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Nature-based solutions to preserve the wetlands along the critical zones of River Nyong, Cameroon

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Outlines

> Background and objectives

> Core Problems of River Nyong

> Methodological contributions

> Key findings and way forward

Background and objectives

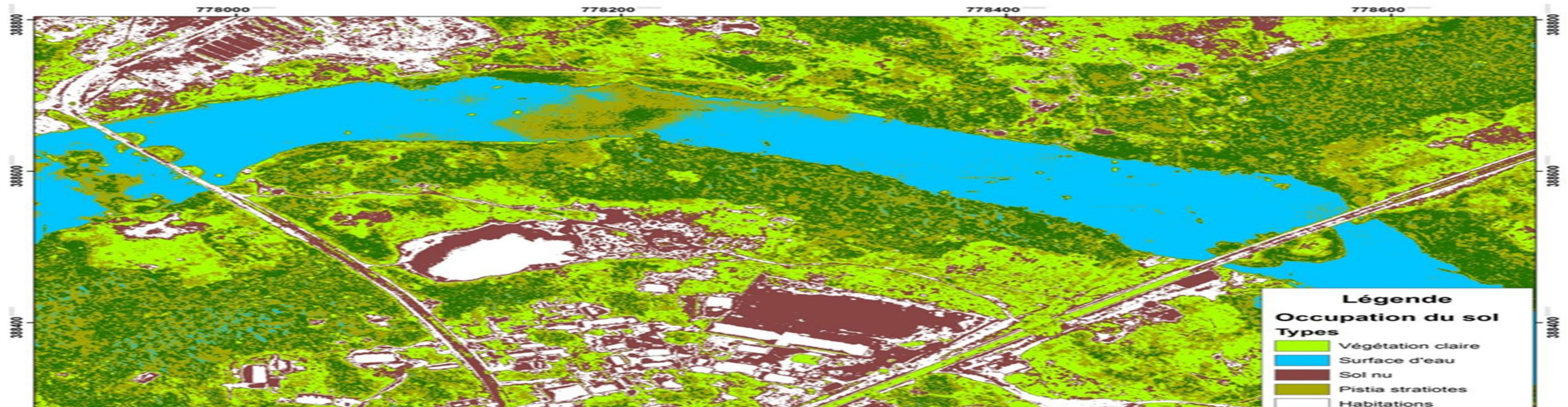
Background

- ▶ This study explores ways to nurture advance Nature-based solutions (NbS) as umbrella to preserve wetlands along the critical waterways of river Nyong, Cameroon and provides holistic and long term solutions based on co-creation of knowledge in transdisciplinary way using Tchouaffé's Theory of change(TToC) .

- ▶ **Objectives:**
- ▶ The study uses TToC model to compile the co-created knowledge of key informants gained to date into an effective approach to “Nature-based Solutions [NbS]” in order to make policy recommendations.TToC: a new educational concept which brings together transdisciplinary change makers to co-create transformative solutions to overcome socio-environmental challenges.

