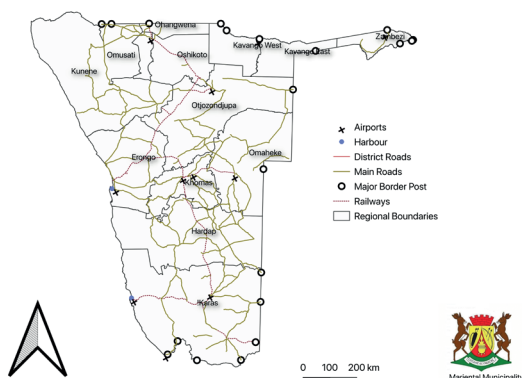
Local authority basic GIS training - Keetmanshoop

Since 2016, the NSDI embarked on a national capacity building programme to both sensitise and build capacity in the use of Geographic Information Systems (GIS) within government institutions. Recently, the NSA has been inundated with requests from local authorities to provide training on GIS and on how to utilise the recently acquired high resolution satellite imagery services. It is for this reason that the NSA embarked on a national capacity

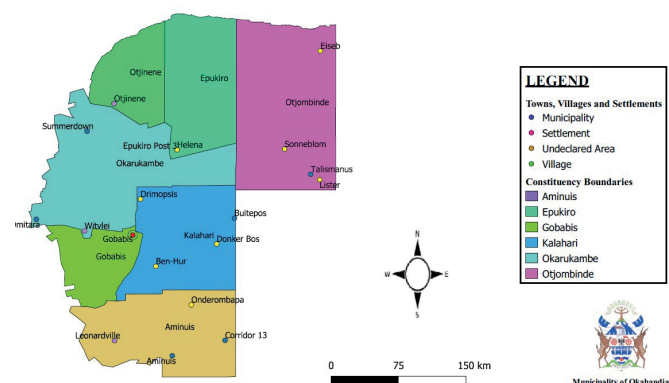
building programme targeted at local authorities.

The training took place at Keetmanshoop from 30 September to 4 October 2019 for local authorities in Karas and Hardap regions, while local authorities in Erongo, Otjozondjupa, Omaheke and Kunene were trained in Otjiwarongo from 7 to 11 October 2019. A total of 50 participants were trained at the two venues.

Transportation Network Namibia



Towns, Villages and Settlements in the Constituencies of the Omaheke Region, Namibia



NSDI presented at the Geological Society of Namibia Conference



The Geological Society of Namibia held their 50th anniversary conference at Nipam from 01-04 September 2019. The aim of the conference was to celebrate half a century of geological achievements and networking, from local to national and international levels. In addition, the conference was aimed at promoting the study of geoscience in Namibia and to do all things that are conducive to the advancement of geological science.

The NSDI Secretariat had a stand at the conference to raise awareness on the implementation of the NSDI and provide information about available Geographic Information in Namibia. The secretariat gave a presentation on the use of the National Geographic Portal at the conference to raise awareness and the benefits thereof to the Geological Society of Namibia.

The 2021 Population and Housing Census (PHC) Mapping Project



In the year 2021 Namibia will be conducting a Population and Housing Census, which is commonly known as the exercise which counts people. However, there is much more to a census than only counting people. Without a doubt the population and housing census is the main source for demographic and socio-economic statistics in the country. A census is the most complete statistical exercises undertaking, therefore it certainly is also the most costly.

However, before a complete population and housing census can take place, a prior exercise, called the 2021 Population and Housing Census (PHC) Mapping Project, needs to take place. The 2021 PHC Mapping Project is an exercise undertaken with the aim of demarcating, and systematically coding every inch of land in the country into smaller geographical areas known as Enumeration Areas. During a census, every enumeration team needs to have a set of unique maps covering the entire country that accurately defines the boundaries within which each enumerator needs to work during the enumeration phase of the census. These maps assist our enumerators or field workers when conducting the actual census. The mapping exercise

also collects detailed information regarding the use of all the structures in the country, which could not be collected during an office exercise that only uses satellite and aerial photography.

The census mapping exercise has three (3) phases. Phase 1 involved office digitization of all buildings, both rural and urban, countrywide. The digitization is done from high resolution optical satellite imagery. This phase also involves the digitizing and numbering of all built up structures within the EAs. Nine (9) graduates from both UNAM and NUST were recruited as Digitizing clerks. This phase commenced on the 4th of June 2019 and is set to end on 31 December 2019.

