REPORT

Exploring the potential impacts of tourism development on social and ecological change in the Solomon Islands

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Received: 17 February 2015 / Revised: 27 July 2015 / Accepted: 23 March 2016 / Published online: 18 April 2016

Abstract Pacific Island communities may be vulnerable to negative impacts of economic development, which is often considered a strategy for reducing vulnerability to environmental change. Studies that evaluate potential impacts of economic development in isolated communities may be inaccurate to only focus on asking people to anticipate impacts of phenomena they have had minimal exposure to. We used an open-ended approach to evaluate how communities in the Solomon Islands perceived change, and used this information to anticipate potential impacts of the government's plans to develop tourism. Our results showed mostly negative expectations of change, particularly socio-cultural, which was perceived as being driven by diminishing social capital, foreign influence, and economic development. Despite minimal exposure, locals supported tourism and had more positive expectations of change associated with this activity. Our findings emphasize the need for locally appropriate planning to ensure intended positive impacts of tourism and other forms of economic development.

Keywords Impacts of change · Economic development · Social impacts · Perceptions · Tourism · Solomon Islands · Melanesia

INTRODUCTION

Tropical small island nations in the Pacific and other parts of the world are facing increasing impacts of social and ecological change resulting from economic development

(e.g. tourism, natural resource exploitation, industrial development), population growth, and climate-related processes. These are affecting the livelihoods and survival of coastal communities (McClanahan et al. 2009; Oliver-Smith 2009). They are also experiencing unequal levels of poverty, exposure to pollutants, and, in some locations, abusive external appropriation of natural resources, making them more vulnerable to further social and ecological changes (McClanahan and Cinner 2012). Ongoing and potential negative effects of environmental change on resource-dependent communities in small island developing countries are a frequent focus of vulnerability research assessments (Schwarz et al. 2011; Lauer et al. 2013); but the potential negative impacts of changes induced by economic development have received less attention. Rather, these activities are often considered by governments to be tools for combatting livelihood vulnerability to environmental change, particularly in coastal communities.

Some studies suggest that small Pacific islands are able to cope relatively well with climatic and environmental change, possibly because local populations have been experiencing and adapting to high environmental variability for hundreds or thousands of years (Anderson-Berry and Yates 2003; Campbell 2009; Gough et al. 2010). Yet, ongoing research in the Solomon Islands (and other parts of Melanesia) suggests that recent social changes brought about by economic development and globalization (e.g. access to foreign markets, homogenization of culture) may be eroding the adaptive qualities of communities, thus making them more vulnerable to stresses in their social and ecological environments (Wearing and McDonald 2002; Lauer et al. 2013).

Growing concerns about poverty, food security, and vulnerability to climate change in rural communities in the developing world have resulted in a proliferation of

Electronic supplementary material The online version of this article (doi:10.1007/s13280-016-0781-x) contains supplementary material, which is available to authorized users.

government- or donor-led initiatives aimed at providing economic development and alternative livelihoods, with many of them linked to tourism (e.g. Tao and Wall 2009). Although generally intended to stimulate sustainable development, improve well-being, and relieve pressure on natural resources, these sorts of initiatives often fail to deliver these benefits (e.g. Bennett et al. 2014, Cororation and Knight 2014). One possible reason for this is a failure to consider residents' past experiences and future expectations of change, and how these may influence their ability to adapt to new forms of development (McLaughlin and Dietz 2008; Schwarz et al. 2011). In addition, when perceptions research is carried out in relation to planned development activities, it often fails to capture the bigger picture by asking people to anticipate impacts and reactions to phenomena they have had little, if any, exposure to. For example, expectations of economic benefits may lead local people to express support for tourism and other forms of economic development without fully understanding potentially negative impacts (e.g. Truong et al. 2014).