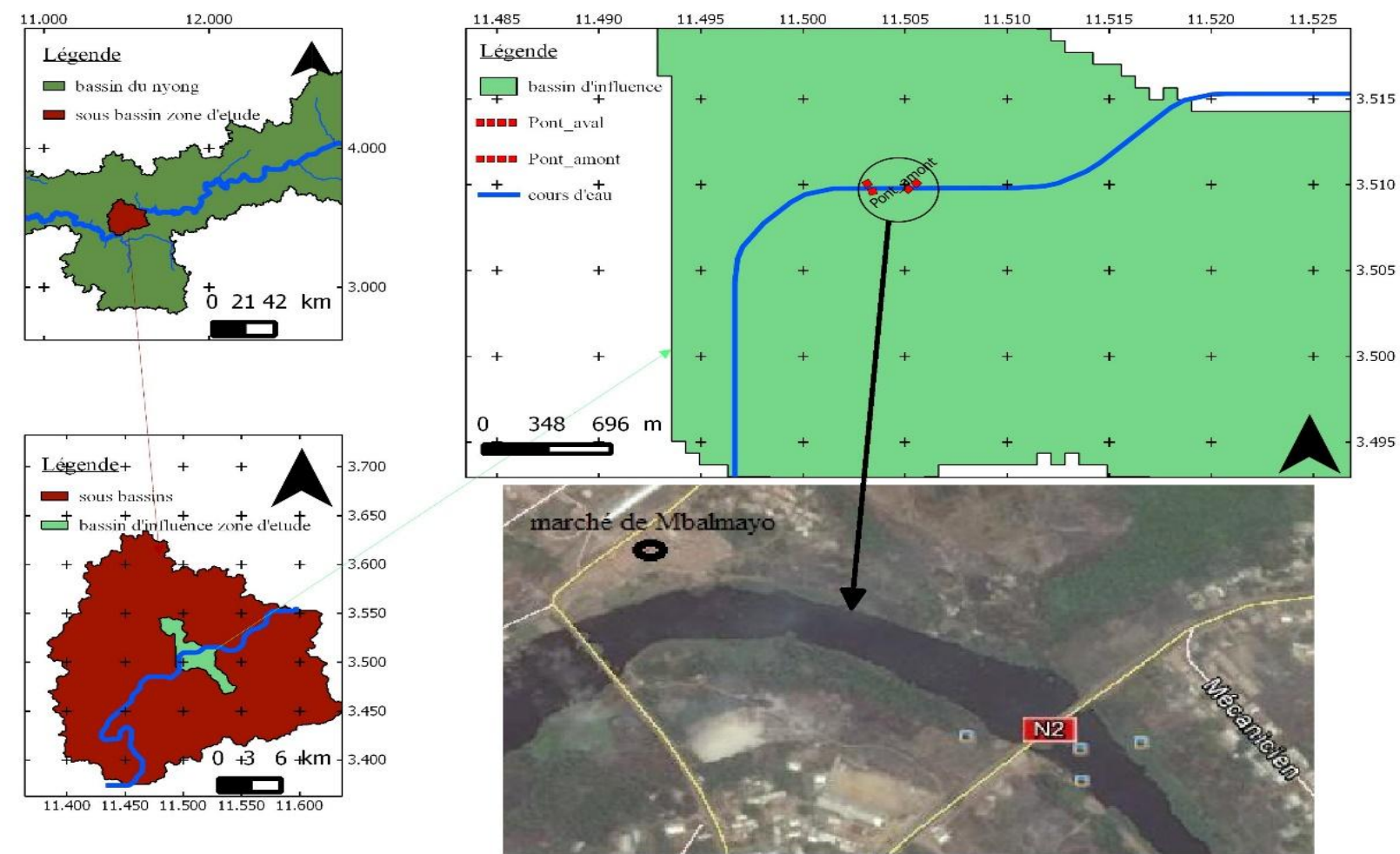
Core Problems of river Nyong

- ▶ Déforestation ; recurrent pollutions and sedimentation of the river bed
- ▶ **Associated consequences:**
Growth of floating macrophytes on the waterway or eutrophication, which in turn induces a gradual reduction in the flow of the river and unprecedented damage to its ecosystem as well.

