

Open Cities Africa – Ngaoundéré





Webex Meeting

By:

NGAOUNDERE TEAM

ACAGER

Ngaoundéré, August 05, 2019, 2-3 pm



PLAN

- PROBLEM AND REMINDER OF THE TERMS OF REFERENCE
- AGREEMENT-FRAMEWORK OF PARTNERSHIP BETWEEN MINHUD AND MINHE
- MAIN ACTIVITIES AND METHODS
 - ACTIVITY LAUNCH WORKSHOP
 - TRAINING OF EXPERTS AND STUDENTS IN PARTICIPATORY AND FREE MAPPING
 - DIGITALIZATION (JOSM)
 - UAV COVERAGE (DRONE)
 - PARTICIPATORY DATA COLLECTION (QFIELD ON TABLET)
 - GIS DATABASE DESIGN (QGIS)
 - PRODUCTION OF CARDS
 - RESTITUTION IN THE NEIGHBORHOODS: QUALITY CONTROL AND CORRECTION
- MAIN RESULTS
 - THE MAPS PRODUCED
 - THE PROBLEMS IDENTIFIED AND PROPOSED SOLUTIONS
 - RESTITUTION IN YAOUNDÉ
 - RESTITUTION TO THE CITY COUNCIL
 - RESTITUTION AT THE UNIVERSITY
- CONCLUSIONS
 - SUSTAINABILITY OF THE PROJECT
 - TRAINING OF MAPPERS
 - DEVELOPMENT OF THE GEO-RISK APPLICATION
 - IMPLEMENTATION OF THE RECOMMENDATIONS BY THE POPULATIONS: CASE OF SABONGARI 3 NEIGHBORHOOD

I PROBLEM AND REMINDER OF THE TERMS OF REFERENCE






Recurring floods

<https://opencitiesproject.org/ngaoundere/>


<https://opendri.org/cartographie-libre-ngaoundere-changement-climatique/>



Rock falls








Open Data for Resilience Initiative




Global Facility for Disaster Reduction and Recovery

The team in charge of implementing this project in Ngaoundéré had to achieve the following objectives:

- 1) Create and/or collect and disseminate open space spatial data on built space, critical infrastructure and natural hazards;**
- 2) Design targeted products and/or tools (such as visualization tools, Atlas, Card Series or Mobile Applications) to help key stakeholders use risk information to combat natural disasters;**
- 3) Strengthen the local capacity of the institutions needed to support the design and implementation of interventions to increase resilience of the city on the basis of evidence;**













Open Data for Resilience Initiative



Global Facility for Disaster Reduction and Recovery

- 4) Promote the provision of peer counseling and strengthen regional networks between cities.**
- 5) Participatory mapping efforts were also requested for urban addressing with the identification of urban amenities such as: public buildings, community social amenities, market facilities, leisure facilities, culture and transport networks (railways), civil society structures (NGOs) related to flood risk.**

2

AGREEMENT-FRAMEWORK OF PARTNERSHIP BETWEEN MINHUD AND MINHE



REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie

REPUBLIC OF CAMEROON
Peace-Work- Fatherland

**ACCORD-CADRE DE PARTENARIAT
ENTRE**

**LE MINISTRE DE L'HABITAT ET DU DEVELOPPEMENT URBAIN,
ET
LE MINISTRE DE L'ENSEIGNEMENT SUPERIEUR**

**POUR L'APPUI A LA PROFESSIONALISATION DES ENSEIGNEMENTS, AU
RENFORCEMENT DU DISPOSITIF DE FORMATION ET A LA RECHERCHE
DANS LES DOMAINES DE L'ARCHITECTURE, DE L'URBANISME, DE
L'AMENAGEMENT ET DEVELOPPEMENT URBAINS, ET EN GEOMATIQUE
DANS LES UNIVERSITES D'ETAT**

ENTRE LES SOUSSIGNES

LE MINISTRE DE L'HABITAT ET DU DEVELOPPEMENT URBAIN (MINHDU) représenté
par son Ministre, Monsieur Jean Claude MBWENTCHOU,
Adresse : Immeuble ministériel N ° 1, Yaoundé-Cameroun
Tel 237) 222 217 212
Far. (237) 222 219 915 E-mail: minduhsec@yahoo.fr
d'une part,
ET

LE MINISTRE DE L'ENSEIGNEMENT SUPERIEUR (MINESUP), représenté par son
Ministre, Monsieur Jacques FAME NDONGO,
Adresse : Immeuble ministériel N ° 2, BP 1739 Yaoundé-Cameroun
Tel 237) 222 221 370
Fax: (237) 222 229 724
Site web: www.minesup.gov.cm
E-mail : sdacl@minesup.gov.cm
d'autre part,






