

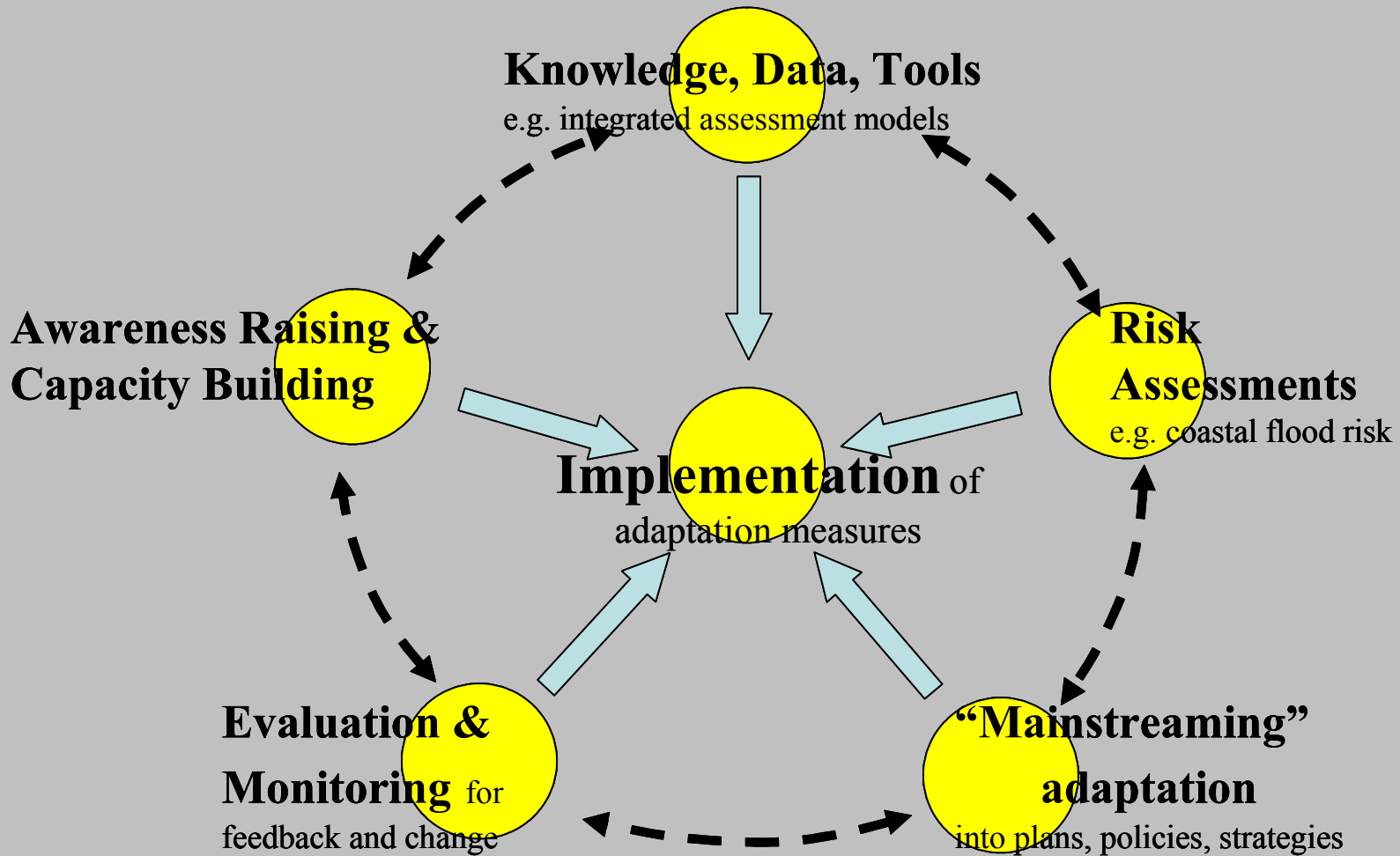


# Adapting to change in climate and climate variability

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# Climate Change Adaptation through Integrated Risk Reduction (CCAIRR)



