

Building Firm Foundations for Climate Change Adaptation in Bang Chan Sub-district

Why addressing existing sensitivities is a key first step in adapting to climate change

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Bang Chan Sub-district is located in Klung District, Chanthaburi Province in Eastern Thailand. The word klung is used to refer to frequently flooded low-lying areas, which already gives you some clues to the nature of Bang Chan Sub-district.

Many of the communities in Bang Chan Sub-district were formed around 200 years ago when Chinese settlers began to use the area as a base for their fishery livelihoods. The sub-district comprises over 40,000 rai (approximately 6,400 hectares) of flat, coastal land and some 1,300 households or approximately 3,700 individuals live there. The vast majority of the people living in the sub-district are involved in some form of coastal fishery, including both capture fishery and aquaculture activities.



Photo Set 1: Most of Bang Chan Sub-district is covered in mangrove forest. Only one of the sub-district's six villages is accessible by road.

Bang Chan Sub-district is unique in a number of ways. Firstly, most of the sub-district is covered in mangrove forest. Only one of the sub-district's six villages is accessible by road. Secondly, the majority of the mangrove forest has been formally declared as reserved forest. Both mangrove forest and reserved forest are subject to policies and laws aimed at strict conservation. Thirdly, as the result of charcoal concessions and aquaculture activities, much of the mangrove forest is in a degraded state. Fourthly, those households not involved in aquaculture activities tend to practice a form of capture fishery which involves the use of traditional fixed fishing gears which are considered illegal by the authorities.

It has been said that everything the communities in Bang Chan Sub-district do is against the law. Their homes and settlements are considered to have illegally encroached into mangrove forests and reserved forests, where any use of natural resources is prohibited. Many households are engaged in a form of shrimp farming, which is again considered a form of illegal encroachment into mangrove forests and reserved forests. But even those households involved in capture fishery find that their traditional fixed fishing gears are considered against the law too.



Photo Set 2: Sustainable Development Foundation worked with the communities of Bang Chan Sub-district to carry out a Vulnerability and Capacity Assessment (VCA).

Sustainable Development Foundation worked with the communities of Bang Chan Sub-district to carry out a Vulnerability and Capacity Assessment (VCA) in order to better understand the communities' exposure and sensitivity to a wide range of potential threats including both natural stressors, such as climate change, and man-made stressors, such as inappropriate local development. The results of the VCA showed that the three main concerns of the communities were:

- their lack of rights in terms of settlement and natural resource use;
- the inadequacy of their household water supply – most of the sub-district is covered in mangrove forest, and there are no viable freshwater sources in the area;
- conflicts regarding the illegality of their traditional fixed fishing gears.



Photo Set 3: Some of the communities' main concerns include their lack of rights in terms of settlement and natural resource use, and the inadequacy of their household water supply.

Why are these issues important in the context of climate change? Do they make the communities of Bang Chan Sub-district more vulnerable to potential climate change impacts? How do they affect the communities' capacity to adapt to climate change?

The conceptual model developed by Sustainable Development Foundation for carrying out VCAs is based on the widely accepted premise that vulnerability occurs when risk outweighs capacity. Risk is composed of exposure and sensitivity. Exposure deals with the likelihood of encountering some kind of hazard. Sensitivity deals with the likelihood of being negatively impacted when exposed to some kind of hazard. Capacity is composed of coping capacity and adaptive capacity. Coping capacity is about the ability to respond and recover in the short term when exposed to some kind of hazard. Adaptive capacity is about the ability to change behaviors, regimes, circumstances and situations in the long term to reduce exposure and sensitivity.

