São Paulo School of Advanced Science on Climate Change: Scientific Basis, Adaptation, Vulnerability and Mitigation 3-15 July 2017, São Paulo (Brazil)

SPSAS Climate Change

Assessment of social vulnerability to flood in urban Côte d'Ivoire using the MOVE framework

M.K.A Kablan*, K. Dongo, M. Coulibaly
Contact e-mail: kablan.malan@yahoo.fr | Université Félix Houphouët-Boigny (UFHB)/ Young Scientist of the Integrated Research for Disaster Risk (IRDR)

1. Background

Coupled with poor urban development, the increasing urban population of many Sub-Saharan African countries is subject to recurrent severe flooding episodes. In response to these flood events, while the focus is often put on slums and precarious urban settings, the social implications of these floods affect a variety of social classes..

Main objective: evaluates the social vulnerability of urban Côte d'Ivoire to flooding using the MOVE framework

2. Study site

Cocody, a district of Abidjan, Côte d'Ivoire, known to have the country's highest number of flood-impacted people.
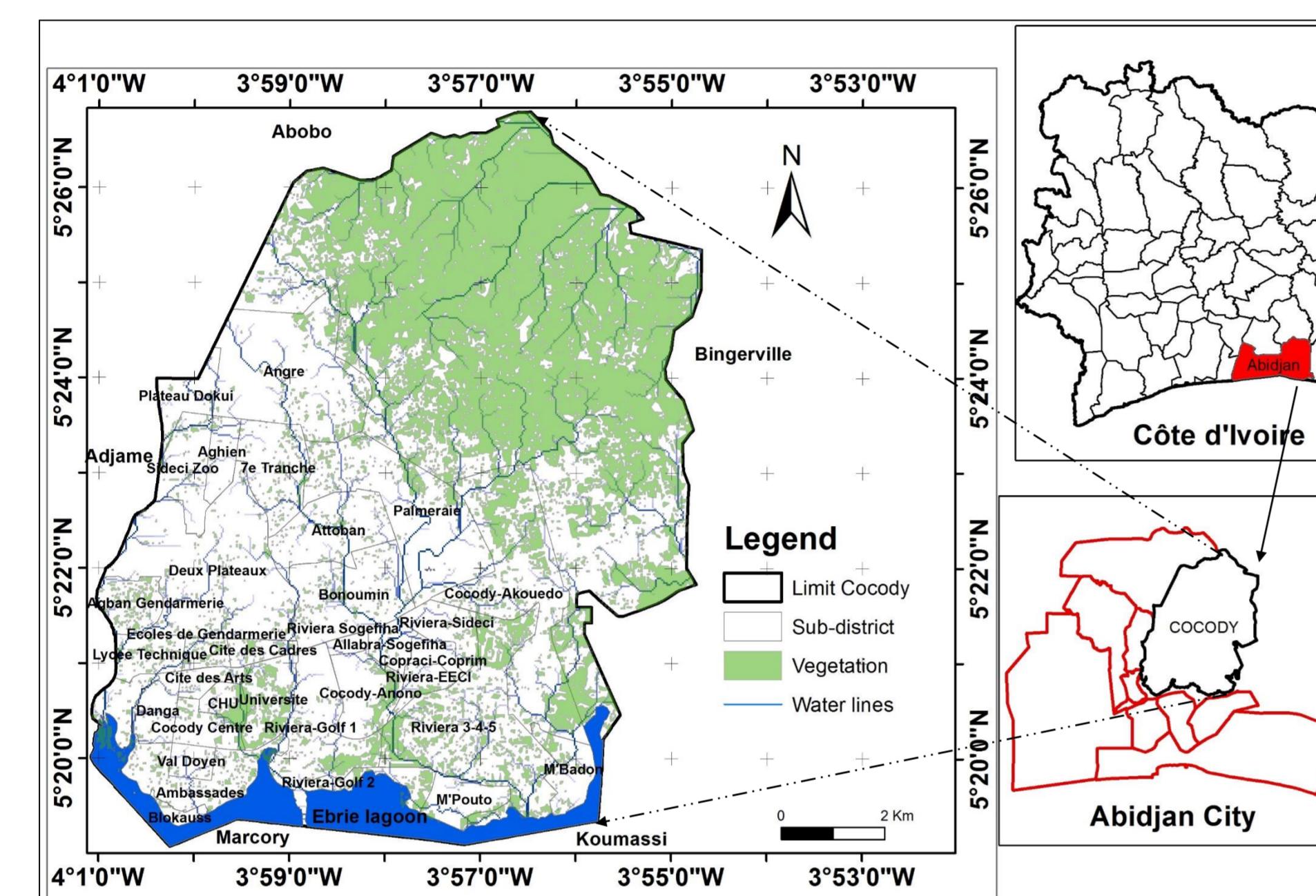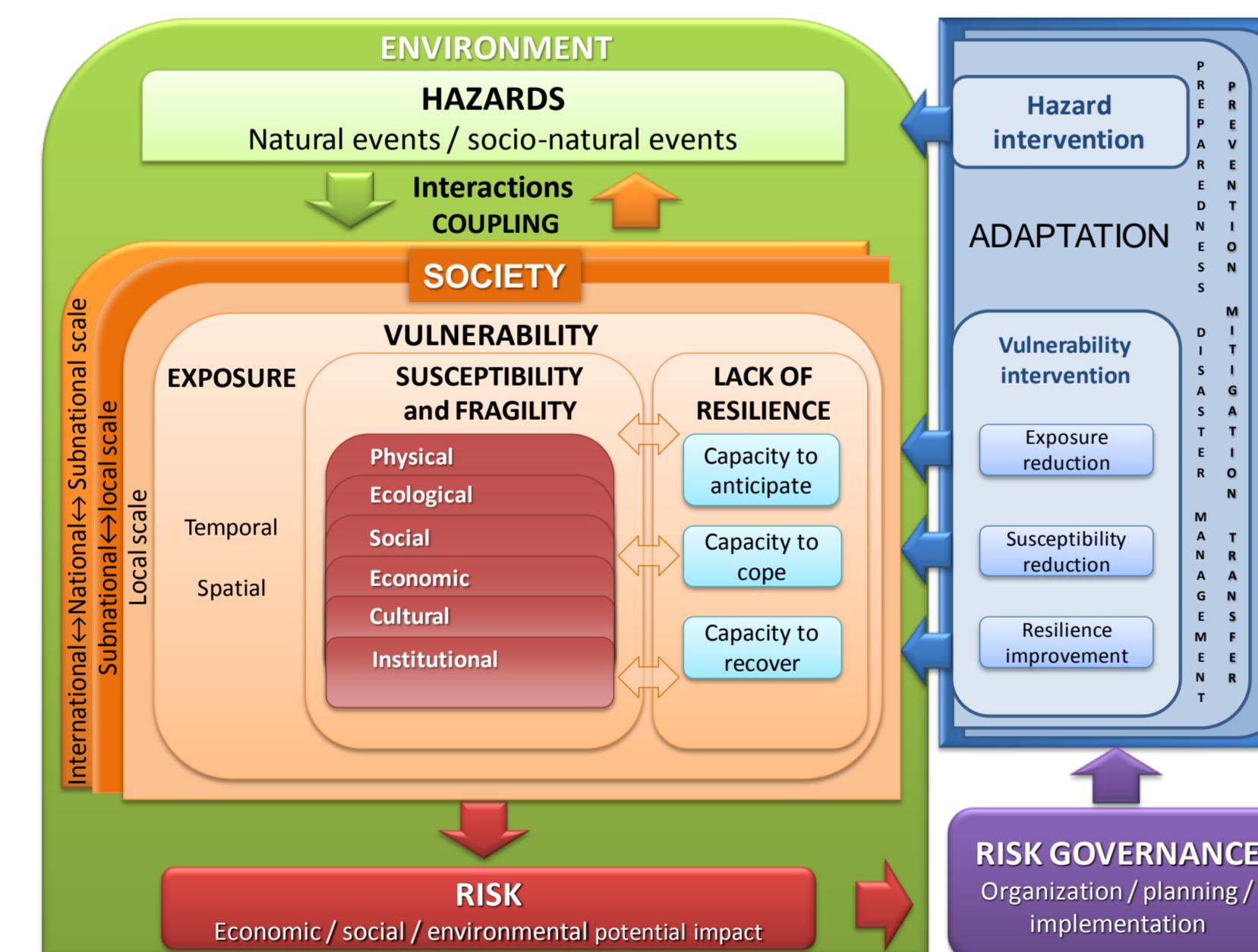

