Project Overview Document

Project information

Project		
Acronym	SudMig	
Title	Sudan: Monitoring Migrant Movements Related to The 2023 Conflict	
Period	Start: 03.10.2023	End: 31.01.2024
Principal investigator	Stamatina Tounta, Noah Greupner	
Contractor	United Nations	
Logo		

Document version

Nr.	Date	Version	Altered chapters	Type of altering	Author
1	18.10.2023	1.1	all	Creation	ST, NG
2	09.11.2023	1.2	3.1	Addition	ST, NG
3	23.11.2023	1.3	all	Addition, Deletion	ST
4	28.11.2023	1.4	all	Addition, Deletion	NG
5	29.11.2023	1.5	all	Addition	ST, NG

Project Content and Project Goals

Content & Goals
Project description
The SudMig project aims at developing an interactive dashboard that provides valuable insights on the latest Sudanese internal migration. This is done by developing a well-founded underlying SDI (Spatial Data Infrastructure) strategy for the efficient and transparent gathering, processing, sharing of the migration data and the effective visualization in an informative dashboard. The SudMig dashboard, thereby, supports United Nation's decision-making processes related to the 2023 military conflict which causes millions to flee to other parts of the country and neighbouring countries. Different parameters related to Sudanese internal migration, such as the number of Internally Displaced People (IDPs), their origin and destination within Sudan, the demographics as well as geocoded data, like Sudan's administrative boundaries, will be collected, organized, and visualized effectively. The data will be organized and stored in a PostgreSQL (PostGIS) database management system and published with standardized web-services, such as the OGC Web Map Service and Web Feature Service. Finally, the data will be integrated into the SudMig dashboard, so that our important migration parameters and trends can create impact by being communicated to the decision-makers briefly and at a glance.
Project purpose, benefits and target group description
Our project aims at identifying the movements of IDPs within Sudan. The outcome of the project will be an interactive dashboard which will provide spatiotemporal information about the current total number of IDPs, the temporal change of migration, and the direction and intensity of the movements (aggregated at level of federal states). The Sudan military conflict represents one of the largest humanitarian crises today. Thus, a informative dashboard is urgently needed to support decision-making processes for specific United Nations authorities. These authorities include, for example, the UNHCR, UNDP, or UNOCHA. Our proto personas are represented by Nadia (Field Coordinator at UNHCR), Malik (Humanitarian Analyst at UNOCHA), and Kathrin (Data Specialist at UNDP). Although all of them have different roles in their organizations, they all rely on up-to-date data on internal migration in Sudan. Stakeholders in these positions, therefore, benefit immensely from our dashboard, as it provides at-a-glance information on migration flows between the states over the past months (since the outbreak of the conflict).
Project objectives (please also include a listing of the sub-goals)
The main objective of our projects is represented by the effective communication of ongoing spatiotemporal movements of Internally Displaced People (IDPs) in Sudan to the United Nations. This is done by developing and implementing an service-oriented and transparent Spatial Data Infrastructure that integrates our migration statistics and appropriate geodata. Some of the sub-objectives contain: • Collect and store open and up-to-date data on Sudan's internal migration in a DBMS   ○ parameters: total (estimate) numbers of recently displaced individuals, state of displacement of IDPs, states of origin of IDPs, permanent population of each state • Share a set of (standardized) geo-services for data sharing and communication

- Develop an interactive dashboard that supports data analytics and decision-making processes within the United Nations Authorities
- Project management: document, manage, and share the project in GitLab

Non-Goals

The project does not aim to:

- monitor general (working) migration movements, as it only addresses IDPs who were forced to flee due to the current crisis.
- internal migration that is not related to the 2023 conflict
- Internal migration before April 2023.
- monitor immigration or emigration across the country's borders

Furthermore, the dashboard is intended to inform expert groups within the United Nations architecture. Some level of expertise about the 2023 military crisis is, therefore, a prerequisite to fully capturing and understanding the dashboard, analyzing the data, and making appropriate decisions.