3 MAIN ACTIVITIES AND METHODS




LAUNCH OF THE PROJECT ON 27/07/2018 AT THE NGAOUNDÉRE CITY COUNCIL








Open Data for
Resilience Initiative



Global Facility for Disaster Reduction and Recovery

LAUNCH OF THE PROJECT ON 27/07/2018 AT THE NGAOUNDÉRE CITY COUNCIL

REPUBLIQUE DU CAMEROUN
Paix - Travail - Patrie
COMMUNAUTÉ URBAINE DE
NGAOUNDÉRE



NGAOUNDÉRE URBAIN
COUNCIL

UNIVERSITÉ DE NGAOUNDÉRE
COURRIER ARRIVÉE
Arrivée Le 27 JUIL 2018
Série No. 3277

Le Délégué du Gouvernement auprès de la
Communauté Urbaine de Ngaoundéré

PROJET: « Initiative Libre accès aux
données pour promouvoir la résilience -
ville résilientes en Afrique »

23/7/18
Prof. Tchotsoua
No. 23/18

Le Recteur de l'université de
Ngaoundéré

Objet: Invitation à l'atelier de consultation et d'information des parties prenantes



Madame,

La Banque mondiale soutient Ngaoundéré pour relever certains défis de
résilience urbaine à travers le Projet de **Développement des Villes Inclusives et
Résilientes (PDVIR) en Afrique**, mis en œuvre au Cameroun par le Ministère de
l'Habitat et du Développement Urbain (MINHDU).





En vue de démarrer la collecte des données dans le cadre de ce projet à
Ngaoundéré, j'ai l'honneur de vous inviter à prendre part à un important atelier
de sensibilisation et d'information qui aura lieu le **Vendredi 27 juillet 2018** à
partir de **8 heures au Bois de Mardock**.

L'objectif principal de cette rencontre est de vous présenter plus en détail le
projet, son déroulement ainsi que les résultats attendus. Nous serons très
heureux que vous puissiez y participer pour rehausser, par vos contributions,
le retentissement des travaux. Vous trouverez en pièce jointe un extrait des
Termes de Références de l'atelier.




Vous remerciant de l'honneur que vous voudriez bien nous faire, en nous
faisant profiter de vos expériences, je vous prie d'agréer, Madame, Monsieur,
l'expression de ma très haute considération.




UNIVERSITÉ DE NGAOUNDÉRE
CABINET DU RECTEUR
COURRIER DÉPART
Le 27 JUIL 2018
Série No. 1036
Rectorat



Madam Rector of the University is represented by Prof. Tchotsoua, Director of the Laboratory of Geomatics and Scientific and Pedagogical Manager of the Master 2 in Geomatics, Planning and Resource Management created in 2010 and trains students from several African countries and beyond the continent. (<http://gager-undere.auf-foad.org>)




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Resilience Initiative







Global Facility for Disaster Reduction and Recovery

LAUNCH OF THE PROJECT ON 27/07/2018 AT THE NGAOUNDÉRE CITY COUNCIL



The Ministry of Supervision of this project was represented by Mr. Jean Julius Tsasse only because of the cancellation of the flight camer-co. He had also come by road with Mr. Willy Franck Sob of SOGEFI, partner requested for the implementation of the project.





TRAINING OF EXPERTS AND STUDENTS IN PARTICIPATORY AND FREE MAPPING



PW by the Cameroonian Team during the workshop in Kampala



Group practice at the Zanzibar workshop



Presentation of activities at the Dar Es Salam workshop



It has been done both in Ngaoundéré and abroad, especially in Kampala, Dar Es Salaam and Zanzibar.

The first Open Cities Africa Project (Kick-Off Event) was held June 11-15, 2018 in Kampala, Uganda.

To this end, an online training platform (<https://opencitiesafrica.course.cc>) was created and this workshop enabled the World Bank facilitators to present it. The organizers have made it clear that the courses of this platform (including their various presentations) are free to access and can be used in whole or in part for training courses in universities or organizations.



TRAINING OF EXPERTS AND STUDENTS IN PARTICIPATORY AND FREE MAPPING





All training received abroad has been returned to selected students and civil society leaders in the city neighborhood according to their commitment to the success of the project.

The OpenStreetMap site in abbreviated OSM is: <https://www.openstreetmap.org/>

OSM-Analytics (www.osm-analytics.org): The HOT Task Tool (<https://www.hotosm.org>) specializes in managing the tasks of collaborative mapping projects through the tool OSM Tasking Manager (<http://tasks.hotosm.org>). (<http://fieldpapers.org>).