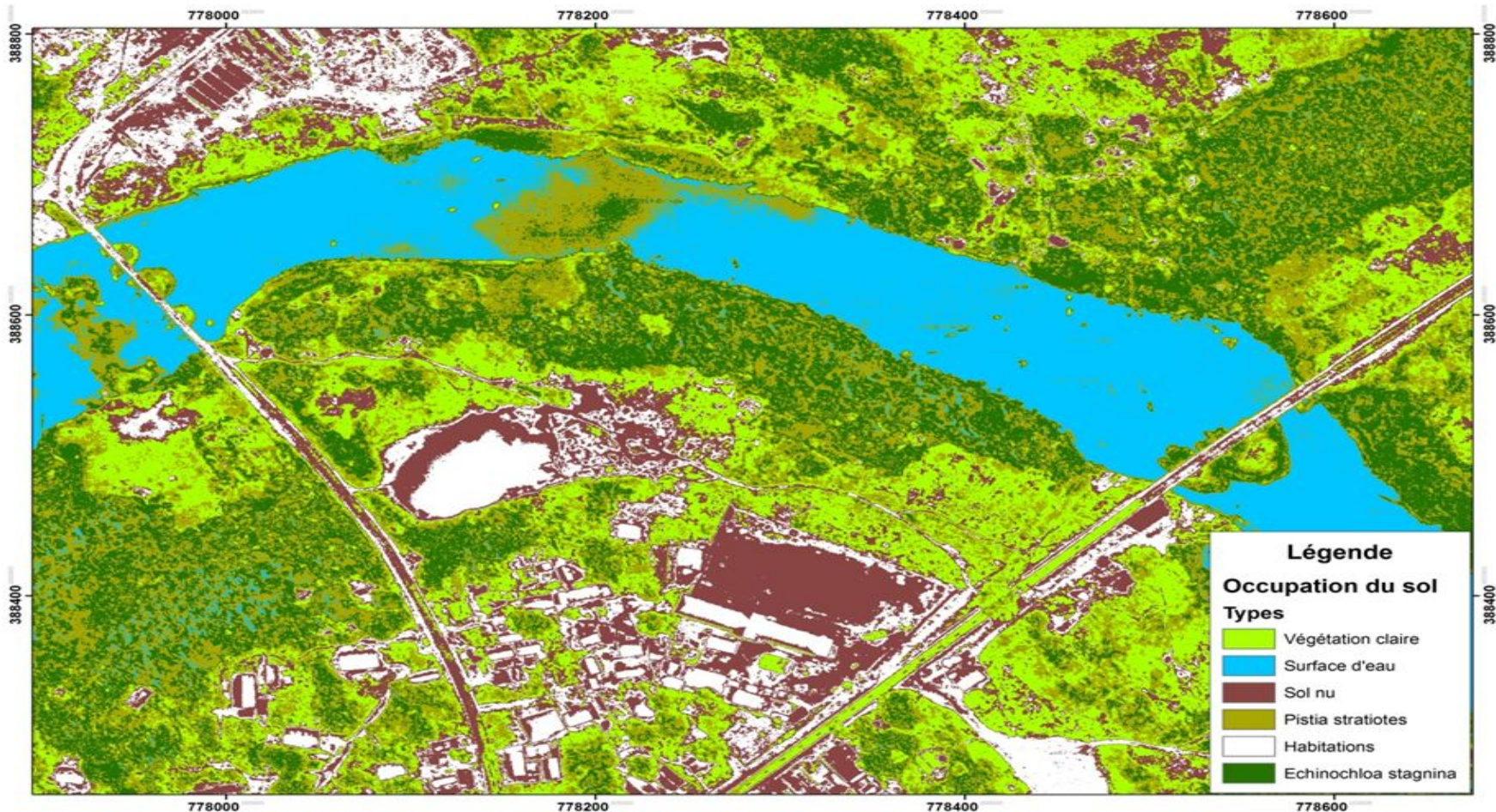


Methods

Mapping



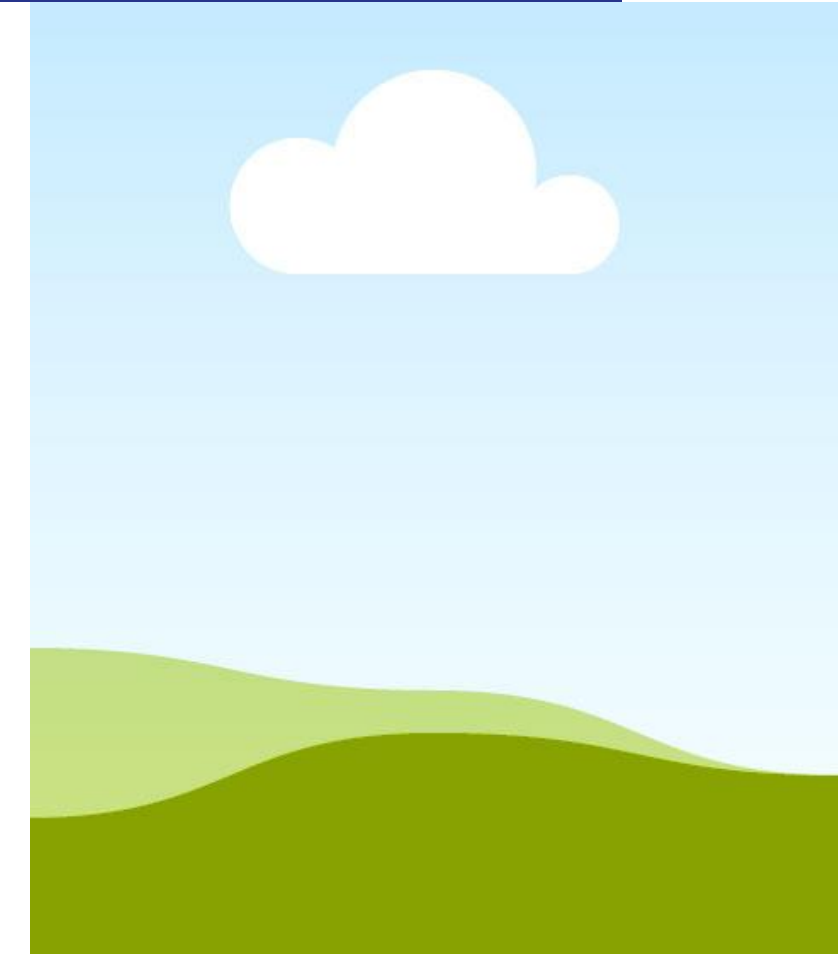
Geo-Referencing



