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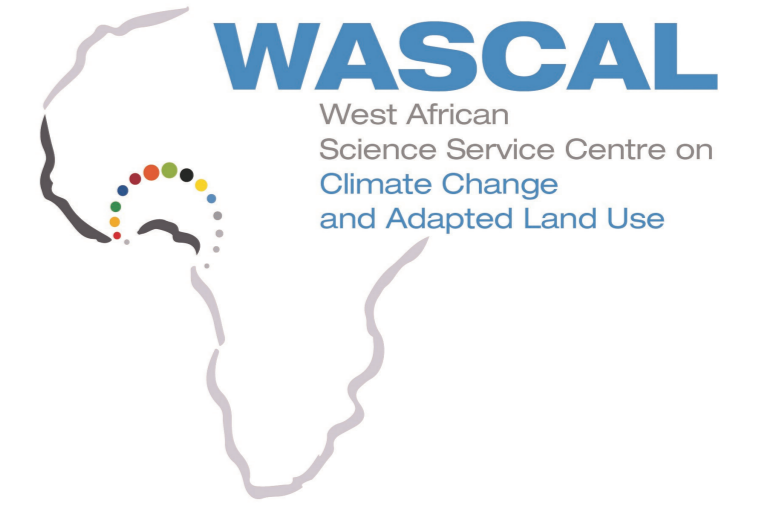
'Research and education to reduce environmental risks'

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Assessing climate-related risks for adaptation planning in West Africa: A science-based service implemented at the West African Science Service Center on Climate Change and Adapted Land Use (WASCAL)

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This poster outlines some of the latest scientific knowledge generated on the theme by UNU-EHS.

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BACKGROUND

West Africa is a hotspot of climate change and at the same time one of the most vulnerable regions of the world. Hazards such as floods and droughts are considered as consequence of the projected increase in temperature and rainfall variability, and are seriously threatening communities and their livelihoods. The projected increase in frequency and severity of climate-related hazards stresses the need to adapt to climate change, which is one core goal of a joint German-West African initiative. This led to the creation of an intergovernmental organization called West African Science Service Center on Climate Change and Adapted Land Use (WASCAL) funded by the German Federal Ministry of Education and Research (BMBF).

The United Nations University – Institute for Environment and Human Security (UNU-EHS) conducted research to develop tools and methods for assessing vulnerability to and risk of floods and droughts in West Africa. Following this, a handbook of tools and methods on vulnerability and risk assessment for practitioners was co-developed with and implemented at the WASCAL Competence Center (CoC) in Ouagadougou, Burkina Faso, with the overall aim to make these tools and methods accessible and usable for stakeholders and practitioners in the field of disaster risk management in the region. The handbook has now become a tool of WASCAL's Risk Assessment Service in order to scientifically support national and regional risk assessment efforts and enhance (transboundary) adaptation and development planning in West Africa.