In this study, we evaluated perceptions of change in the Roviana and Vonavona Lagoons, Solomon Islands (from here on referred to as "Roviana"; Fig. 1). Besides some logging, commercial fishing and agriculture, and minimal tourism, economic development in this region is low, with over 80 % of the households still dependent on locally farmed and fisheries resources at the subsistence level. The region is considered to be highly vulnerable to climate change impacts (Bennett et al. 2014). Tourism development has been heralded as a strategy for supporting sustainable development and building climate change adaptive capacity (Wickham 2012) and is a key economic development priority for the Solomon Islands Government (e.g. Solomon Times 2015). In Roviana, this has manifested in plans to open an international airport in the town of Munda. The overall objective of this study was to evaluate how different impacts and drivers of change (i.e. environmental, social, economic) were perceived by local people and use this information to anticipate the possible implications of government plans to fuel the local economy through developing tourism. Specifically, we aimed to (1) document local people's experiences and expectations of change, (2) record people's perceptions of tourism development so far, and (3) detect differences in perceptions among selected demographic characteristics (individual, household levels) and communities with different levels of exposure to tourism. Given the Government's emphasis on developing tourism in the region and the fact that our study communities have had some exposure to this activity, we chose tourism as the 'economic development scenario' for this article. However, our inductive, open-ended approach to evaluating local perceptions of change is applicable to anticipating local reactions to any type of economic

development (e.g. industrial development, commercialization of fisheries or agricultural resources, etc.) or even other changes such as the implementation of conservation programmes.

In the Solomon Islands, the interaction between people and natural resources is embedded in the context of customary management (CM) systems. These are complex socio-political relationships of local land and sea tenure, which regulate the use, access, and transfer of natural resources (Cinner and Aswani 2007; Foale et al. 2011). Because "place" is so fundamental to people's subsistence and identity, any form of local alteration of communities' territory through the introduction of development enterprises can result in widespread local conflict and confrontations, and this presents a challenge for the development of tourism in the region (Ruddle and Tuong 2009). This was illustrated by Sofield (1996) who reports a resort being burned to the ground in Anuha Island in the Solomon Islands due to the alleged insensitivity of the developer to local land tenure tradition.

The level of tourism in the Solomon Islands is relatively low, with an estimated 18 000 international visitor arrivals in 2011, amounting to direct contributions of 3.7 % to the total GDP (WTTC 2011). This is likely due to a number of factors including accessibility, lack of infrastructure and amenities, health issues including widespread malaria, and socio-political barriers (e.g. CM and ownership of resources). As a result of this, there is very little research on tourism impacts in the Solomons, and studies that do exist tend to focus on constraints as opposed to implications of development (e.g. Sofield 1993, 1996; Douglas 1997, 2004).

MATERIALS AND METHODS

Study site

The larger island of New Georgia occupies a central position in the New Georgia Group chain and is ringed by various major lagoonal ecosystems including the Marovo, Roviana, and Vonavona lagoons (Fig. 1).

New Georgia as well as bordering barrier islands is covered with rainforests of various characteristics, and the marine ecosystem displays a mix of habitats characteristic of both coastal and coral atoll lagoons, including mangrove forests, river mouths, mudflats, seagrass beds, coral atolls, barriers reefs, and marine lakes, among other habitats (Stoddart 1969). Villages of different sizes, which range from several dozen to over a thousand individuals, are found on both the New Georgia mainland and the islands enclosing lagoons. Tribal estates extend from the interior of New Georgia to the barrier islands and beyond to the open sea, and inhabitants access land and sea resources

Fig. 1 Map of Roviana and Vonavona Lagoons, Solomon Islands: Study communities are *underlined*, markets are depicted as *hexagons*, and the two main resorts as marked with *stars*. Marine protected areas (MPAs) are shown to indicate areas of community-based marine conservation and management

according to their birth connection, spousal affiliation, and location of residence. Chiefs and elders control each district and exercise control of resource use and access through customary law, although the latter is increasingly eroding as a result of modernization. Today, the people not only live off the land and sea but also generate cash by shell diving, marketing local produce, selling handicrafts, producing copra, operating small stores, and engaging in a nascent tourism industry among other economic activities such as logging and fish processing (Aswani 1999). In recent years, an increasing population and growth of the cash economy have led to the growing degradation of marine and terrestrial ecosystems (Aswani 2011). This is despite the fact that local communities have established various conservation programmes to safeguard their resources (e.g. marine protected areas in Roviana; Fig. 1).