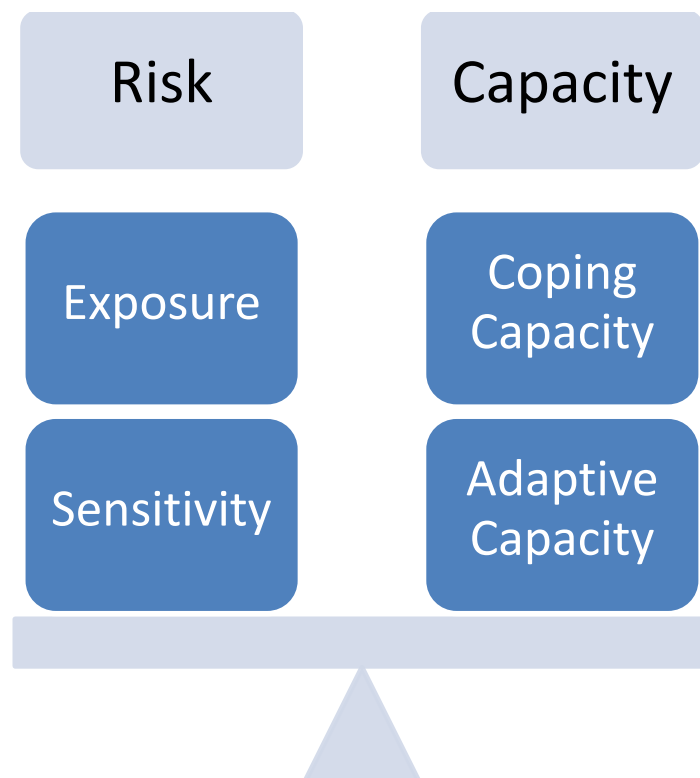


Figure 1: Risk is composed of exposure and sensitivity. Capacity is composed of coping capacity and adaptive capacity.

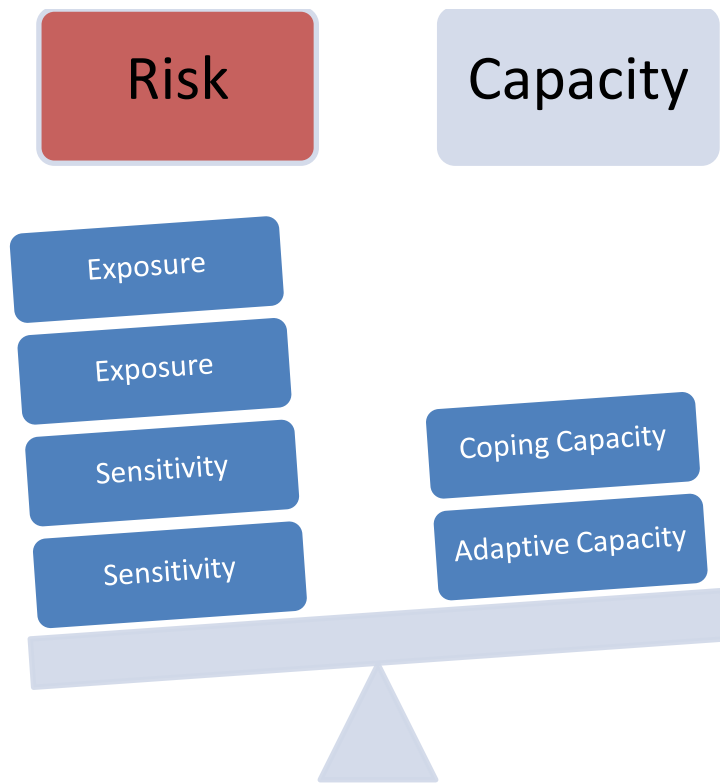


Figure 2: Vulnerability occurs when risk outweighs capacity.