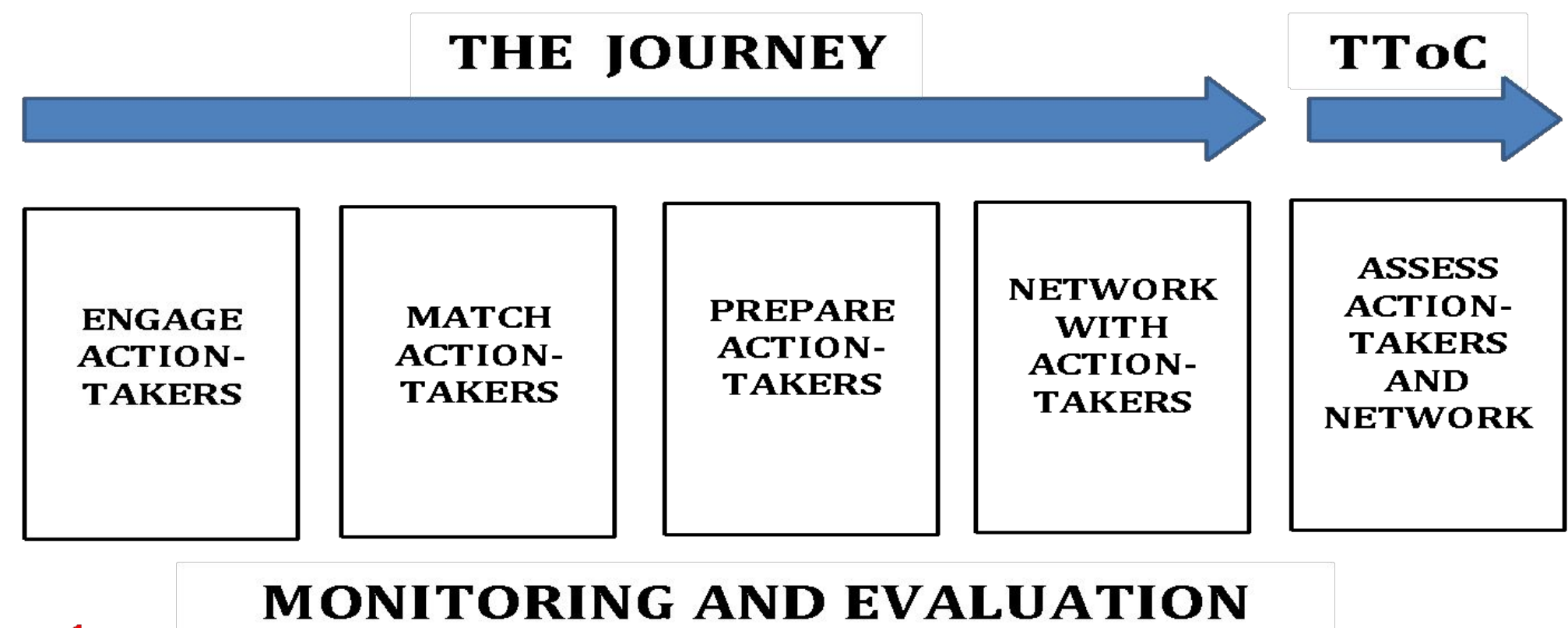
Source (Geomatic Laboratory of the Department of forestry, University of Dschang, 2021)