Fig.1. Localization of the study site

Fig.2. Flood consequences in Cocody

4. Results

Fig. 4. Vulnerability map

3. Material and Methods

Method for the Improvement of Vulnerability Assessment in Europe (MOVE Framework)
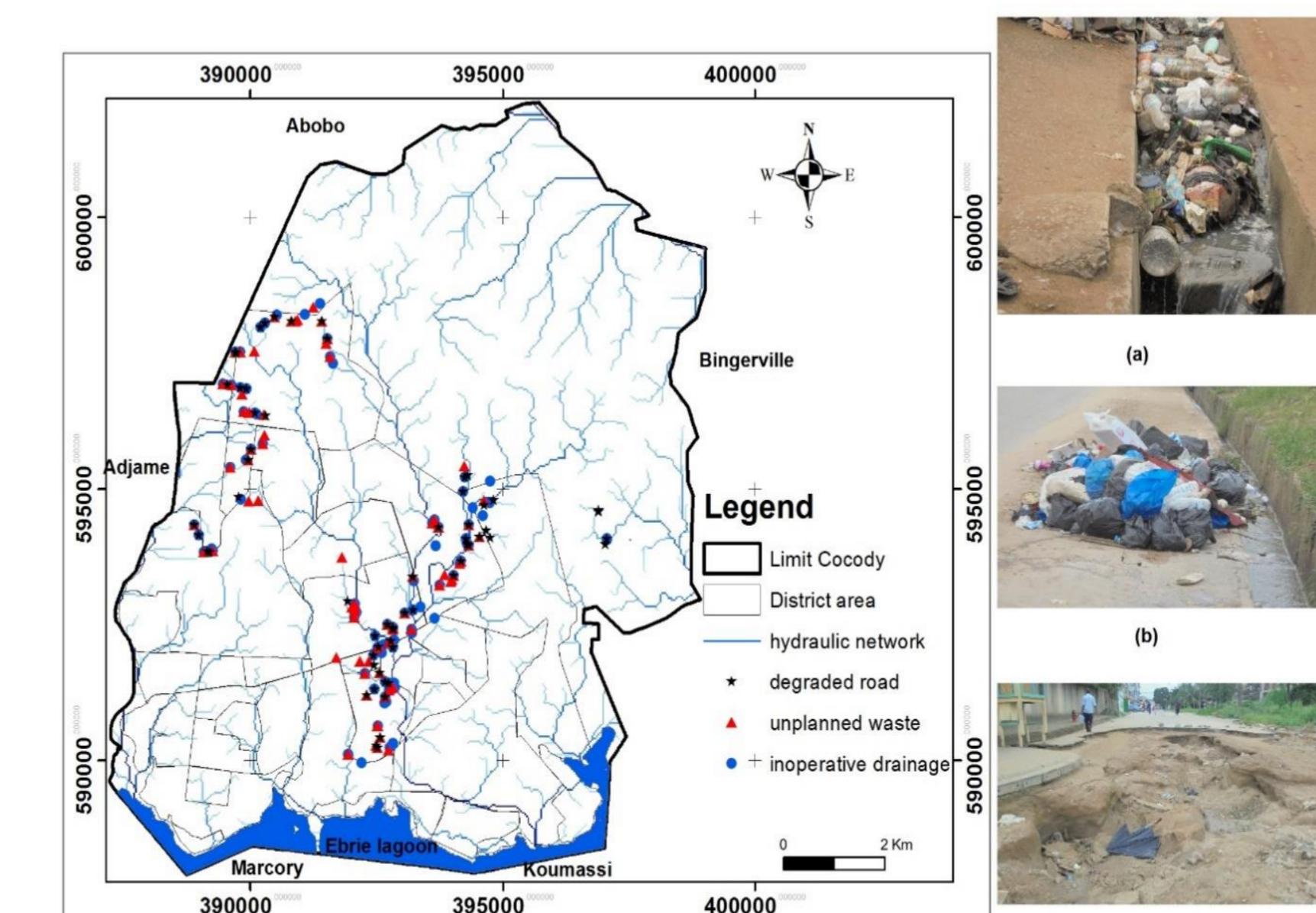
➔ Indicator selection