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Global Facility for Disaster Reduction and Recovery

COLLECTING DATA WITH JOSM ON THE INTERNET AND IN THE FIELD WITH SPECIALIZED APPLICATIONS



Processing and quality control of buildings vectorized under JOSM



Field surveys with the QFIELD application under Tablet





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Global Facility for Disaster Reduction and Recovery

COLLECTING DATA WITH JOSM ON THE INTERNET AND IN THE FIELD WITH SPECIALIZED APPLICATIONS



Observations and surveys of residents of Sabongari 3



Participatory mapping, identification of flood risk areas in Mardock neighborhood







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Global Facility for Disaster Reduction and Recovery

QUALITY CONTROL AND MAPS VALIDATION



Correction and validation of Sabongari 3 neighborhood map



Photo after correction and validation of the map of Sabongari America







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DATA COLLECTION WITH JOSM ON THE INTERNET AND IN THE FIELD WITH SPECIALIZED APPLICATIONS



Launch of the UAV to cover the Zone of Interest



9



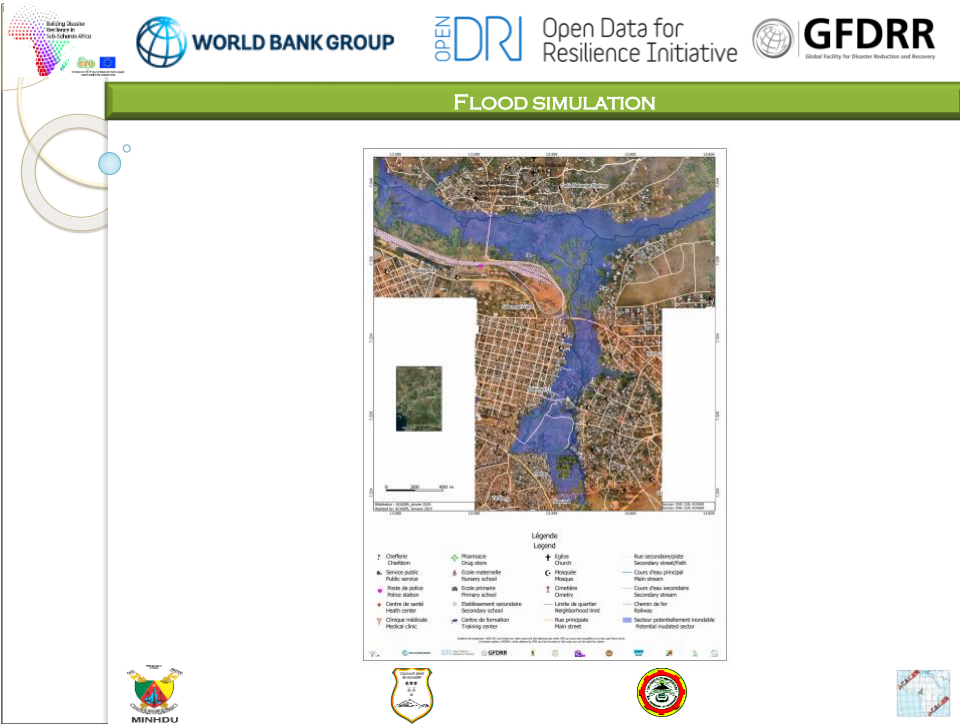
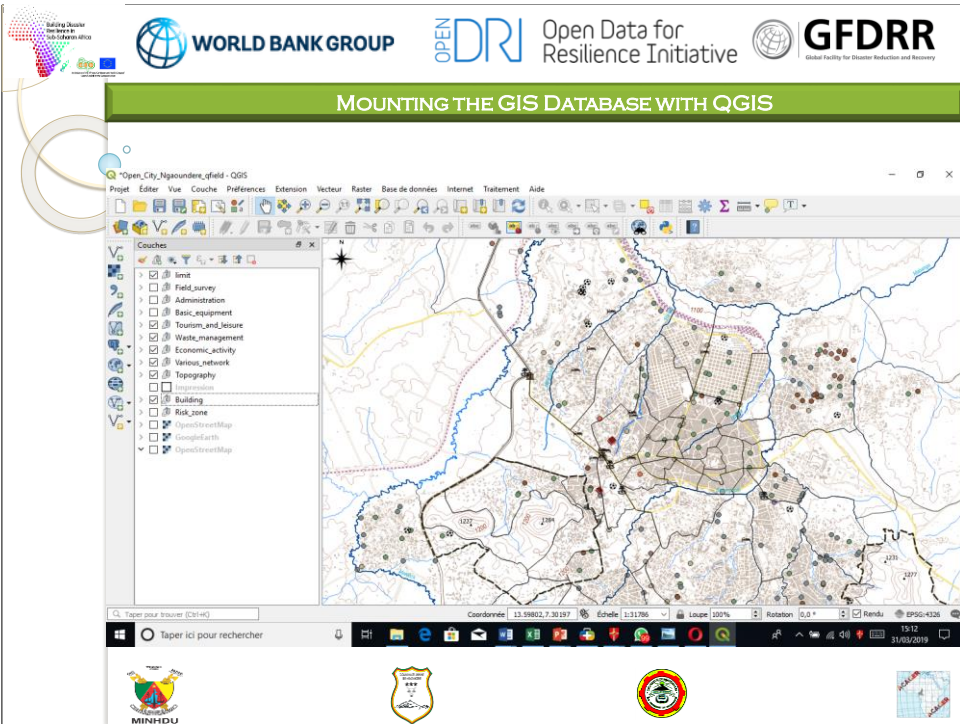
4

