June, 2014
Issue 1

AfReSlide *Newsletter*

AfReSlide - Landslides in Equatorial Africa:
Identifying culturally, technically and economically feasible resilience strategies

Dear reader,

We are happy to present you the first newsletter of the AfR*e*Slide project. This scientific project - funded by the Belgian Science Policy (BELSPO) - ambitions to contribute to the better understanding of the risks from landslides in Central Africa and to recommend efficient strategies to reduce their impacts considering the local economic and cultural context. Our project focuses its actions on test cases in Uganda and Cameroon.

AfR*e*Slide started in January 2014 with a team composed of 9 researchers from Belgium as well as several scientists from Uganda and Cameroon. You will get to know them all through this first Newsletter. However, our research would be impossible without a **close collaboration with all of you**, policy makers, local and regional representatives, community leaders, NGOs, scientists… You are all familiar with landslides in one way or another. **Your knowledge** of these phenomena, their drivers and consequences is **invaluable** to us. We already met with many of you during several workshops that took place over the last months in the Rwenzori, the Bamenda and the Limbe regions; and we hope to meet and interact with all of you during this project.

You will find in this newsletter a brief overview of the field visits and workshops conducted so far as well as the upcoming actions. Several landslides and flash flood events happened recently, and we thank all of you who contributed with observations. This project is developed for, but also **with the communities** directly affected by landslides. We therefore wish to encourage a continuous communication with all of you, via our website (http://research.vub.ac.be/afreslide), our project email (afreslide@vub.ac.be) and regular newsletters. I encourage you to contact us via email to react to our newsletter, to report any new landslide events or actions taken to tackle this issue. Do not hesitate to disseminate this newsletters within your network and to subscribe to our mailing list.

I thank you for your interest in the AfR*e*Slide project and I hope you will enjoy reading this first newsletter.

Matthieu Kervyn – AfR*e*Slide coordinator

News flash

- May 2014: Recent floods in Kilembe (Uganda) killed four persons and caused damage to public and private infrastructure
- March 2014: Landslides occurred along the newly constructed Bamenda-Wum road (Cameroon)
- June 2014: Landslide destroyed a house at Coconut Island in Limbe (Cameroon)
- AfR*e*Slide website has been installed: http://research.vub.ac.be/afreslide
- Poster presentation at EGU 2014 by Olivier Dewitte

Belgian Science Policy Office
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We need your input!

In case you have information to share about landslides in Uganda or Cameroon, please do not hesitate to contact us!
afreslide@vub.ac.be

Don't forget to subscribe to our newsletter!

Field mission reports

1. The Rwenzori mountains: a first impression (2-10 January 2014)

The Rwenzori mountains in Uganda provided the ideal scenery for the first field mission out of many to come within the brand new AfR*e*Slide project.

The first thing on the agenda was a visit to the local partners in the Rwenzori, at Mountains of the Moon University, where we were warmly welcomed. The outline and planning of the AfR*e*Slide project and the VLIR South Initiative project (focusing on land degradation in the Rwenzori) was discussed.

Figure 1: Kilembe flash flood (Jacobs, 2014)

One of the first field sites visited, namely the Kilembe flood, immediately set the scene. Here a flash flood happened on 1st May 2013. There were 8 casualties, at least 10 houses and 2 bridges were destroyed and the road was washed away. Up to 10 m size boulders are distributed all along the river channel and in the villages (see picture). The possible causes of this flashflood are under discussion however a link to landslide activity upslope is likely.

The second field excursion, in Bundibugyo confirmed the hypothesis that the Rwenzori is indeed a hotspot for natural disasters. Recent landslides in Kivumya sub-county (see picture) were visited. The slides were clustered in the Nyangasa village and occurred from August to October 2013. A subsurface water pipe between a water tank and some houses had broken down, several houses being destroyed and the road blocked. Furthermore, in November 2002, a landslide occurred in Ntandi village, Kasitu sub-county, and caused a diversion of the river, a debris flow and a flash flood destroying part of the village. The number of casualties was around 18. Large boulders are still visible throughout the village. Finally, in Mahango sub-county, several landslides were observed. Since 2011, already 12 fatalities caused by landslides had been reported here.