Frame of the project

Context

Up-to-date status

The project topic selection is done. Furthermore, appropriate datasets to be used have been identified. Data have been retrieved from the Humanitarian Data Exchange (HDX) portal provided by OCHA (United Nations Office for the Coordination of Humanitarian Affairs) services. Specifically, data from the "Sudan Displacement Situation - IDPs [IOM DTM]" dataset provided by the "International Organization for Migration" (IOM) (available at: https://data.humdata.org/dataset/sudan-displacement-situation-idps-iom-dtm) will be used to display the following variables: "Total estimate of recently displaced individuals", "State of displacement of IDPs", "States of origin of IDPs".

Additionally, the "Sudan - Subnational Administrative Boundaries" (available at: https://data.humdata.org/dataset/cod-ab-sdn) will be used and joined with the previously mentioned data to integrate spatial information. In addition to that, the GitLab page has been created and will be provided with the requested information within the next days.

Subsequent steps will mainly include the data cleaning and the geocoding using R or GIS. Further, the integration and manipulation of the data in the Z_GIS PostGIS database must be done.

Project setting

Current challenges:

- Coherency of the data (there are slight data changes from September 2023 onwards). This requires pre-processing of the data to ensure consistency and interoperability
- Geocoding of the data
- Data structure must be developed to fit the needs of the dashboard

Dates			
Time period			
Start:	03.10.2023	End	31.01.2024
Important Dates			
1	03.10.2023	Kick-off	
2	28.11.2023	Mid-term presentation	
3	23.01.2024	Final presentation	
4	31.01.2024	Report submission	

Resources & Budget

Project Team
Projekt Lead
Stamatina Tounta (B.Sc. Geography): Project leader, project management, EO specialist
Project Team
Noah Greupner (B.Sc. Geography): Geospatial expert, project management, geovisualization

Resources
Personal costs
2 experts (100 hours, respectively)

Project costs
30.000€
Other Costs
2.500€

Project structure, description and risk matrix

Work packages overview:

WP	Name	Time Frame
0	Project Management	10.10.2023 – 31.01.2024
1	Topic and Data Identification	10.10.2023 - 10.11.2023
2	Data Processing	11.11.2023 - 30.11.2023
3	Services Creation	01.12.2023 - 20.12.2023
4	Data Communication	21.12.2023 - 15.01.2024

Work Breakdown Structure (WBS)