RESULTS

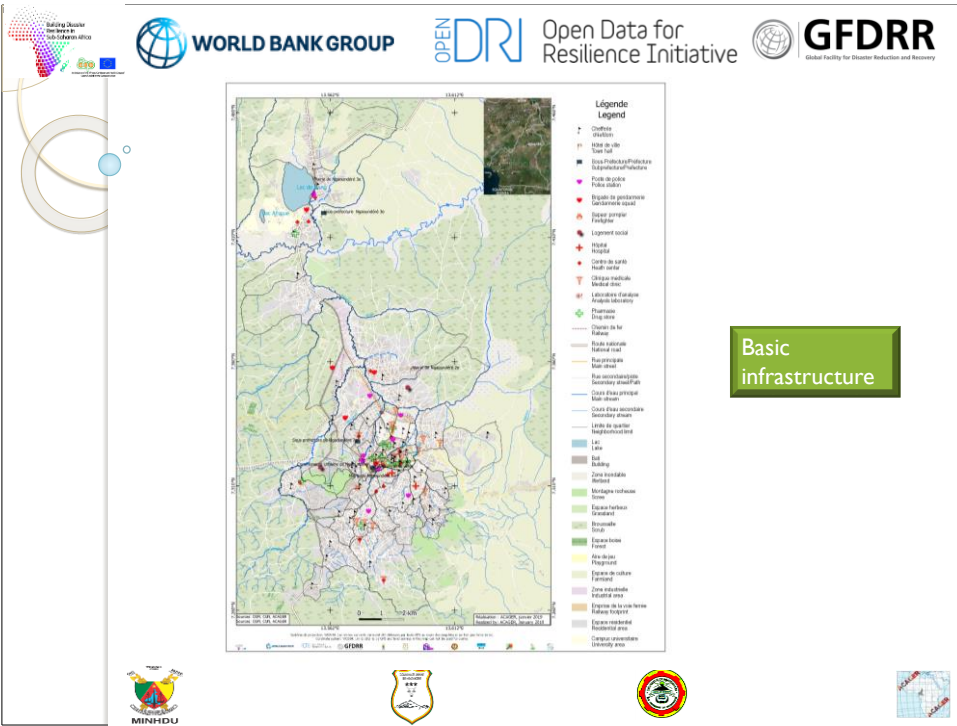


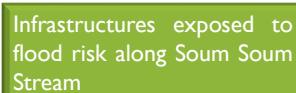
4.1






NGAOUNDÉRE - GIS DATABASE















Stream Length in km: **7.45**
Flow direction: **S - N**

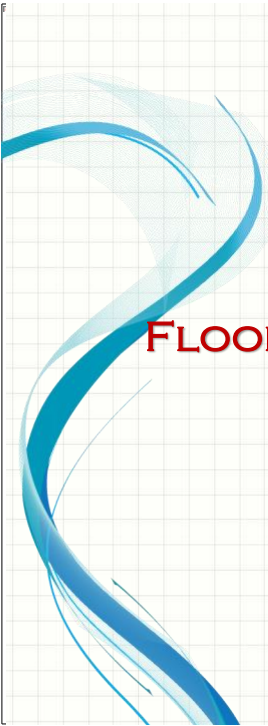
- Flood prone area in ha: **109.59**

Number of exposed buildings: **1313** including **1** service station, **3** mosques, **1** primary school, **1** football field and **1** prison.
Number of regularly impacted buildings during the raining season: **238 (18.13%)**
Number of deaths related to floods during the last 3 years: **7**
Mapped Ward in the area : **Aoudi, Camp Norvégien, Nord CIFAN, Sabongari 3 and Sabongari América.**

During the last 3 years, we can see that the impacts of the floods are increasing. This suggests that if nothing is done, both at the level of the resident populations (better organization and strengthening of the activities of the Neighborhood Development Committees (NDC) with regard to the fight against the floods), that at the level of the decision-makers it is it is very likely that the consequences of flooding will double over the next 3 years.