Fig. 3. The MOVE theoretical framework

Table 2: Correlation of each component with the vulnerability

	E1	E2	E3	E4	E	S1	S2	S3	S4	S5	S6	S	LoR1	LoR2	LoR3	LoR	V
E1	1																
E2	0.05	1															
E3	0.00	0.17	1														
E4	0.22	−0.35 *	0.06	1													
E	0.62 **	0.42*	0.59 **	0.45 **	1												
S1	−0.11	0.11	0.01	−0.46 **	−0.21	1											
S2	−0.12	0.26	−0.36 *	−0.30	−0.25	−0.06	1										
S3	0.39 *	−0.17	0.57 **	0.02	0.39 *	−0.03	−0.05	1									
S4	0.04	0.22	0.29	−0.09	0.22	−0.17	0.07	0.17	1								
S5	0.05	0.23	0.07	−0.28	0.03	0.34 *	−0.13	0.09	−0.11	1							
S 6	−0.05	−0.37 *	0.27	0.10	−0.02	0.09	−0.21	0.22	0.07	−0.05	1						
S	0.15	0.10	0.36 *	−0.40 *	0.10	0.65 **	−0.02	0.58 **	0.08	0.70 **	0.23	1					
LoR1	−0.20	−0.47 **	0.17	0.01	−0.24	0.05	−0.19	0.36 *	−0.15	0.08	0.12	0.22	1				
LoR 2	0.00	−0.09	0.30	−0.03	0.09	0.32	−0.22	0.45 **	−0.18	0.42 *	0.22	0.58 **	0.43 *	1			
LoR 3	0.08	0.12	−0.24	−0.22	−0.12	0.29	0.13	−0.12	−0.04	0.05	−0.03	0.12	−0.03	−0.19	1		
LoR	−0.06	−0.24	0.13	−0.13	−0.14	0.36 *	−0.15	.37*	−0.20	0.30	0.17	0.50 **	0.76 **	0.67 **	0.42 *	1	
V	**0.52 **	0.31	**0.64 **	0.08	0.75 **	0.26	−0.19	**0.66 **	0.184	**0.46 **	0.17	0.72 **	0.04	**0.48 **	0.01	0.29	1
(sig)	0.00	0.07	0.00	0.66	0.00	0.13	0.28	0.00	0.30	0.01	0.34	0.00	0.80	0.00	0.95	0.10	
	E1	E2	**E3**	E4	E	S1	S2	**S3**	S4	**S5**	S6	S	LoR1	**LoR2**	LoR3	LoR	V

Table 1: list of selected indicators

Components	N°	Indicators
Exposure	E1	Population density (inhbts/km²)
	E2	Elevation (m)
	E3	Vertical permeability (m/s2)
	E4	Flooded areas per sub-district (%)
Susceptibility	S1	Children under 5 (%)
	S2	Elderly above 65 (%)
	S3	Vegetation cover per sub-district (%)
	S4	Women (%)
	S5	Waste collection (number of day/week)
	S6	Unplanned waste deposits (number)
Lack of Resilience	LoR1	Literacy rate (%)
	LoR2	Number of people insured (%)
	LoR3	Unemployment rate (%)

Fig. 5. Flood related environmental issues

5. Conclusion

- Several districts are flood vulnerability hot spot

- Factors influencing vulnerability are differentiated

- Communication tool and can serve for decision making

- MOVE framework is a promising tool for vulnerability assessment in local context,

Thanks to the organizers and sponsors of this event