These field observations early in the project made it very clear that landslide risk assessment is very relevant for the Rwenzori. This was confirmed during the workshop organized together with the officials of Kasese District where the project was well received and their concerns for future events clearly expressed.

Figure 2: Landslide at Kivumya sub-county (Vranken, 2014)

2. First anthropological fieldwork of Astrid de Hontheim (14 February - 20 March 2014)

The first anthropological fieldwork took place from 14 February to 20 March 2014, in the Rwenzori mountains, Uganda. Our anthropologist Dr. Astrid de Hontheim stayed with local families in Mahango (Mahango sub-county), Ruboni (Bugoye sub-county) and Bundibugyo. The research was mostly held among the Bakonzo people, the main cultural group living in the region, and took place in English with various lhukonzo-speaking facilitators. The research focused on cultural representations related to landslides and casualties associated to natural disasters, causalities and calamities, in particular when connected to cosmologies and to human negotiations with cultural beings. Other topics such as land rights, land use, land conflicts and land boundaries were also explored, notably trees both heavily significant culturally and traditionally used for demarcating plot boundaries. A strong highlight was made on cosmologies and storytelling. Traditional authorities (ridge leader *isemalhambo,* traditional landlord *owukulhu wawulambo*), ritual specialists (traditional healer *omuthahwa*, foreseer *omurahuli*, rain maker *omuhangyi* among others) and victims of landslides showed an enthusiastic interest in cooperating with the anthropological survey. In addition to the in-depth study of what precedes, the next fieldwork will also take into account the relationship between the mukonzo royalty, the dispense of justice - more specifically when related to land issues - and ritual activity explicitly performed to deal with calamities.

Traditional authorities, ritual specialists and victims of landslides showed an enthusiastic interest in cooperating to the anthropological survey

3. Exploring NW and SW Cameroon with AfReSlide partners (17-28 May 2014)

Rural and urban environments, the sea side and the inland, deep-seated and shallow landslides… The mission to Cameroon was without doubt one filled with numerous interesting observations and conversations, valuable insights and countless ideas shared.

Our journey started in the city of Bamenda, where no time was wasted and a workshop was organized upon our arrival with participants from the policy makers, NGOs, teachers, and administrators. After presenting the project and giving some background information about landslides, group discussions were held to discuss the causes and hot spots of landslides, the impact it has on people and how they cope, and the strategies they use to reduce landslide risk. The hotspots identified, the area around 'Sisia' and 'First Palace' were visited immediately after the workshop.

The next day, a visit was made to the Bamboutos caldera. Landslide upon landslide, we were impressed by both the density of the landslides as well as the beautiful scenery in this region (see picture). This rural area is characterized by a strong focus on 'cash crops'. With major events in 2003 and clear indications of numerous recent slides, this area is definitely an interesting region to take into account throughout the project. Contacts with Dschang university, which is very active in this regions, were established to ensure synergies and useful collaboration.

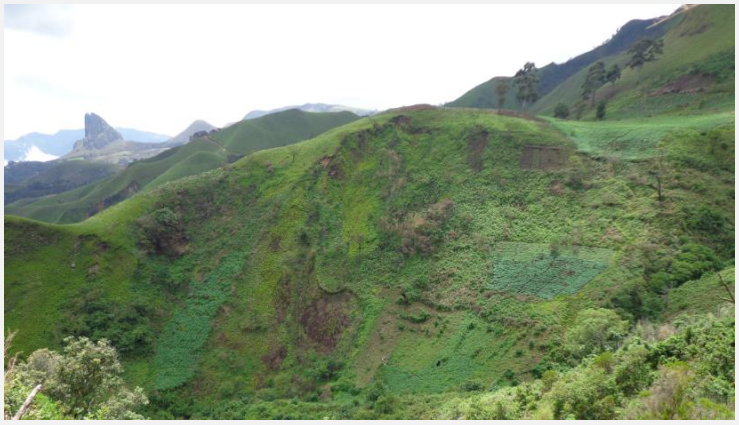


Figure 3: Landscape at Bamboutos (Vranken, 2014)