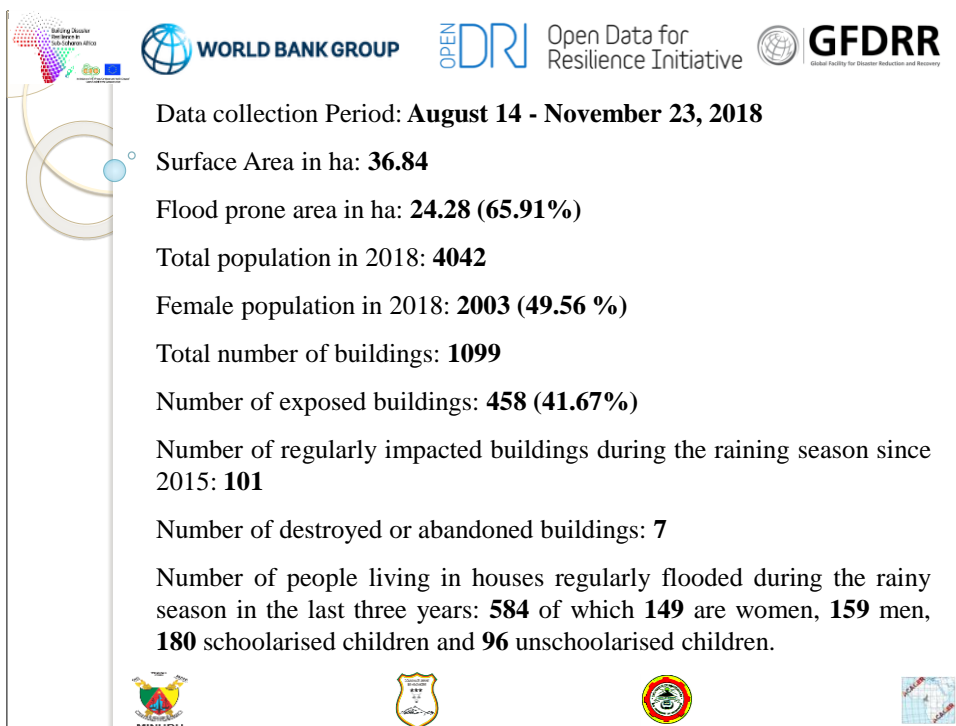
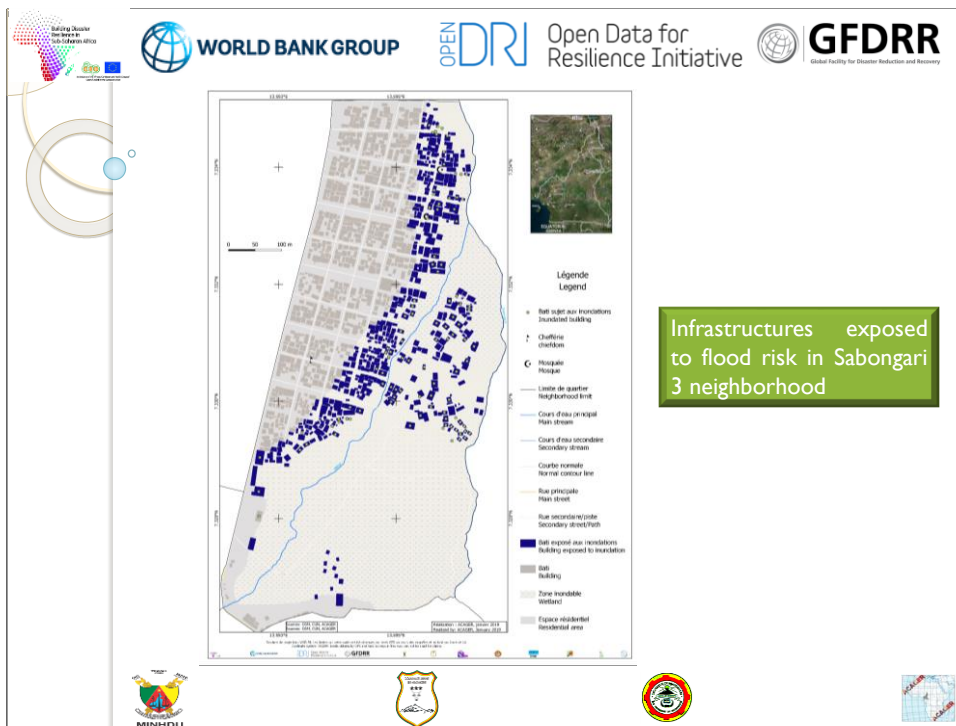
Following these observations, we propose, for the most affected neighborhoods in the Soum Soum watershed, a certain number of actions / activities to be undertaken both by the populations and by the administrative and municipal authorities. This is the example of **Sabongari 3**.











4.3

FLOOD RISK INFRASTRUCTURE BY NEIGHBORHOOD











Recommendations:


For populations impacted or potentially impacted, it is suggested:

- Awareness by Sabongari 3 Neighborhood Development Committee (NDC) to good management of household waste;
- Set up an alert system in the Sabongari 3 Neighborhood through whistles, social networks or Short Message Service (SMS);
- Encouragement of the planting of trees including fruit plant whose roots can contribute to the fight against bank erosion.