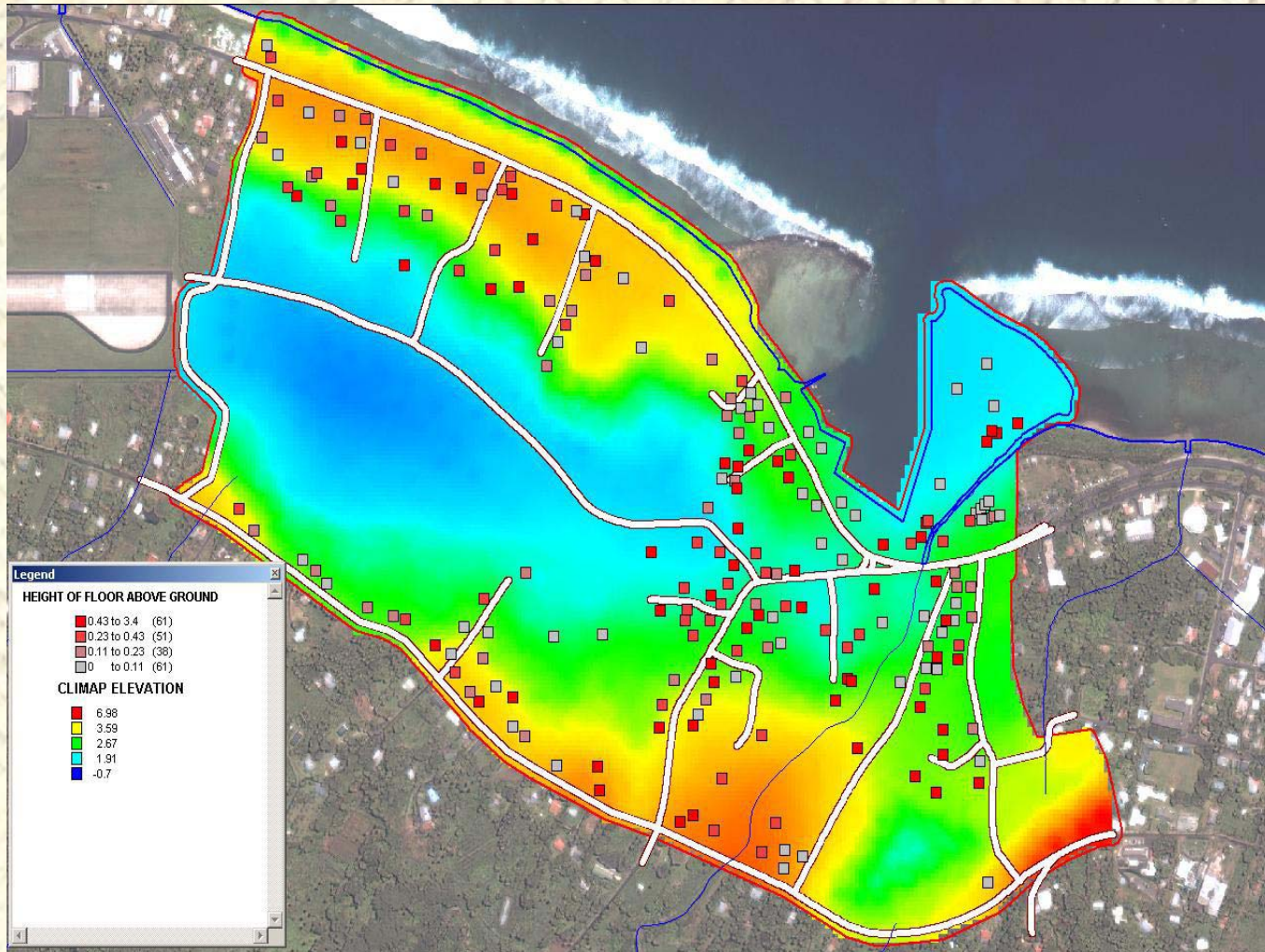


# Adaptation assessment

- identify problems + potential adaptations
- analyse extreme events without/with climate change, without/with adaptation, over time, including land use change
- find the incremental costs of adaptation due to climate change, and the incremental benefits because of (additional) adaptation