Afterwards we moved from the inland to the coastline, to another volcano: Mount Cameroon in Limbe. At the village 'Mile 4' we could observe many landslides in the palm plantations. In Limbe itself, a visit was paid to Mabeta New Layout where the scars of 4 landslides killing over 20 persons occurring in 2001 were still clearly visible. Finally in Bonjo, a stop was made to observe a large landslide complex on the side of the road.

Apart from observations, numerous conversations made our stay in Limbe extremely interesting. At the University of Buea, old contacts were re-established and new collaborations established. Stakeholders, met during the workshop held in Limbe, greatly helped afterwards in guiding us through the –at times complex- structures of governance as well as navigating us through the field.

We would like to thank you all for contributing to the success of this first mission.

Upcoming missions & conferences

This year, research will be mainly based in Uganda:

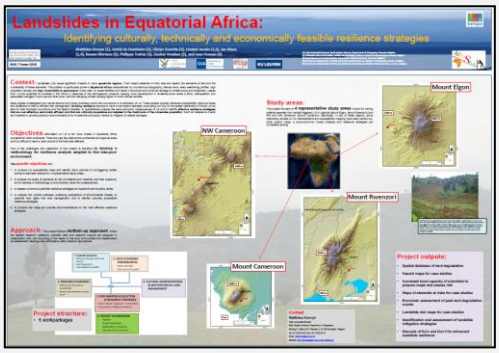
- Astrid de Hontheim: second anthropological fieldwork in the Rwenzori of one month starting from 15th July 2014.
- Jan Maes, Lies Jacobs and Kewan Mertens: first fieldwork in the Rwenzori from the end of July until the end of October 2014. Jan Maes and Kewan Mertens will first travel to Mount Elgon and Kampala from the 20th of July 2014. From August onwards, the 3 PhD students will conduct research in Kasese, Bundibonyio and Kabarole districts.
- Jean Poesen, Matthieu Kervyn and Olivier Dewitte will join this fieldwork in Uganda sporadically during that period.
- Olivier Dewitte will present the AfReSlide project at the IAG 17th Joint Geomorphological Meeting in Liege (Belgium) – 2014 and at the 25th Colloquium of African Geology (CAG25) in Dar es Salaam (Tanzania) – 2014.
- Matthieu Kervyn will give an overview of the AfReSlide project at the 2014 Annual International Conference of the Royal Geographical Society of London (UK).

Many thanks to welcome AfReSlide researchers in your communities!

Output

1. Conferences

Olivier Dewitte presented a poster of the AfR*e*Slide project in a session dedicated to "resilience and vulnerability assessments in natural hazards and risk analysis" at the European Geosciences Assembly (EGU) 2014 in Vienna (Austria). (http://meetingorganizer.copernicus.org/EGU2014/EGU2014-10506.pdf)



2. Workshops

On Wednesday 8th January, Monday 19th and Friday 24th May 2014 workshops were organized in Kasese (Rwenzori, Uganda), Bamenda and Limbe (Cameroon). Each time more than 30 persons from diverse background such as local politicians, academics, representatives of NGOs, cultural leaders and teachers, came together to discuss 3 main questions. Why and where do landslides occur? What are the effects and consequences of landslides? What are applied and potential risk reduction strategies? These discussions were held in small groups.

Google maps and satellite images printed on large formats were used to help for indicating hotspots of landslides during the discussions. The main drivers for landslides were very similar in the 3 areas. Natural factors like steep slopes, rainfall and earthquakes (especially in the Rwenzori and Limbe) were mentioned. However anthropogenic influences like inappropriate land use, unplanned settlements, deforestation, overgrazing and house construction were also seen as major causes. In Limbe it was furthermore mentioned that especially migrants went to live on the steepest slopes but did not know that the slopes around Limbe were unstable. In the Rwenzori a breakdown of cultural beliefs was also seen as a major cause for landsliding.