Phase 2 is the actual field verification of all the built up structures digitized in phase 1 where the following are some of the variables that will be collected: the structure/building use, housing tenure, number of households, materials used to build, and average annual revenue, number of employees (for establishments) etc. To succeed in this the NSA we will also adopt a state-of-the-art mobile GIS mapping technology for gathering basic building and household data necessary for demarcating accurate enumeration boundaries. Phase 2 started on the 14th of October 2019 in the Zambezi region and it is expected end on 15 December 2019. Zambezi region is prone to flooding and this was the main reason why it is the first before the rest of the 13 regions. The remaining 13 regions will then be expedited from 01 February to 30 June 2020.

Phase 3 is the demarcation of Enumeration Areas (EAs) in the office, based on a well-defined criteria relating to the number of households or Dwelling units in the Enumeration Area. At the end of this exercise, the NSA will have detailed locations and use of all structures in the country and this will be linked with the statistics to be collected during the census enumeration phase period. This will provide Namibia with a powerful spatially enabled tool for evidence based planning.

In total the NSA will employ around 282 enumerators that will go throughout the country for around six months to list all infrastructure in Namibia. As it is common practice, these enumerators will be identifiable through identification cards, introduction letters and branded NSA vehicles, amongst others. We are also going to work closely with the security forces in the country to ensure that households are safe, that the exercise is not misused by criminal elements and we shall give the households the liberty to request police presence where possible in order to remain safe and sound.

A challenge that we have observed is that some households, especially in affluent areas, tend to refuse to participate in such statistical data collection exercises. We would like to remind the nation that it is against the Statistics Act No 9 of 2011 to refuse to provide information that is needed for development and we hence request that the entire population welcomes our enumerators and takes part in the exercise. Since it is better to be informed than not to be informed, help us collect statistics that are fit for development. The NSA will continue to inform and engage the nation about this massive exercise to be fully underway from October 2019. Do not be left out.

National Spatial Data Infrastructure (NSDI) partnership agreements

Although the NSDI is being coordinated by the Namibia Statistics Agency, its objectives can only be achieved when the operations are carried out in an inclusive, cooperative and collaborative manner under the current policy and legal frameworks. These collaborations are fostered through partnership agreements among various custodians, producers and users of geospatial data in the country. Partnerships are an important aspects which NSDI foundations should be built upon.

The implementation approach of the Namibian SDI encourages cooperation among stakeholders to

integrate disparate data sets. This approach also promotes the adoption of common standards, as well as fast-tracking integration of data sets through partnership agreements.

Active participation in the NSDI stands at 17 as per the following list:

1. Ministry of Mines and Energy
2. Ministry of Land Reform
3. Ministry of Urban and Rural Development
4. Ministry of Environment and Tourism
5. Ministry of Agriculture, Water and Forestry

- | | |
|---|---------------------------------|
| 6. Ministry of Industrialization, Trade and SME Development | 13. Censored |
| 7. Ministry of Education, Arts and Culture | 14. NPC (by virtue of Mandate) |
| 8. Nampower | 15. NUST (by virtue of Mandate) |
| 9. Namwater | 16. UNAM (by virtue of Mandate) |
| 10. Roads Authority | 17. OPM (by virtue of Mandate) |
| 11. MTC | |
| 12. Erongo Red | |

Development of the Land Cover Classification Standard Discussions by the NSDI Inter-agency Committee

The NSDI Steering Executive Sub-Committee met on 6 September 2019 at the Namibia Statistics Agency’s head office to discuss the possible development of a Land Cover Classification Standard for Namibia. The meeting noted that there is no gazetted policy, standard or legislation guiding land cover classification mapping in Namibia, hence the need to develop one. The NSA highlighted the need for a uniform standard and that different countries develop their country-specific

standard accurately associated to their local conditions.

Through the UNDP Namibia, the NSA will appoint a consultant to lead the process of drafting a comprehensive land cover classification standard for Namibia. The consultant will work closely with the Technical Working Group to formulate the draft standard with symbology and classes. The process is expected to be concluded by March 2020.

Committee for Spatial Data reviewing list of datasets in the NSDI

As per the NSDI policy the Committee for Spatial Data must facilitate, promote and safeguard an environment for the efficient collection, management, distribution and utilization of spatial data. The Statistics Act No.9 of 2011 stipulates that the NSDI Secretariat (NSA) must consult the Committee before they set any standards relating to the NSDI.

The Committee for Spatial Data commenced with the reviewing of the NSDI data inventory list in April 2019. This exercise involves determining sensitivity of the datasets, reviewing legal mandate for each dataset including custodianship in cases where there is no official custodian as per the legal frameworks.

Did You Know?

You can submit your GIS-NSDI related article for publication in the next issue of the NSDI newsletter. Please contact us on nsdi@nsa.org.na

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