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Local stakeholders' conservation perceptions in Cu Lao Cham Marine Protected Area (Vietnam) and Kep Archipelago Marine Fisheries Management Area (Cambodia): common challenges and country specificities

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With the diminishing ocean health over the last century, the protection of the ocean has been central to global effort to safeguard stable environmental conditions against the effects of climate change. One of the solutions that have been proposed and accepted worldwide is to increase the coverage of marine extents under official national or international legislative protections, which are known under the overarching term of *marine protected areas* (MPAs). However, setting up new MPAs is hardly the finish line of ocean protection. Mismatches in MPA management often occur as inadequate attention is directed to the social dimensions that are associated with the area concerned. Consequently, conflicts may arise between local communities who rely on the daily harvest of natural resources and management authorities whose responsibilities are to preserve those resources. This, in turn, results in the overall failure of MPAs in achieving an effective management system, leading to the continuing deterioration of marine resources.

One suggested approach for reconciling the conflicts within MPAs entails the study of local communities' perceptions and level of support for conservation. According to Bennett (2016), local support is driven by their perceptions of: (i) *ecological effectiveness*, the biological changes as the result of conservation efforts; (ii) *social impact*, the changes that conservation initiatives produce regarding socio-economic aspects; (iii) *governance*, the legitimacy of the management systems that shape the decision-making process; and (iv) *management*, the overall acceptability of local communities regarding management actions and conservation initiatives. Applying this model, the aim of this study was to examine the perceptions of local communities in Cu Lao Cham MPA (CLC-MPA, Vietnam) and Kep Archipelago Marine Fisheries Management Area (KA-MFMA, Cambodia) and their overall levels of support for conservation and management in these MPAs. Using semi-structured interviews supported by semi-quantitative questionnaires, the study also identified the determining factors that may influence the local level of support.

A total of 153 interviews were conducted during the survey campaign at CLC-MPA (n = 127) and KA-MFMA (n = 26), with a high response rate of 78% and 100%, respectively. In general, local stakeholders were mostly supportive of conservation and management in MPAs. Statistical tests indicated that respondents from KA-MFMA were significantly more supportive than those at CLC-MPA, with 92.3% of the respondents voicing their support for the MPA in comparison with only 78.7% at CLC-MPA. Local perceptions of different indicators related to the three perception categories were positive at CLC-MPA and more neutral at KA-MFMA. As with ecological effectiveness, more than half of the respondents at KA-MFMA perceived a negative change in the abundance, size, and richness of fisheries products in the region. Meanwhile, the majority of the respondents at CLC-MPA perceived no change in the size and richness of fisheries products, and about 50.3% of them reported an increase in fish abundance. Regarding social impacts, in both MPAs, many respondents, mostly fishers, found it difficult to find opportunity for livelihood alternatives or to gain benefits from them. Especially, respondents at KA-MFMA were pessimistic about their income and quality of life, where they perceived a critical reduction in their earnings and thus, could not make enough for a living. With regard to local perceptions of good governance, some fishers from KA-MFMA had trouble accessing administrative information in the MPA, while respondents from Koh Tonsay were not involved

in any participatory management process. The perceptions from local stakeholders at CLC-MPA were generally more positive. Altogether, the composite scores for ecological effectiveness and good governance were significantly higher at CLC-MPA than at KA-MFMA, while no significant difference was detected for social impacts.

Significant relationships between local perceptions and their support for conservation were essentially detected for indicators related to social impacts and good governance at both MPAs. Higher composite scores for social impacts and good governance were also correlated to higher levels of support for conservation in MPAs, while the pattern was not as clear for ecological effectiveness, suggesting that local perceptions of social impacts and good governance may be the stronger determining factors for their opinions of conservation and management in MPAs.

An important result from the study indicated that while local stakeholders at KA-MFMA had a higher level of support for conservation than those at CLC-MPA, their opinions on the impacts of conservation were more negative for all

perception categories. This may come from the different societal settings between the two MPAs, and the common challenges that hinder conservation in both areas. CLC-MPA has more favourable conditions for long-term settlement of human on an offshore island; as a result, the social dimension here was more complex with dynamic interactions between different stakeholder groups and between local communities and MPA authorities. The approach to management is, therefore, based on local participation to co-create management solutions that are centered around the regulating of the use of natural resources from local communities. This results in the fact that local communities here are more aware and understanding of the impacts that the MPA has on the ecological and socio-economic situations in the area. In contrast, the various conservation projects at KA-MFMA do not involve local communities and as the result, the objectives and impacts of the MFMA, together with its ecological and social benefits, may not be fully communicated to and understood by local communities. This rationale serves as a possible explanation for the lower composite score for social impact and good governance perceptions at KA-MFMA when compared to CLC-MPA.

Despite notable differences in geographical and societal settings, the management of CLC-MPA and KA-MFMA is confronted by similar challenges. *Firstly*, illegal fishing poses serious threats to the integrity of natural environment in both MPAs. At CLC-MPA, certain mechanisms exist to cope with the problem; however, a lot of resources are necessitated to handle a single incident, suggesting that the executive procedure at CLC-MPA is ineffective. At KA-MFMA, the autonomy of Marine Conservation Cambodia (MCC) in managing the area rid them of the bureaucracy that is associated with governmental organisations in natural resources management. MCC focuses on the prevention of illegal fishers which have been devastating the area for a long time prior to the establishment of the MFMA. It may be for this reason that although having poor opinions of the impacts of conservation on all perception categories, local communities here still showed a relatively higher overall level of support than those at CLC-MPA. *Secondly*, to achieve long-term conservation objectives, pressure is put on MPA managers to make sure of a sustainable continuation of conservation initiatives and local participation in the management of the MPAs. At CLC-MPA, the integrity of local participation in MPA management has been criticised by the communities for the shortage of financial resources to support livelihood alternative projects and the inappropriate restrictions of access to traditional fishing grounds. This suggests that there exists a possible mismatch between the management approaches and the needs of local stakeholders at CLC-MPA, which may explain the comparatively lower level of support for the MPA here.