THE RISK ASSESSMENT HANDBOOK – A SCIENCE-BASED SERVICE FOR ASSESSING IMPACTS OF CLIMATE-RELATED HAZARDS IN WEST AFRICA

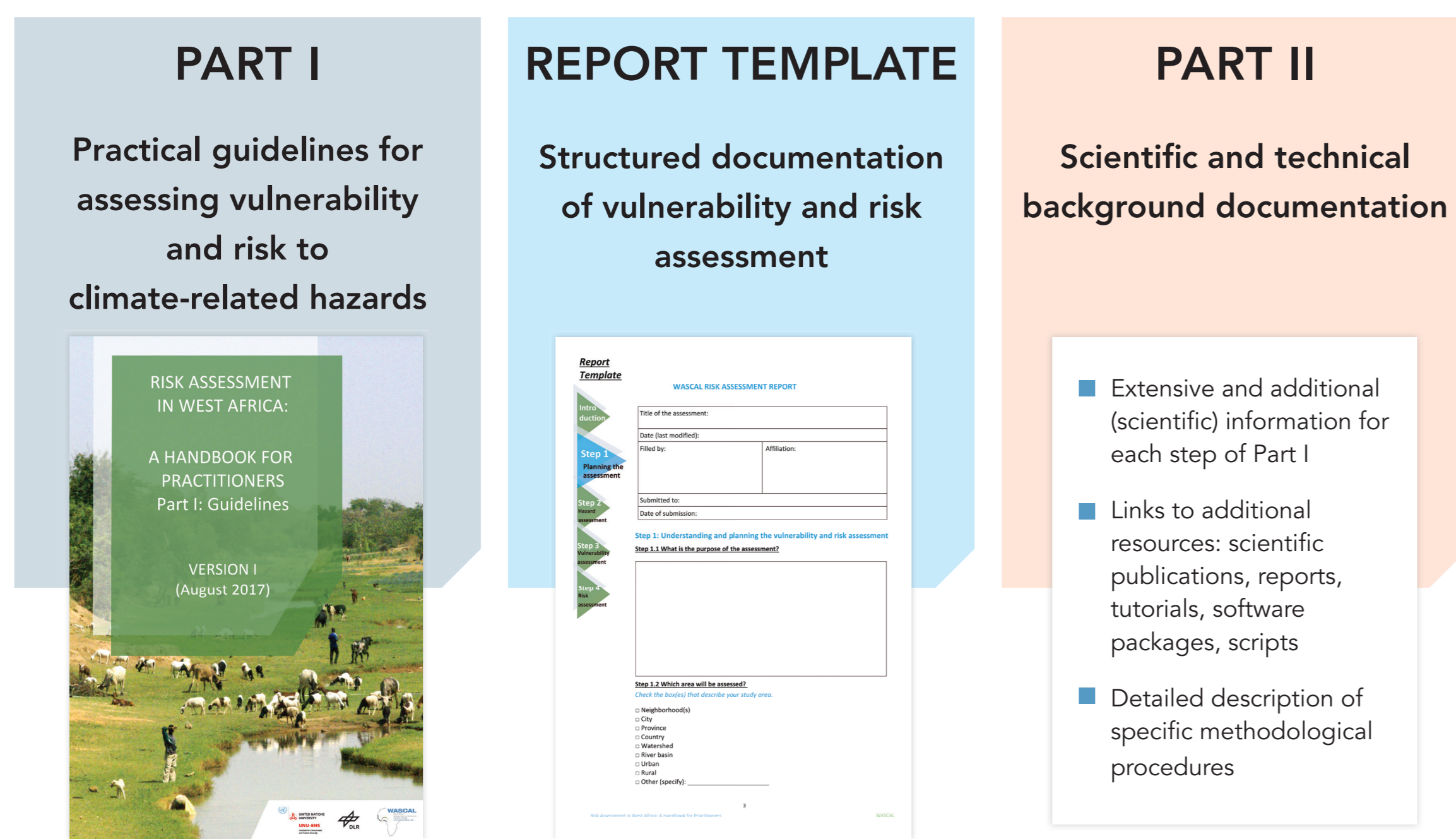


Figure 1: Structure of the Risk Assessment Handbook
Source: Walz et al., 2017

The handbook is structured into two main parts and includes a report template (Figure 1). **PART I** represents the practical guidelines for assessing hazard, vulnerability and risk to climate-related hazards. **PART II** provides scientific and technical background documentation for the practical guidelines. The **REPORT TEMPLATE** helps to document the results in a uniform and structured way and allows the comparison of data and results of different assessments, e.g. between countries.

A STEP BY STEP APPROACH WITH A RANGE OF OPTIONS

The handbook for practitioners provides a step by step approach starting from Step 1 (Planning the Assessment) to Step 4 (Risk Assessment) (Figure 2). Each step is introduced with explanations of the aims and outputs. For the steps hazard and vulnerability assessment, the handbook provides different options, which take into consideration different availabilities of resources or professional skills and expertise. In general, the number of tasks and outputs will depend on the objective, and available time, skills and resources. Figure 3 illustrates the options for Step 3 – Vulnerability assessment.