Decision-makers must:

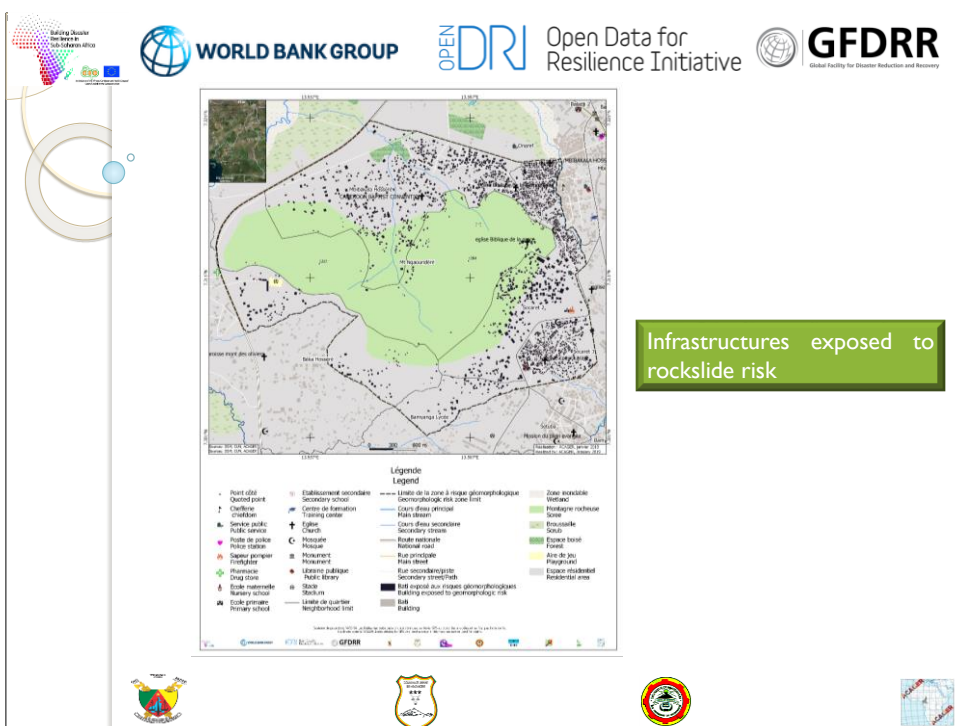
- Intensify awareness of good waste management in the Sabongari 3 Neighborhood ;
- Fight against construction in the flood risk zone of the Sabongari 3 Neighborhood;
- Mark on the field with the populations of the Sabongari 3 Neighborhood the flooding risk sector;
- Create a green belt in the Sabongari 3 neighborhood look after by its people.










4.4

INFRASTRUCTURES AT RISK OF ROCKSLIDE









Data collection Period: **August 14 - December 5, 2018**






Risk area in ha: **366.57**

Total number of buildings: **5937**

Statistics per Neighborhood:

Neighborhood name	Total number of buildings	Number of exposed buildings	Percentage of exposed buildings
Bamyanga Lycée	625	69	11.04
Béka Hosséré	1604	111	6.92
Mbibakala Hosséré	755	755	100.00
Mont Ngaoundéré	93	93	100.00
Onaref	1123	580	51.65
Socaret 1	1284	623	48.52
Socaret 2	453	450	99.34
Mount Ngaoundéré zone	5937	2681	45.16









Our field surveys show that **90.35%** of the inhabitants of the Mount Ngaoundéré area are not aware of the risks. For those who are aware of this, the risks of falling rock (**54.44%**), landslide (**37.78%**), collapse (**6.67%**) and gully (**1.11%**) are respectively the best known.




In terms of risk adaptation strategies developed by the inhabitants of the Mount Ngaoundéré area, 64.71% of respondents are for earthworks and 35.29% are for the construction of retaining walls for the remaining.

The following actions are recommended:


- Stabilization in situ of the blocks likely to hurtle on slopes;
- Demarcation or materialization in the field using concrete slabs specifying the type or **types of geomorphological risks of the zone;**
- Fight against **water erosion by dense root matrix trees planting and building stone biefs in gullies.**














Open Data for
Resilience Initiative




The Atlas is the synthesis of the requests made by the stakeholders:


- **the Ngaoundéré City Council expressed the wish to have maps for planning and urban development;**
- **people living in the flooded areas have expressed the desire to have maps of their neighborhood to monitor activities and react promptly in case of floods;**
- **the University wished to have a platform in which these data must be stored in order to allow the students to better exploit them in their various scientific works.**






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Resilience Initiative








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Global Facility for Disaster Reduction and Recovery


In Ngaoundéré, as in most African cities, urbanization is at two speeds. The city of law rubs shoulders with the city of fact, where the normative runs far behind the spontaneous (Tientcheu Njiako, 2003).

New neighborhoods are created spontaneously and organized in the peri-urban area. There is urban equipment and agropastoral activities in particular in the floodplain and on the rocky slopes.


The *Open Cities Africa-Ngaoundéré* project has produced a spatially referenced information system.