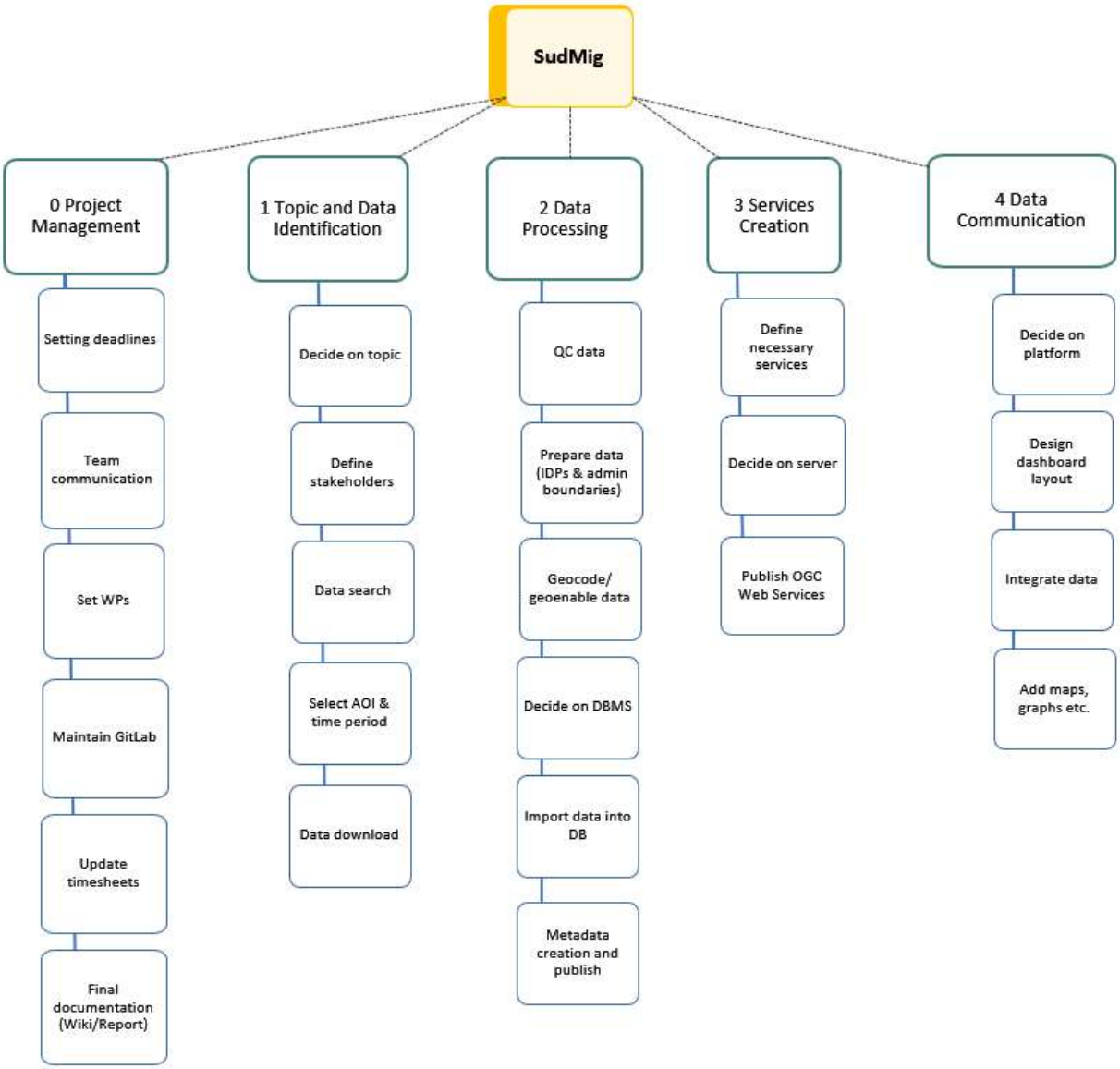

Figure 1 Work breakdown Structure

Detailed work plan

WP 0	Project management	10.10.2023 – 31.01.2024
WP Lead		**WP team**
Stamatina Tounta		Noah Greupner
Objectives		
• provide overall project coordination and management, facilitating a dynamic and adaptive implementation of the project and its results; • maintain a GitLab page for the project to share progress with stakeholders; • Compilation and submission of the mid-term and finals presentations and the final project report		
Content & Tasks		
Setting deadlines, internal team communication, creation of time plan, identification of WP, maintaining GitLab, compilation of the final report		
Expected results		
Effective, transparent, and valuable management structures and processes.		
Milestones & Deliverables		
M3: Mid-term presentation M4: Submitted project overview document M11: Final presentation M12: Compilation of project report D2: Mid-term presentation D3: Project overview document D8: GitLab documentation D9: Final presentation D10: Final project report		

WP 1	Topic and Data Identification	10.10.2023 - 15.11.2023
WP Lead		**WP team**
Noah Greupner		Stamatina Tounta
Objectives		
The objectives are to find an interesting topic on migration, identify appropriate data to communicate and define stakeholders in the form of proto personas.		
Content & Tasks		
• Decide on a topic that fits our interest, the current world challenges, and sufficient data are available		

- Search for available datasets regarding migration through official and reliable organizations (e.g. United Nations, Eurostat etc.)
- Select an Area of Interest
- Identify appropriate datasets that correspond to our topic, for both demographic parameters and (administrative) geodata
- Select a time period / time steps
- Download datasets - considering the parameters they provide, their size, and time limitations for pre-processing and integration
- Define a stakeholders / proto personas to which the dashboard is communicated

Expected results

- Come up with a topic regarding a specific country or countries, the population that we would like to study/monitor (e.g. migrants, refugees, asylum seekers), the timeframe and the target group/stakeholders for our final product (dashboard)
- Obtain a dataset containing different demographic parameters and a geographic dataset that can be joined with the first.