The main drivers for landslides were very similar in the different areas of interest

As major consequences, in the 3 areas the same conclusions were made. Loss of life, infrastructure and crops, psychological suffering, long-term land degradation, hunger, insecurity, economic damage and displacement were identified as major effects of landslides. Later on, all groups discussed current and potential risk reduction strategies to cope or overcome the disaster. Community sensitization, reforestation, land use planning, more responsible construction of houses and maintenance of waterways or drainage canals were mentioned in the 3 study areas. In the Rwenzori and Limbe, the need for relocation of people was clearly stated.

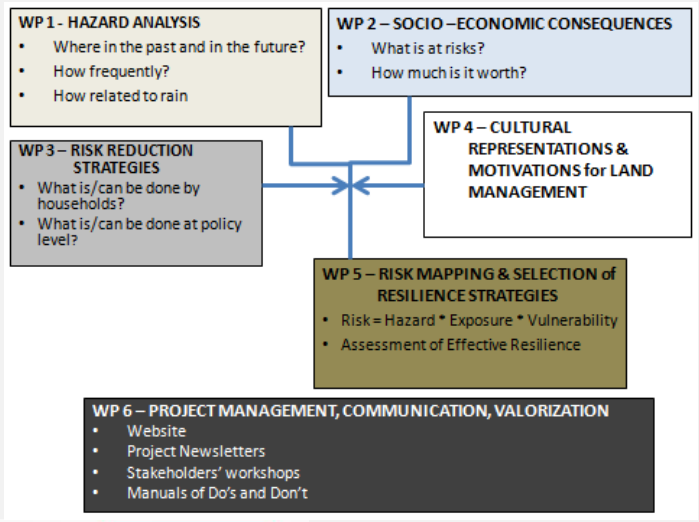
Figure 4: Workshop in Kasese (Vranken, 2014)

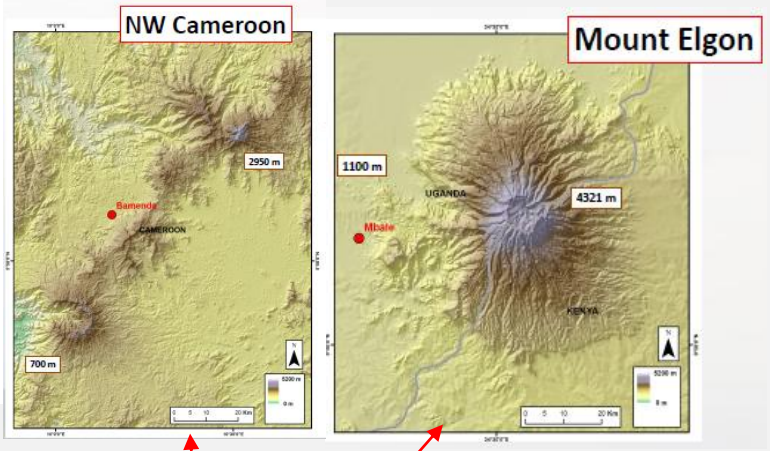
We would like to thank all the participants of the workshops for their opinions, insights and enthusiasm to share ideas with us. A special thanks goes to our partners in the Rwenzori and Cameroon for their indispensable help in organizing and preparing for the workshops.