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Resilience Initiative







GFDRR
Global Facility for Disaster Reduction and Recovery

From the cartographic data compiled in a Geographic Information System, the Open City Project in Africa :

- **made available to the city of Ngaoundéré decision support tools for the prevention and implementation of disaster action plans,**
- **strengthened the capacity of local people to perceive and manage the risk of flooding and rockfall in the city of Ngaoundere, and**
- **forged new partnerships between different stakeholders.**




- **The deployment of this project at least in the country's regional capitals in its first phase is highly desirable.**



5


SUSTAINABILITY OF THE PROJECT






Open Data for Resilience Initiative






Global Facility for Disaster Reduction and Recovery



Presentation of the project results to the students of the University of Ngaoundéré









Training of student mappers for the operation "Useful holidays".
Introductory Session July 25, 2019





Georisk principle test
<https://www.mboageek.com/georisk/>



Do you want to know if you
are in flood danger ?

Check my position status

© 2019 ACAGER. Une idée du Pr Tchotsoua | Réalisé
par Mboageek

Development of the GEO-RISK Application





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Implementation of the recommendations by the populations





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International Conference on Canadian, Chinese & African
Sustainable Urbanization (ICCCASU)

Ottawa, March 22, 2019

Michel Tchotsoua
University of Ngaoundere, Cameroon
Email: tchotsoua@gmail.com
Number of registration: GMVGA

Subject: Formal Acceptance Letter for participating in ICCCASU III in Chengdu, China

Dear Michel Tchotsoua,

It is our pleasure to inform you that your oral presentation proposal has been accepted into the conference program of the 3rd International Conference on Canadian, Chinese and African Sustainable Urbanization (ICCCASU III), which will be held in Chengdu, China from July 15 to 17, 2019. In collaboration with UN-Habitat, the China Center for Urban Development (CCUD), and the government of Chengdu as the host, ICCCASU III will look broadly at issues cities face in the rapidly urbanizing areas of the world under the theme of "Belt, Road & Node: New Influences & Paradigms in City Building".

To show our appreciation to your support, we suggested the Chinese local committee to provide you 3-day accommodation. Starting middle April, you will receive another invitation letter from Chengdu Government for the visa and accommodation confirmation. For all information about ICCCASU III, please visit at WWW.ICCCASU2019.ORG.


We are looking forward to meeting you in Chengdu, China in July.

Kind regards,




Huihua Cao, PhD.
Co-president of the ICCCASU conference
Professor of Urban Studies and International Development
University of Ottawa, Canada






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**MINISTÈRE ENSEIGNEMENT
Supérieur**

SERVICE : UNIVERSITÉ DE

NGAOUNDERE

IMPUTATION BUDGÉTAIRE

Budgetaire charge

Mission Sans Frais

Exercice 2019

ORDRE DE MISSION

MISSION ORDER

M. TCHOTSOUA

Michel

Prénoms first names

**REPUBLIQUE DU CAMEROUN
REPUBLIC OF CAMEROON**

*(Date: Thwait-Patrick
Prenoms: Thwait-Patrick)*

Situation des crédits

Donation

Depenses engagées

Engagement proposé

Reliquat disponible

Grade : **Professeur** Affiliation : **Enseignant à la Faculté des Arts, Lettres et Sciences Humaines de l'Université de Ngaoundere**

Rank : **Unit**

Matricule : **1400** Situation de la famille : **Index**

Service number : **Family situation**

Se rendre à : **CAIRE (EGYPTE)** En passant par : **Via**

Motif et références : **Formation des participants au colloque Intersol 2019 à la construction d'une ville intelligente à partir de l'expérience de Ngaoundere.**

Purpose and references

Accompagné de : **Train/Avion** *Nom, Prénoms - name, first names*

Accompanied by:

Moyen de transport : **TRAIN/AVION** *Means of transport*

Date de départ : **10 février 2019** Date de retour : **18 février 2019**

Date of departure *Date of return*

DELIVRE PAR NOUS

ISSUED BY US

Recteur de l'Université de Ngaoundere

fonction - function

A (At) NGAOUNDERE

01 FÉV 2019

Qualité Prof. CNU France

le (on the) (signature)

Dr. Thwait-Patrick

DECOMPTES DES AVANCES - DETAILS OF ADVANCES

AU DÉPART - AT DEPARTURE

INDICATEUR JOURNALISER	NOMBRE	Taux	DECOMPTÉ
Daily allowance	Number	Rate	Sub-total
Normale - Normal			
Réduite - Reduced			
Partielle - Partial			
TOTAL			

EN ROUTE

INDICATEUR JOURNALISER	NOMBRE	Taux	DECOMPTÉ
Daily allowance	Number	Rate	Sub-total
Normale - Normal			
Réduite - Reduced			
Partielle - Partial			
TOTAL			