The first guest lodge in the study region was established more than 30 years ago in Munda town, which is the largest human settlement in the region and an administrative post

for the area (Fig. 1). The rate of tourism development since the establishment of this hotel has been slow, with only two other small resorts in the area and a number of local guesthouses today. Recent plans to open international routes at the local airport has raised expectations about tourism development, but while the runway has been built the international airport (terminal, lights, etc.) has not been completed on time because of financial troubles and recurrent land tenure disputes between different local tribal factions. Although locals have been exposed to tourists for several decades, their direct economic involvement in the industry remains very limited and is mostly connected to employment at the resorts, and some sales of arts and crafts such as local carvings.

Sampling

Nine local research assistants implemented the in situ household surveys in six communities in Roviana (Fig. 1).

A large field team was necessary to ensure appropriate representation of each village and availability of male and female interviewers, thus maximizing our response rate. Measures for maximizing consistent delivery and completion of the surveys included group-training sessions, translation of the surveys into the local language, unambiguous question design, and continuous supervision in the field.

Household lists were obtained from a census conducted in 2011 by the Roviana Conservation Foundation, our local research partner. Quota samples of 30 households were selected from the lists for each village (total households in the study communities ranged from 214 to 62, with an average of 116) using a random sample selection tool in IBM SPSS (v. 21). The final sample was somewhat opportunistic in that, if a household was unoccupied at the time of the survey, researchers moved onto the next house (and so on) until they were able to complete the survey. In order to maximize representativeness, as much as possible efforts were made to obtain responses from varied demographic groups (i.e. with respect to gender and age group) and we sampled across the day to try to ensure that working and non-working individuals were included. Since the field assistants were local, in many instances, they were able to find members of the selected households at their place of work. The final sample was 188 households and our response rate was 100 % due to the selection of research assistants who were well known and respected in their communities.

Survey instrument

The questionnaire (Supplementary Material S1) included a combination of open-ended and semi-structured questions pertaining to perceptions of change and selected demographic characteristics. First, respondents were asked an open-ended question about what they expected would be the three biggest changes in their community in the coming years (from now on referred to as “impacts”). For each impact cited, they were asked if they considered it to be positive, negative, or a combination of both. We also asked them to attribute a cause to each impact, from here on referred to as “drivers of change”. Next, we talked more specifically about tourism, asking them what, if any, had been the biggest changes in their communities resulting from existing tourism, and whether or not they would like to see more tourism in their village. We ordered the questions in this way so that responses to the change question would not be influenced by a prior discussion about tourism impacts. Demographic variables in the survey that were used in our analysis as independent variables included age, education, and gender. Household level demographic variables included occupational multiplicity, number of people living in the house relative dependence on natural resources other economic activities, and the structure of house (e.g.

leaf, concrete, hybrid). The latter was considered to be an indicator of the wealth of the household.

Data analysis

The responses to the open-ended questions were coded into nominal categories (e.g. socio-cultural, environmental, and demographic). These categories were not pre-assigned; rather, they emerged freely from the data. The demographic variables were coded as scale (e.g. age, occupational multiplicity), ordinal (e.g. level of education), and nominal (e.g. structure of house) variables. We also ranked the communities in terms of their relative exposure to tourism: higher, lower, and none. This ranking was based on the number and capacity of resorts and guesthouses in the vicinity of the community including local knowledge of tourist visitation patterns.

We used decision tree models (e.g. Kass 1980; De’ath and Fabricius 2000) to (1) explore the relationship between perceptions of impacts and their drivers and (2) test the influence of our demographic variables and relative levels of tourism exposure in the village on overall perceptions of positive and negative change. We used decision tree models because they can accommodate data measured at multiple scales, do not rely on strict assumptions such as normality and homogeneity of variance, and are robust when dealing with categorical data with large numbers of categories (e.g. drivers of change; De’ath and Fabricius 2000; Feldsman 2002). We used contingency analysis to test for potential differences in perceptions of the main impact categories (social and environmental) among different types of household and individual respondents (e.g. in relation to gender). The social science statistics package SPSS (v.21) was used for this analysis.