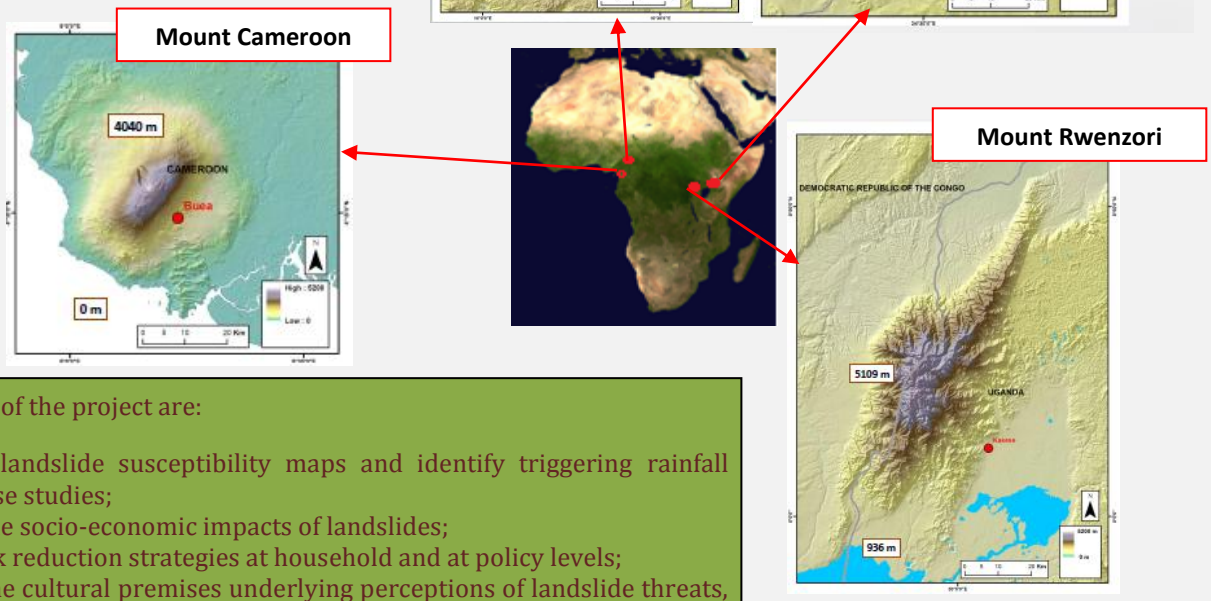
Project structure

Context

Landslides (LS) cause significant impacts in many **equatorial regions**. Their impact depends on their size and speed, the elements at risk and the vulnerability of these elements. This problem is particularly acute in **Equatorial Africa** characterized by mountainous topography, intense rains, deep weathering profiles, high population density and **high vulnerability to geohazards**. Every year LS cause fatalities and result in structural and functional damage to infrastructure and properties. Losses from LS are expected to increase in the future in response to the demographic pressure causing more development in landslide-prone areas, deforestation and associated changes in land use and land cover, and the changing climate causing higher or more intense rainfalls. Many studies investigated how natural factors and human activities control the occurrence or re-activation of LS. These studies typically delivered susceptibility maps but these are insufficient to lead to efficient risk management. **Building resilience** requires to have a true hazard estimate, accounting not only for the spatial distribution of future LS but also for their temporal occurrence and the hazard intensity, to quantitatively analyse the socio-economic consequences of LS and to identify **effective resilience strategies that are cost-effective, technically efficient and that are culturally acceptable and adapted to the livelihoods of the vulnerable population**. Such an analysis is crucial as it enables to provide practical recommendations for households and policy makers to mitigate LS-related damages.







The **main objectives** of the project are:

1. To produce landslide susceptibility maps and identify triggering rainfall events for case studies;
2. To analyze the socio-economic impacts of landslides;
3. To assess risk reduction strategies at household and at policy levels;
4. To analyze the cultural premises underlying perceptions of landslide threats, to describe land rights and land management, and to identify culturally acceptable resilience strategies;
5. To integrate environmental knowledge in a Geographical Information System;
6. To produce hazard and risk maps;
7. To develop a method to identify the most effective and acceptable adaptation strategies.

Project team

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Geology and landslide hazard

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Hazard assessment

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Dr. John Kagorora (MMU)
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Ir. Kewan Mertens (KU Leuven)
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Impact assessment and household resilience strategies

Prof. Dr. Moses Isabirye (Busitema U)
Dean of Busitema University
Soil scientist

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Geomorphology and human-environment interactions

Figure 5: AfReSlide team during its last meeting in Cameroon in the region of Bamenda (Poesen, 2014)