

IH350 Quantifying the resilience of marine dependent communities to climate change and resource depletion in Indonesia

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More than 80% of Indonesia's estimated 240 million people live within 50km of the coastline. Included within this coastal population are a wide range of ethnic minorities and poor fishing communities which depend to a large extent upon maritime resources. The Bajo, found throughout Indonesia, the Philippines and Malaysia, represent the most widely dispersed ethnic group within south-east Asia and are also characterised by a singularly strong dependence on the sea for food, fuel and building materials. The ability of such communities to adapt to the impacts of climate change, commonly termed 'resilience', is therefore of key importance in planning for climate change. Similarly, the ongoing depletion of fish stocks and other maritime products due to overfishing using highly effective fishing methods is of direct importance to the future viability of the Bajo and other marine-dependent communities in Indonesia and elsewhere.

The Bajo village of Sampela, a community of approximately 1400 people living in houses built on wooden stilts or concrete platforms over the intertidal reef flat off Kaledupa, has long been the focus of student research through Operation Wallacea. This is of importance as the Bajo constitute a significant minority population in the Wakatobi and their reliance upon the sea underlines their importance as key stakeholders in marine resource management. Previous dissertations have examined diverse topics including aspects of Bajo society, culture, religion, economy and their experience of conservation as reflected through activities in the Wakatobi National Park. More recently, the focus of research activity has moved towards examining the consequences of climate change and resource depletion for the Bajau and to understand in more detail how this community and other Bajau villages can adapt to these circumstances. This topic has resonance with research activities throughout the world which are designed to mitigate the impacts of environmental change with respect to vulnerable communities.

There are a number of possible research focal areas within this topic. One activity could examine the advantages and disadvantages of promoting seaweed cultivation as an alternative income source for Bajau communities. Seaweed cultivation results in the manufacture of agar which is a common food base and there is a rapidly expanding market for this product. In theory, it offers advantages through increasing Bajau self-reliance, diversifying the local economy and reducing direct pressure on fish resources associated with Bajau fishing activity. However, there are also difficulties in promoting this activity which include cultural preferences within a community characterised by fishing activities, a distrust of engaging with Government-sponsored development programmes and opening up participants to the impacts of fluctuating commodity prices over which they have no control. Furthermore, seaweed cultivation in the Wakatobi involves very limited processing and hence there is little potential to 'add value' to the product. There is, therefore, a real need to examine in detail whether seaweed cultivation represents a viable income-generating activity in social, economic and environmental terms which can form the focus of student research.

Another topic area can focus upon the drivers of population change and migration within Bajau communities. Research has demonstrated that Bajau communities are characterised by strong familial and economic ties across vast distances within south-east Asia, enabling frequent long distance trips for social, trade and other purposes between otherwise apparently disconnected communities. It is often assumed that Bajau populations are increasing and that this is reflected in depletion of fish stocks utilised by the Bajau. However, in the absence of reliable census data, this remains unproven and the actual drivers of population change, migration and inter-dependency amongst Bajau communities remains largely unknown. Such information is essential for policy-makers and others with responsibility for ensuring the well-being of Bajau communities and those involved in conserving marine resources. Furthermore, Bajau communities have long relied upon simply moving away from the source of political, economic or other stresses to minimise their impacts, which is logical given their historic nomadic traditions and the extent of ties which enable such moves to be practical. This is of particular significance as a potential response mechanism to environmental disturbances associated with resource depletion and climate change, yet again remains largely unknown as a factor which could determine the resilience of contemporary Bajau communities to environmental disturbances.

The actual choice of research methods utilised by students interested in these topics would reflect both the detailed project objectives and prior experience of the individual student. Qualitative techniques including interviews, focus group activities, participant observation, problem tree analysis and other methods are all appropriate and can be utilised to meet individual project requirements. Quantitative methods based upon closed option questionnaires can be appropriate in some circumstances. Experienced translators will be available to assist in data collection, whilst the Bajau community itself is very familiar with the activities of student researchers within the village. Options exist whereby data collection could be extended to other Bajau villages around Kaledupa. The data collection process is itself a very valuable and unique learning experience for all students and offers considerable benefits in terms of developing skills and abilities which are highly sought after by many employers.

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