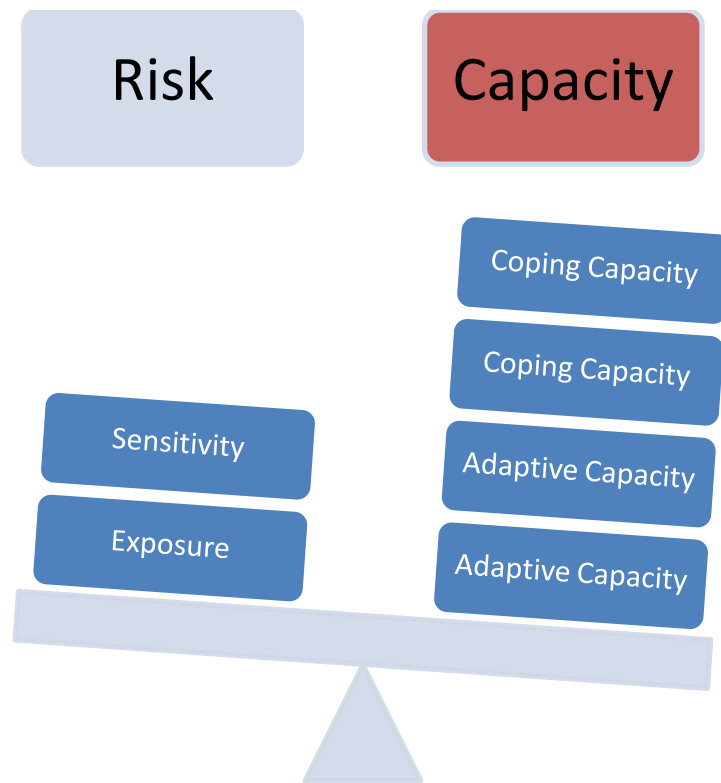


Figure 3: Resilience occurs when capacity outweighs risk.

So what factors affect the level of exposure and sensitivity according to Sustainable Development Foundation's conceptual model? Exposure, the likelihood of encountering some kind of hazard, is about the potential for change to occur. In the context of climate change, we are primarily interested in climate factors and non-climate factors, as illustrated below. Sensitivity, the likelihood of being negatively impacted, is about existing behaviors, regimes, circumstances and situations. In the context of climate change, we are primarily interested in ways-of-life and livelihoods, natural resources and ecosystems, and land use, infrastructure and utilities, as illustrated below.