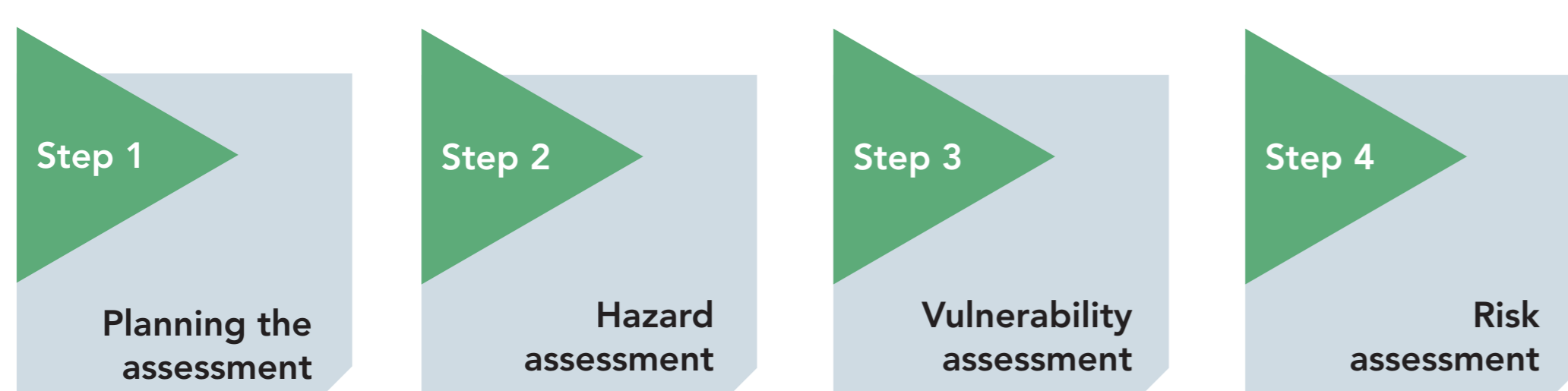


Figure 2: Sections of the Risk Assessment Handbook following a four step approach