Milestones & Deliverables

M1: Topic and stakeholder identification

M2: Data collection

D1: Project idea document

WP 2	**Data Processing**	**11.11.2023 – 05.01.2024**
WP Lead		**WP team**
Stamatina Tounta		Noah Greupner

Objectives

Data pre-processing and integration into a Database Management System (DBMS)

Content & Tasks

- Check the data quality and identify possible challenges for their processing and overall usage
- Decide on software to be used for data preparation (e.g. R or Python) and import into the PostGIS DB (e.g. QGIS or ArcGIS or through the pgAdmin 4 command line)
- Prepare the IDPs data
- Prepare the administrative Boundaries dataset
- Join with administrative boundaries-data geocoding
- Select the DBMS, probably PostgreSQL, that will be used
- Decide on how the data will be imported, e.g. individual tables for each timestep or combine (additional timestep column would be needed), keep each variable separately or combine
- Import the data into the PostGIS database

Expected results

Nicely organized and pre-processed dataset(s) in the DBMS that are ready to be published as services. Also, create a geospatial catalogue that describes the datasets.

Milestones & Deliverables
M5: Data preparation M6: Integration of data in DB D4: Database with ready-to-publish data

WP 3	Services Creation	10.12.2023 - 20.12.2023
WP Lead		**WP team**
Noah Greupner		Stamatina Tounta
Objectives		
Publish web services that can be shared across different software and platforms.		
Content & Tasks		
• Define the services needed (OGC WMS & WFS, ArcGIS Image & Feature Layer) • Decide on service host (Geoserver, ArcGIS Server etc.) • Publish web service(s)		
Expected results		
• Published web services containing our migration geodata		
Milestones & Deliverables		
M7: Establish Web Service(s) D5: Published Web Service(s)		

WP 4	Data Communication	21.12.2023 – 15.01.2024
WP Lead		**WP team**
Stamatina Tounta		Noah Greupner
Objectives		
Communicate the data in an appropriate way, which is tailored to the stakeholders. The final product will be an interactive dashboard integrating and geospatially visualizing the migration data.		
Content & Tasks		
• Decide on a software/platform • Design dashboard layout • Describe the data according to ISO 19115 metadata standard & publish it in XML format (ISO 19139:2007) to a geospatial catalogue • Integrate data into the dashboard and display them using maps and graphs		
Expected results		
A spatiotemporal dashboard visualizing Sudanese internal migration movements and additional statistics for UN decision-makers.		

Milestones & Deliverables
M8: Design dashboard
M9: Describe and publish metadata
M10: Integration of data into dashboard
D6: Published metadata in geospatial catalogue
D7: Published dashboard

Milestone plan

	Name	Date Completion
M1	Topic and stakeholder identification	10.11.2023
M2	Data collection	15.11.2023
M3	Mid-term presentation	28.11.2023
M4	Submitted project overview document	03.12.2023
M5	Data preparation	06.12.2023
M6	Integration of data in DB	10.12.2023
M7	Establish Web Service(s)	20.12.2023
M8	Design dashboard	30.12.2023
M9	Describe and publish metadata	05.01.2024
M10	Integration of data into dashboard	15.01.2024
M11	Final presentation	23.01.2024
M12	Compilation of project report	31.01.2024