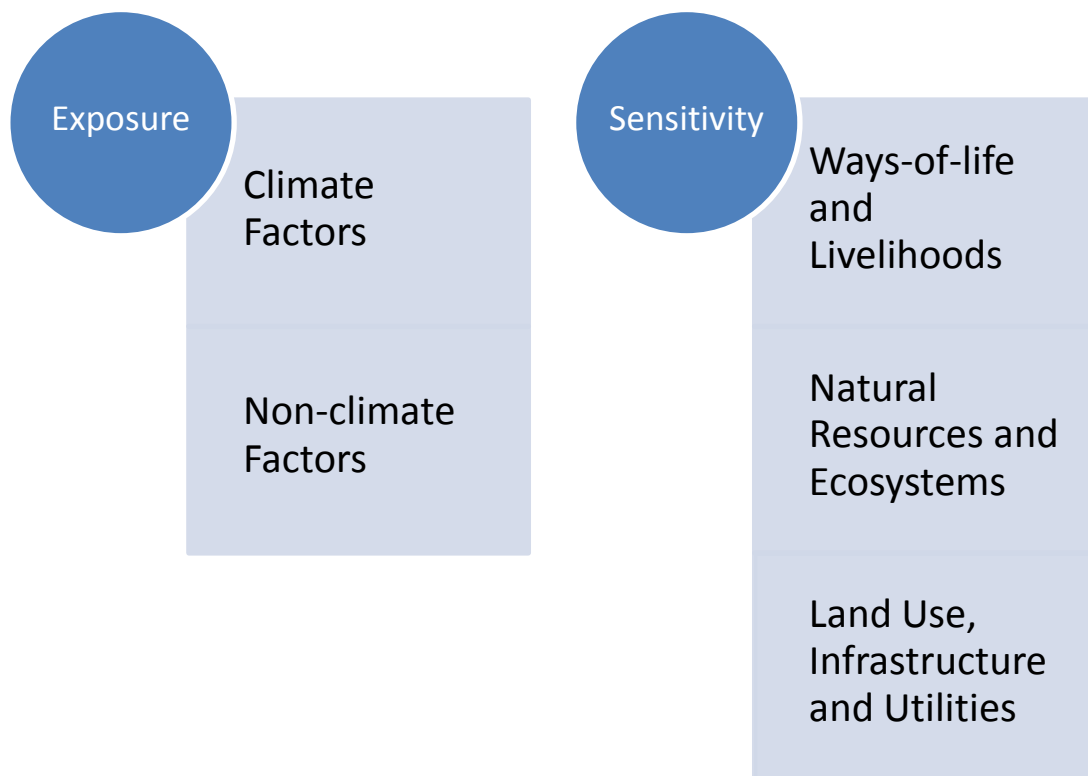


Figure 4: Factors which affect the level of exposure and sensitivity.

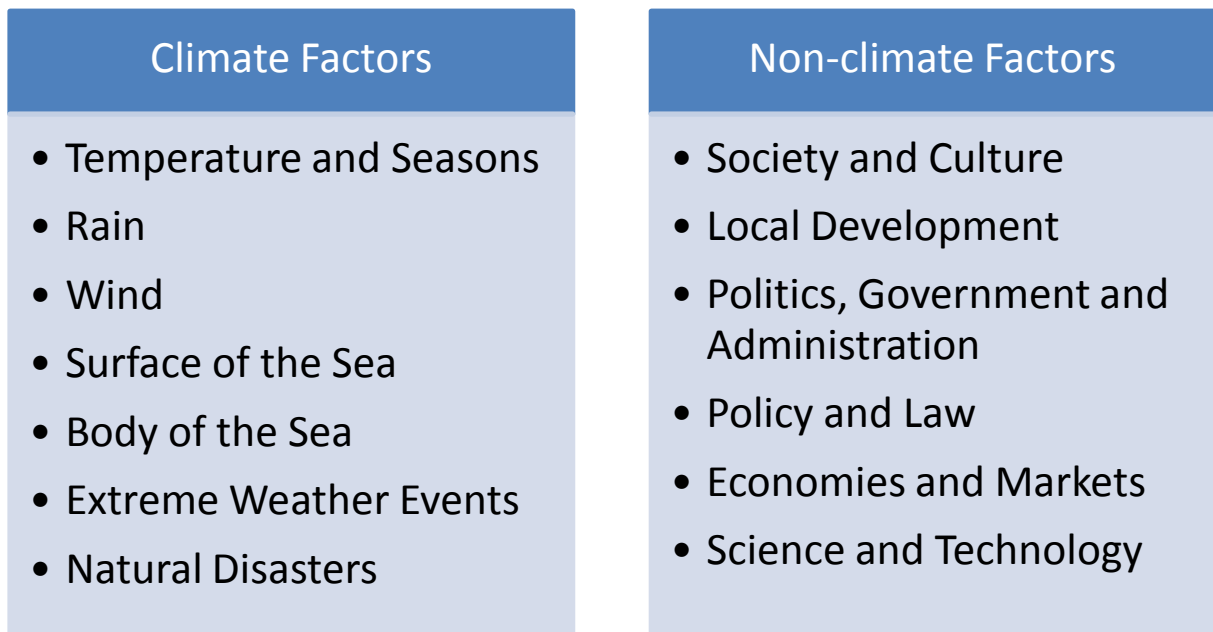


Figure 5: Exposure, the likelihood of encountering some kind of hazard, is about the potential for change to occur.