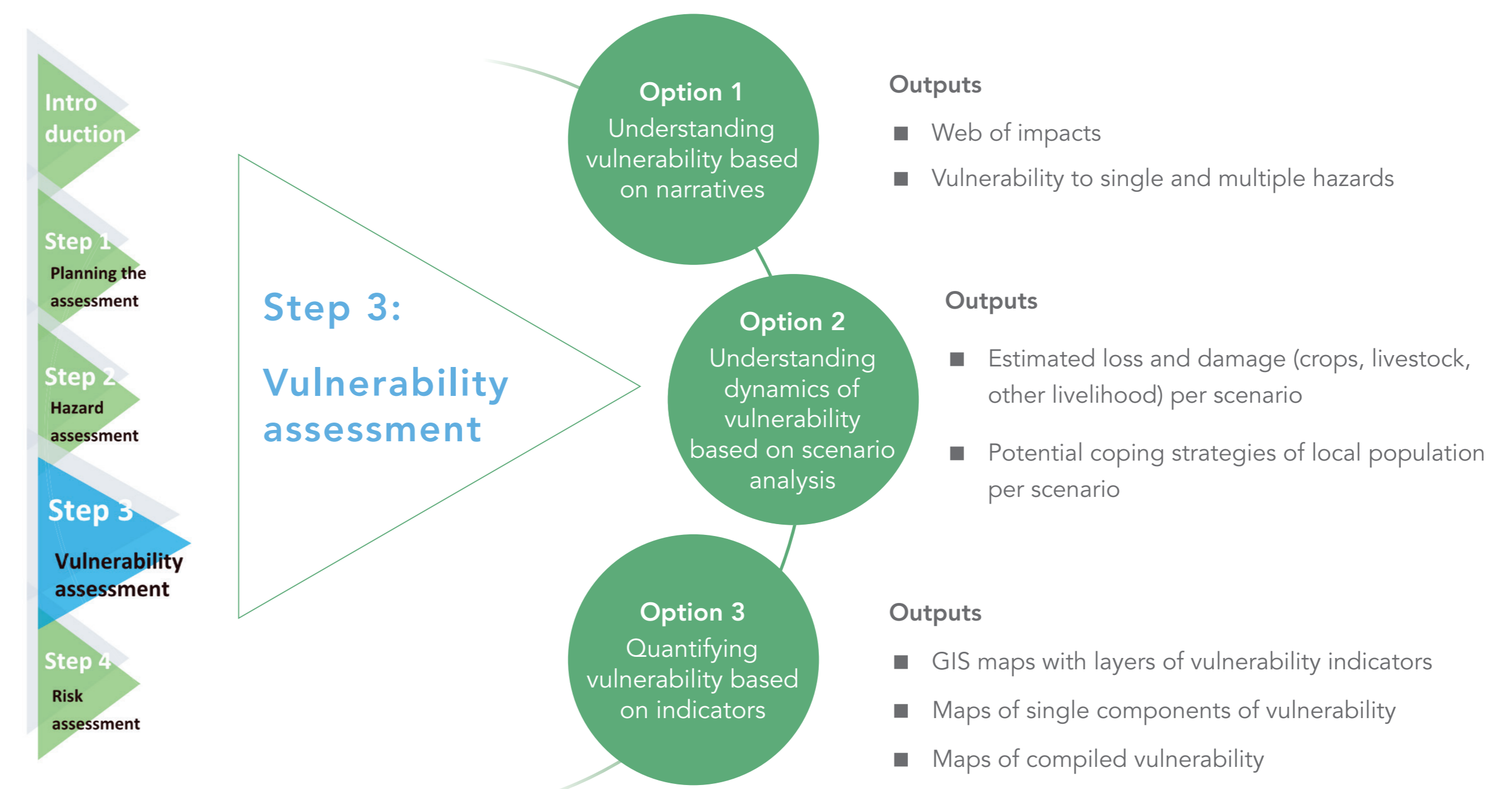


Figure 3: Options and correspondent outputs linked to Step 3: vulnerability assessment

RISK ASSESSMENT AS BASIS FOR PLANNING TARGETED ADAPTATION NEEDS AND STRATEGIES

One result of this guided approach is to assess climate-related hazards, vulnerability and risk of local communities. The resulting risk profiles inform decision makers about the contribution of individual indicators of Exposure, Susceptibility and Capacity (Figure 4).