ARRÊTÉ A LA SOMME DE

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

Open Cities Africa – Ngaoundéré's Perspective








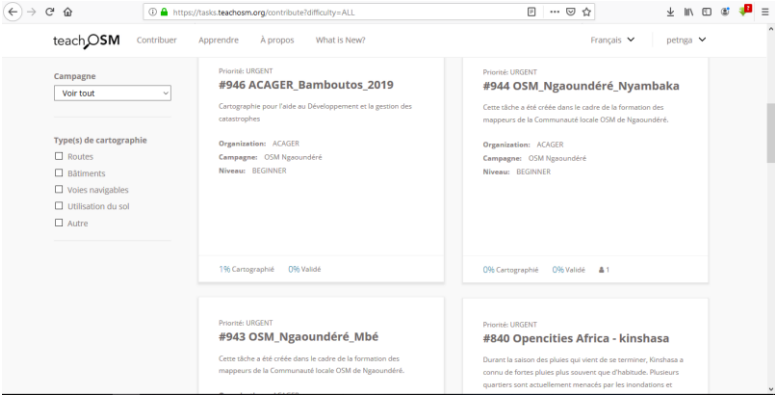








Training of 35 student mappers within the framework of "Useful Holidays" who are practicing OSM mapping from "Tasking Manager" tasks of Bamboutos, Nyambaka, Mbé and Garoua.














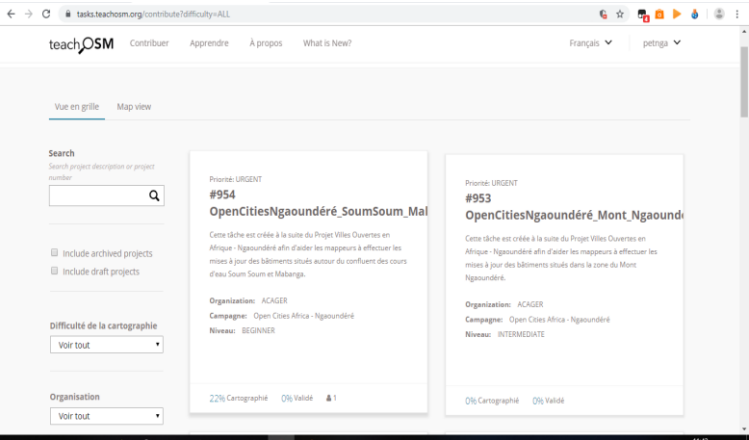








OSM Collaborative Mapping Training and provision of practical materials to teachers of the Geography Department of Ngaoundéré University to enable them to integrate them into their teaching.









"Tasking Manager" tasks in areas covered by UAV (confluence of Soum Soum and Mabanga streams, Mont Ngaoundéré), and updated buildings in progress.




The screenshot displays the teachOSM web application. The header includes logos for the World Bank Group, Open Data for Resilience Initiative (ODRI), and GFDRR. The browser address bar shows the URL tasks.teachosm.org/project/954. The page content includes sections for 'Instructions', 'Entities to map' (listing 'building'), 'Changeset Comment' (with the text '#teachosm-project-954'), and 'Imagery' (providing a URL to an OpenStreetMap image). A map on the right shows a grid overlay with yellow buildings, blue streams, and a legend indicating 'Ready', 'Mapped', 'Validated', and 'Invalidated' status. The bottom of the slide features logos for the Ministry of the Interior, the Ministry of the Environment, and the Ministry of the Economy.

Difficulties and suggestions






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
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Difficulties


- Internet connection: not always easy connection;
- Very weak means of compensation;
- Lack of means for GPS tracks, ie. Field verifications;
- Low reliability of Bing Imaging and World ESRI.

Suggestions


1. Purchase of UAV.
2. New project focus on Ngaoundéré city data updates, the mapping of the other 3 sites (Mbe, Nyambaka and Mbouda), and the training of the mappers on use of collaborative mapping tools and on piloting UAVs.






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
Open Data for
Resilience Initiative




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Suggestions

3. A Bilingual Training Center in Geomatics and Collaborative Mapping under the auspices of the Urban Community of Ngaoundéré, mayors of district municipalities and the ACAGER, technical structure, would be a tool for popularization of methods and techniques of geomatics and cartography especially for young people who do not have a level of access to university.
4. It involves training young technicians in geomatics in general and collaborative mapping in particular. These young people, once trained, will be responsible for updating the databases of their neighborhood, Commune and urban community.



5. With this competence, they can be recruited by the Municipalities and the Ngaoundéré Urban City, the Committees of Development of the Neighborhoods. This bilingual Center will extend its impact'sphere to the Northern part of Cameroon, Chad, Central African Republic and even Nigeria.

Thanks

- **All stakeholders of the project;**
- **All the authorities who gave the permissions for the activities and sometimes made available to us logistical means.**
- ***Through this initiative, the University contributes to local development.***

"We have to take things from below as they are on the ground and not from the top as we would like them to be otherwise we do not improve anything" Jean Monnet (1888-1979).