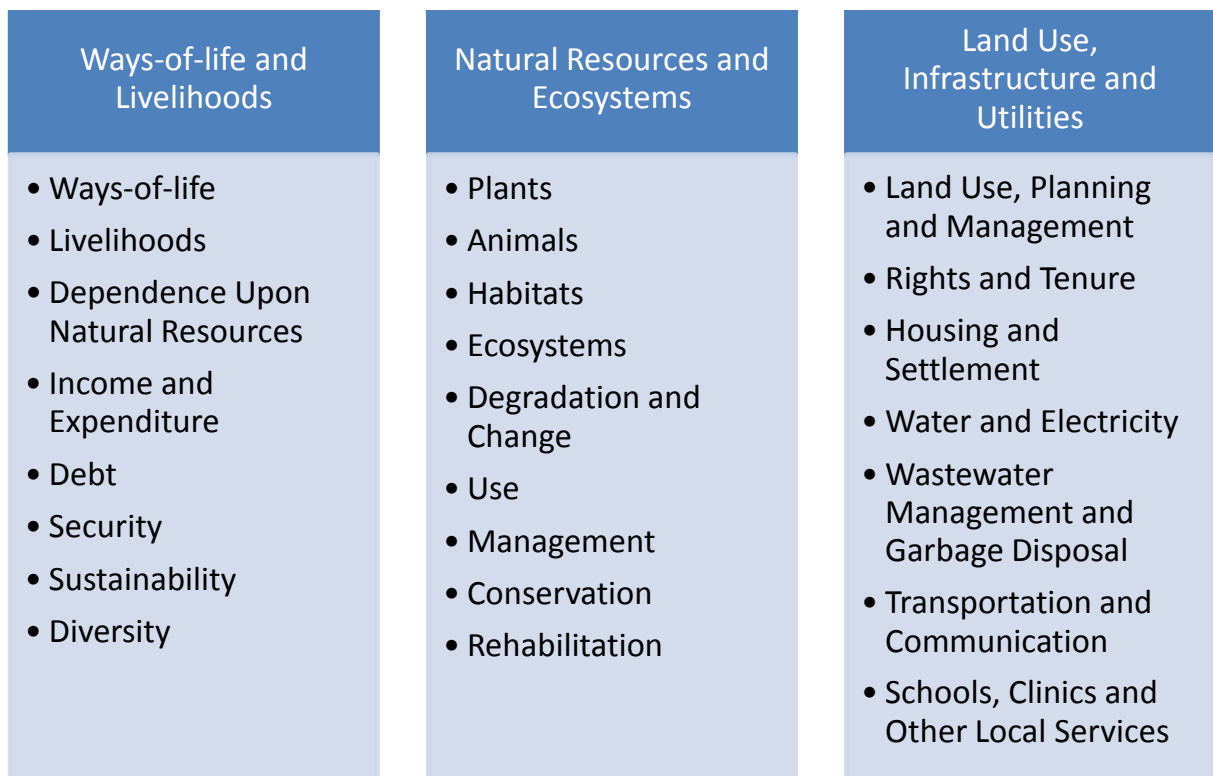


Figure 6: Sensitivity, the likelihood of being negatively impacted, is about existing behaviors, regimes, circumstances and situations.

Using this conceptual framework, we can see that the concerns of the communities of Bang Chan Sub-district are related to areas of existing sensitivity, as illustrated below.

Community Concern	Areas of Existing Sensitivity
<p>Their lack of rights in terms of settlement and natural resource use.</p>	<p>Ways-of-Life and Livelihoods:</p> <ul style="list-style-type: none"> ● Ways-of-life ● Livelihoods ● Dependence Upon Natural Resources ● Security <p>Natural Resources and Ecosystems:</p> <ul style="list-style-type: none"> ● Use ● Management ● Conservation <p>Land Use, Infrastructure and Utilities:</p> <ul style="list-style-type: none"> ● Land Use, Planning and Management ● Rights and Tenure ● Housing and Settlement
<p>The inadequacy of their household water supply – most of the sub-district is covered in mangrove forest, and there are no viable freshwater sources in the area.</p>	<p>Ways-of-life and Livelihoods:</p> <ul style="list-style-type: none"> ● Ways-of-life ● Income and Expenditure ● Debt ● Security <p>Natural Resource and Ecosystems:</p> <ul style="list-style-type: none"> ● Ecosystems ● Degradation and Change ● Management ● Rehabilitation <p>Land Use, Infrastructure and Utilities:</p> <ul style="list-style-type: none"> ● Housing and Settlement ● Water and Electricity
<p>Conflicts regarding the illegality of their traditional fixed fishing gears.</p>	<p>Ways-of-life and Livelihoods:</p> <ul style="list-style-type: none"> ● Ways-of-life ● Livelihoods ● Security ● Sustainability <p>Natural Resources and Ecosystems:</p>