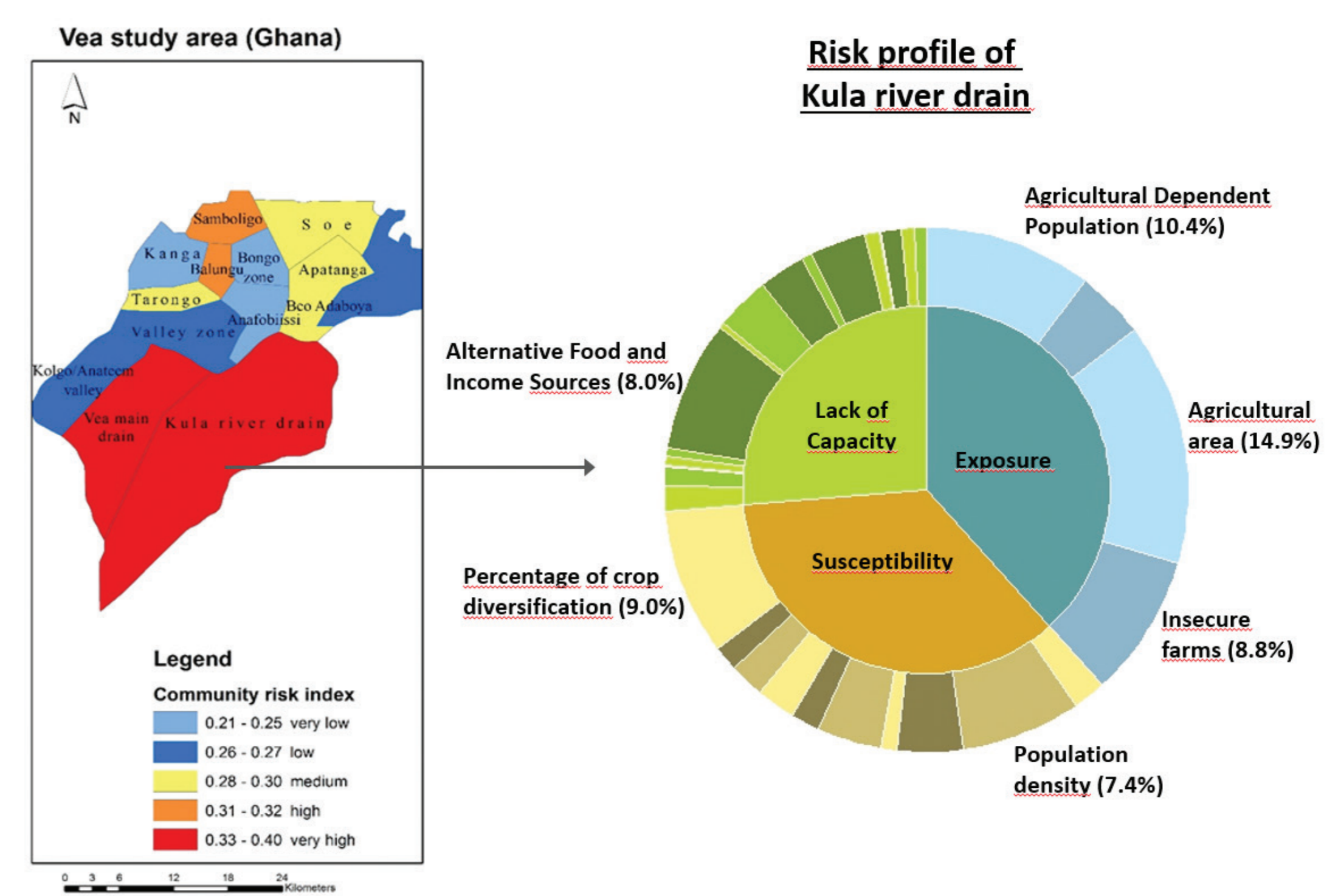


Figure 4: Risk map and risk profile of one selected study area among the WASCAL focal research sites
Source: Asare-Kyei et al., 2017

This "understanding of risk" through the underlying drivers and their individual contributions provide the entry point to design targeted measures to reduce vulnerability and risk and develop relevant strategies to adapt to climate-related hazards in relation to the given context.

CONCLUSION

This handbook offers various options to conduct risk assessment both in **qualitative and quantitative** manners which require different professional expertise and backgrounds as reflected by the various options presented. The design of the handbook as a **living document** allows for methodological procedures to be adjusted during the application of the suggested steps and depending on relevant scientific advances, allowing for a **continuously up-to-date document**. This handbook can be used to **complement hazard early-warning systems** that are in place in most of the countries, and allows to take the next step from re-active disaster management to **proactive disaster risk prevention and reduction**. After conducting a risk assessment as described in this handbook, the wealth of resulting information allows to **identify high risk zones, most vulnerable population groups and economic sectors for selected hazards**. In addition, the assessment provides baseline information which can be used for (i) monitoring risks in the future through repeated risk assessments and (ii) evaluating the effect of implemented adaptation measures towards disaster risk reduction.

REFERENCES

- Asare-Kyei, D., Renaud, F.G., Kloos, J., Walz, Y., Rhyner, J. (2017): Development and validation of risk profiles of West African rural communities facing multiple natural hazards. PLoS ONE 12(3): e0171921. doi:10.1371
Walz, Y., Hass, S., Greenough, K., Forkuor, G., Mück, M., Taubenböck, H., von Sassen, S., and Renaud, F. (2017). Risk Assessment in West Africa: A handbook for practitioners. Version I – part I, part II and report template (August 2017).