Data collection and analysis

- ▶ Using focus group discussions for collecting data from 50 riparian populations;
- ▶ Using Tchouaffé's Theory of change (TToC) for data analysis



Assessment process



How TToC Model functions?

TToC Indicators and formula

- ▶ TToC model Is a Self-assessment tool made of five indicators : Awareness (A), Know-How (K), Attitude/Ability (A), Participation (P), Self-Evaluation (E).
- ▶ The scoring system consists of likert scale (0, 1, 2, 3, 4) where:
 - ▶ 0 - Unfavorable with no evidence
 - ▶ 1 - Uncertain evidence and unfavorable for any solution.
 - ▶ 2 - Favorable with no evidence
 - ▶ 3- favorable with restricted evidence
 - ▶ 4-Totally favorable with evidence
- ▶ Matching indicators and scores of key informants allow to calculate
- ▶ $Ps = [1 / n^2 \sum (A_{\text{agenti}})] \times 100$ (Tchouaffé-Tchiadjé, 2021):The self engaged performance
- ▶ Where n stands for total score ; A_{agenti} stands for the average score per person and solution chosen.

Key findings

Results from the Survey

- ▶ 48 out of 50 interviewed respond and 60% of respondents were favorable for Nature-based solutions while for the rest 40% were favorable for Ecological Engineering Solutions (EES.) and Ecological based adaptation (EbA). Women compared to men are more self-engaged for wetlands restoration with self-engaged performance of 32.5% against 25% for men.
- ▶ In nutshell, both men and women working together enables to reach a self-engaged performance or effectiveness of 57.5% which is effective according to Tchouaffe's theory of change model and while combining two or three proposed solutions, we could optimize and improve the trophic status of the river Nyong for a long term basis.

Key findings

Discussion

- ▶ Effectiveness (Ps):
- ▶ $Ps = [1 / n^2 \sum(A_{\text{agenti}})] \times 100$ (Tchouaffé-Tchiadjé, 2021)
- ▶ Where n stands for total score ; A_{agenti} stands for the average score per person and solution chosen.
- ▶ If the Global self-engaged performance is $Ps < 50\%$, the chosen network of actors is ineffective ;
- ▶ If the Global self-engaged performance is $Ps > 50\%$, the due network is effective.
- ▶ Ps is based on existing framework to co-develop a Decision Support System (DSS) with potential stakeholders to determine their self-engagement.

▶ NbS+EES+AbS will improve the trophic status of river Nyong for a long term basis.