	<ul style="list-style-type: none"> ● Degradation and Change ● Use ● Management ● Conservation
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Table 1: The concerns of the communities of Bang Chan Sub-district are related to areas of existing sensitivity.

Furthermore, some of the concerns of the communities of Bang Chan Sub-district not only make the communities more vulnerable to potential climate change impacts, they also affect the communities' capacity to adapt to climate change. For example, their lack of rights in terms of settlement and natural resource use affects their capacity to adapt to climate change because:

- the communities' efforts to improve their housing, settlement and livelihood security might bring them into conflict with the rules and regulations for land use and natural resource management of related government agencies;
- coordinating with government agencies to have them implement projects in the area may prove difficult if the communities have no secure land rights, and have ways-of-life and livelihoods that conflict with the rules and regulations of related government agencies;
- the communities themselves may have little incentive to try to improve their housing, settlement and livelihood security because they have no secure land rights and so no guarantee that they will be able to live in the area in the long term.

The key message: addressing existing sensitivities is a key first step in adapting to climate change. Only once we have successfully reduced existing sensitivities can we go on to managing existing and future exposure, and increasing future resilience, flexibility and diversity.

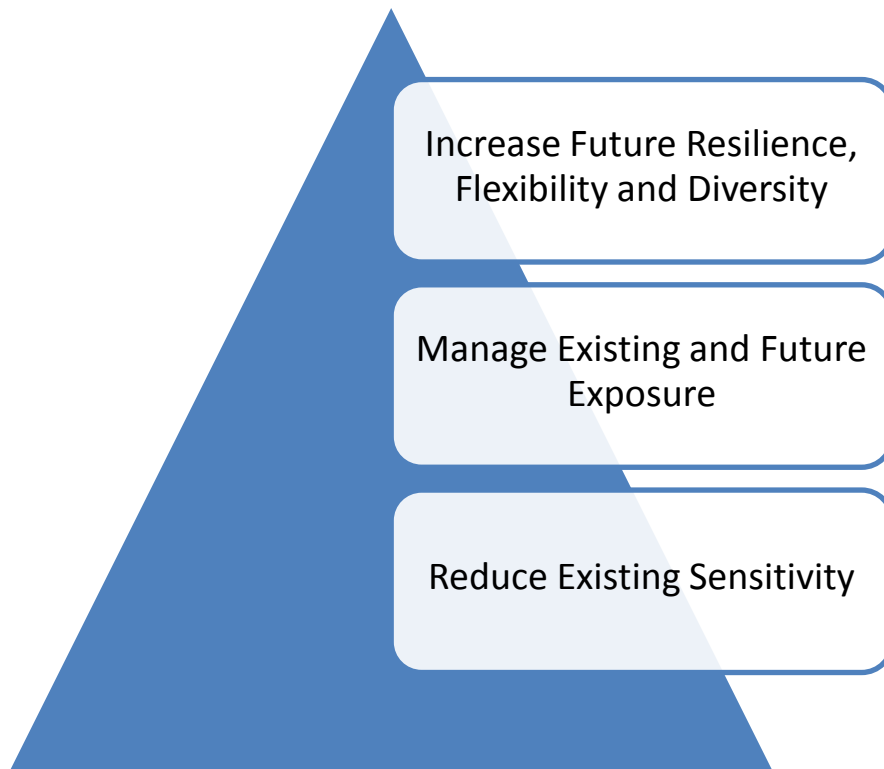


Figure 7: Addressing existing sensitivities is a key first step in adapting to climate change.

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