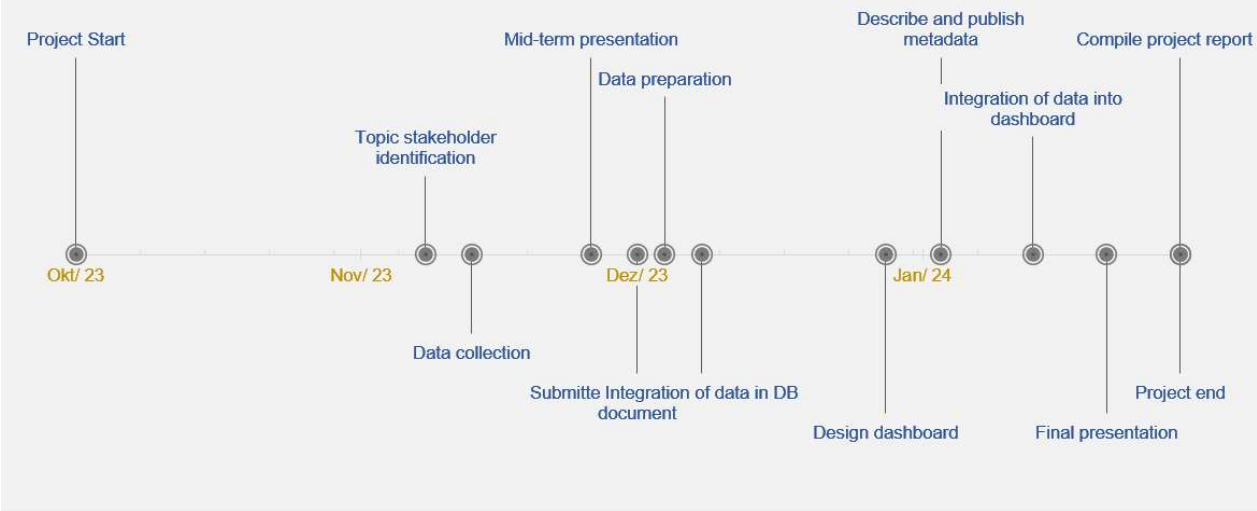

Figure 1 Milestones

Gantt Chart

Tasks	Responsible	Start	End	Days	Status
Project Management					
"Project overview" maintenance	Noah	10-Oct	31-Jan	113	In progress
GitLab maintenance	Matina	11-Oct	31-Jan	112	In progress
Topic and Data					
Set topic	Noah	10-Oct	16-Oct	6	Complete
Find data	Matina	10-Oct	31-Oct	21	Complete
Define stakeholders	Noah	31-Oct	15-Nov	15	Complete
Data Processing					
Data pre-processing	Noah	11-Nov	5-Dec	24	In progress
Integration in DBMS	Matina	6-Dec	10-Dec	4	Not started
Services					
Services definintion	Noah	11-Dec	13-Dec	2	Not started
Services creation	Matina	14-Dec	18-Dec	4	Not started
Communication					
Decide on communication platform	Matina	21-Dec	22-Dec	1	Not started
Layout design	Noah	23-Dec	30-Dec	7	Not started
Metadata	Matina	15-Dec	5-Jan	21	Not started
Data integration	Matina	1-Jan	15-Jan	14	Not started
Documentation					
Report compilation	Noah	16-Jan	31-Jan	15	Not started
Submission		31-Jan	31-Jan		

Figure 2 Gantt Chart

Risk matrix

	Risk	Mitigation Strategy	Type	Update
1	No appropriate data	Adapt topic	L	03.11.2023
2	Raw data inconsistency	Manipulation of datasets to achieve uniformness	M	26.10.2023
3	Data integration in database	Search online for the most efficient way to handle that	H	29.11.2023
4	Data integration in dashboard	Formulate data to ensure dashboard functionality	M	29.11.2023

Additional comments

Comments

Approval

Approval		
Approval:	Date:	04.12.2023

	
Signature principal investigator	Signature project lead/contractor

Workload distribution

Describe the team workload distribution in % per WP

WP0: ST = 50%; NG = 50%

WP1: ST = 60%; NG = 40%

WP2: ST = 30%; NG = 70%

WP3: ST = 50%; NG = 50%

WP4: ST = 40%; NG = 60%

WP5: ST = 70%; NG = 30%

Attachments

Attachment 1: Gantt Chart (monthly updated).