# Example 1: climate proofing Avatiu Harbour Development



February 28, 2007



# Example 2: watertank design

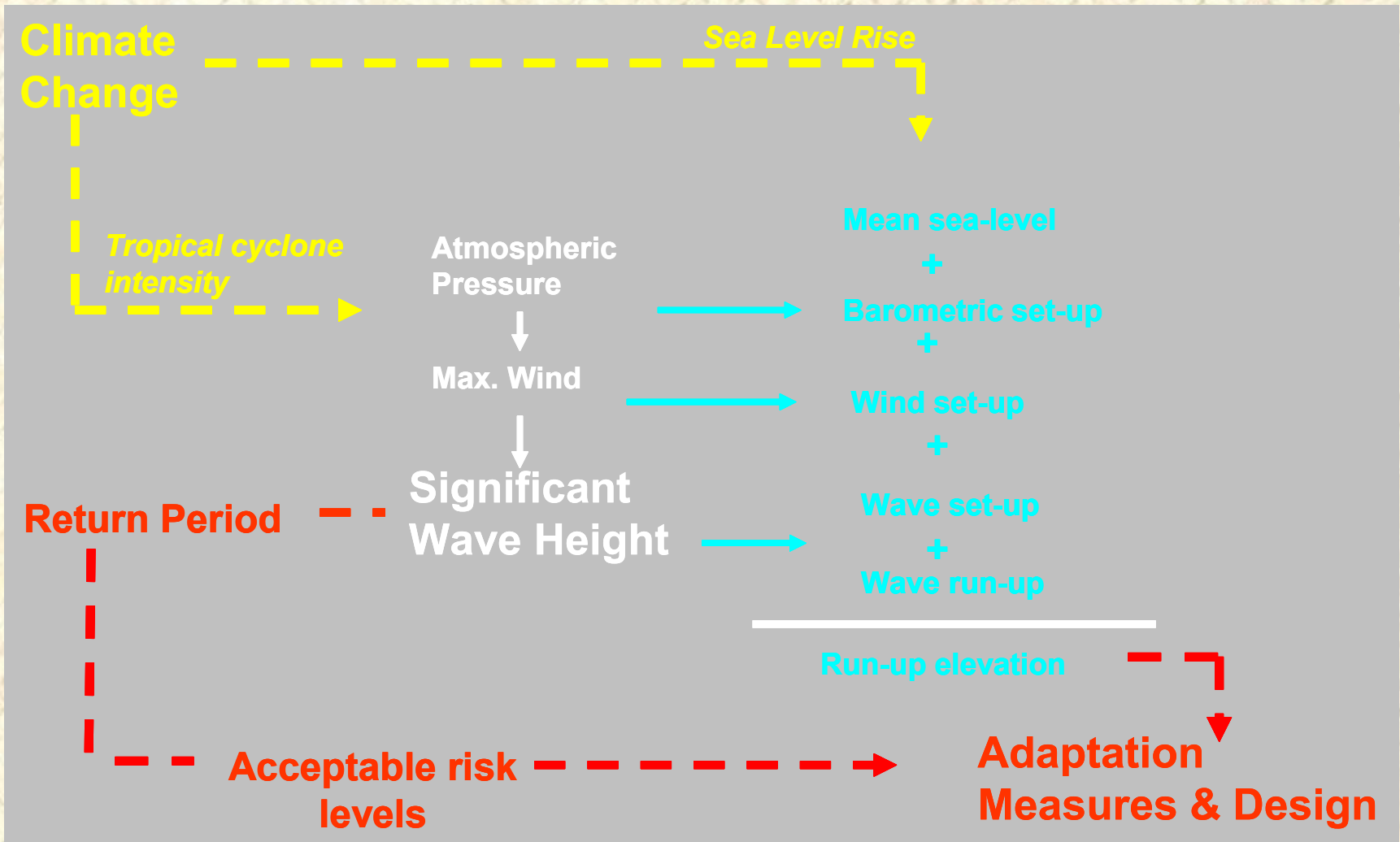
Longest shortage (days) and number of shortage periods (>28 days) over 82 years for various adaptation options (comparing base and climate change scenario of 10% less annual rainfall, implemented by -1 mm of rain)

description	tank	area	usage	max shortage		# periods	
				base	scen.	base	scen.
base	2000	15	80	133	135	101	105
save	2000	15	<b>50</b>	74	123	30	39
incr. roof	2000	<b>25</b>	80	72	121	35	48
incr. tank	<b>3000</b>	15	80	133	135	86	93
best	<b>3000</b>	<b>25</b>	<b>50</b>	48	50	2	4

The tank sizes required to completely avoid a shortage of water, are (base/ climate change):

daily consumption	roof area		
	15 m <sup>2</sup>	20 m <sup>2</sup>	25 m <sup>2</sup>
50	22500/30500	11000/14500	6000/10000
80	np	np	np

# Example 3: coastal impacts





# Lessons learned

- data, data, data ...
- adaptations: focus on reducing both present and future risks related to climate variability and extremes; “think out of the box”
- but: risk approach is very difficult to convey (long term vs. short term)
- stake-holder involvement (both problem assessment and solution implementation) should be as early and extensive as possible



# Gaps, needs and concerns

- interactive development of adaptation options with generic approach and transferable solutions needed
- many but not all problems have a climate component...
- climate change models need to be improved (resolution & accuracy)





# Roles of actors

- integration (“mainstreaming”) of adaptation across all levels (local, national, regional) in: project planning/implementation, land use planning/regulation/enforcement, national strategic planning
- (pro-)actively, transparent, within given (short) timeframe



# UNFCCC process

- press international community to pay the *incremental costs* of adaptation due to climate change more forthcoming