NbS+EES+AbS

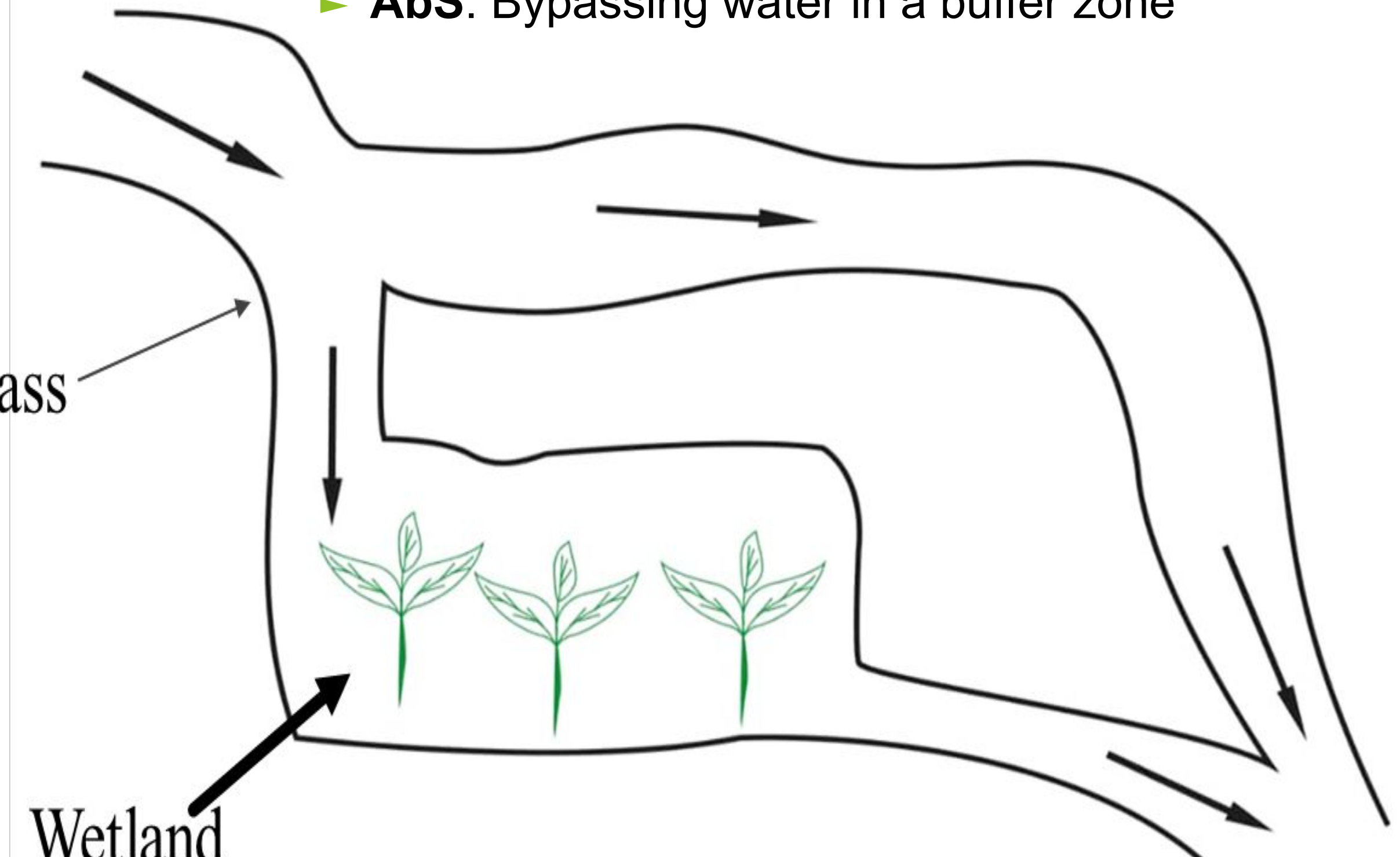
New waterway

- ▶ Here
- ▶ NbS : Creating Buffer zone (Wetland)
- ▶ EES: Reprofilng and flow diversion of the River
- ▶ AbS: Bypassing water in a buffer zone

River
flow

Bypass

Wetland



Thank you!



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