RESULTS

The demographic data showed ninety percent of the household sample to be entirely or partially dependent on fishing and farming for subsistence and small-scale cash generation. Thirteen per cent had at least one member working in an alternative cash-producing profession such as carving, shopkeeping, or construction. Only 2 % of the households had at least one member working in one of the resorts. These households were located in Kindu and Dundee, the two villages closest to the airport and main tourism area of Munda (Fig. 1).

Impacts and drivers of change

A total of 505 expected impacts were elicited from 188 respondents (Table 1). In our subsequent analysis, we only

Table 1 Coded responses for expected changes in the village and perceptions of whether they are positive, negative, or both

Category of change	Examples of impacts	% responses ^a (<i>N</i> = 505)	% respondents (<i>N</i> = 188)	Perceptions (% responses)		
				+	±	−
Socio-cultural	Crime, delinquency, fashion, custom changes	48	100	15	18	67
Environmental	Fewer fish or trees, pests, heat	21	56	9	16	75
Demographic	More people, movement of people	16	44	10	28	61
Development	More infrastructure, technology, improved houses	7	19	29	35	36
Economic	Jobs, more money in the village	5	13	8	31	60

^a Percentages have been rounded and may not add up to 100

Fig. 2 Decision tree (CHAID method) showing perceived drivers of expected changes (Risk 0.25; SE 0.02)

included impacts and drivers of change categories that were cited by 5 % or more of the respondents. This is because we considered categories only cited by a few respondents to be less representative of overall perceptions of change, and thus to have minimal implications for collective behaviour. Regardless, it is worth noting that tourism development as a driving force of expected change was only cited by 2 % of the respondents.

Overall, our results showed that 65 % of expected impacts were perceived as negative, 21 % as both positive and negative, and 14 % as positive. Pearson correlation coefficients revealed strong negative correlations between the frequency of responses pertaining to negative environmental impacts

and both negative social ($r = 0.4$, $p < 0.001$) and negative demographic ($r = 0.4$, $p < 0.001$) impacts.

The major categories of expected drivers of change emanating from the coded responses ($N = 456$) were foreign influence (27 %, e.g. foreigners living in the communities, researchers, missionaries, logging companies, and tourists), population increase (18 %, e.g. mainly from increased reproduction), breakdown of leadership and cooperation (14 %), economic growth and development (14 %), climate change (13 %), and anthropogenic environmental disturbance (8 %). Figure 2 shows a decision tree model of the main drivers respondents attributed to each of the categories of expected impact.

Table 2 Perceptions of changes resulting from tourism in the village

Category of change	Examples of impacts	% responses (<i>N</i> = 217)	% respondents (<i>N</i> = 129)	Perceptions (% responses)		
				+	±	–
Culture, tradition, and behaviour	More crime, drugs, delinquency, change in fashion (e.g. bikinis)	24	40	22	19	59
Economic	More jobs, money, business opportunities, more goods sold in market	21	35	73	10	17
No change	–	–	34	–	–	–
Standard of living and lifestyle	Improved standard of living, lifestyle change	10	17	51	25	25
Development	Improved infrastructure, schools, roads, airport (Munda)	10	17	73	18	10

Perceptions of tourism

Seventy three per cent of the respondents said that they would like to see more tourism in the future, 16 % did not want more, and the rest said they were not sure. The coded response categories of perceptions of changes resulting from tourism already experienced in the village are shown in Table 2. Overall, 49 % of the perceived changes from tourism were expressed as positive, 32 % negative, and 19 % both positive and negative ($n = 217$). The categories are similar to those in Table 1 although the proportion of positive and negative perceptions varies, particularly in relation to economic growth and development.

Factors that influence overall perceptions of change

The contingency analysis between individual- and household-level variables showed statistically significant differences in negative perceptions of social change in relation to house type; 77 % of people living in leaf houses cited negative social impacts, as opposed to 68 % in hybrid and 60 % in concrete ones ($p < 0.05$, $\chi^2 = 6.38$). Also villages with no tourism or higher relative levels of tourism were more likely to cite negative social impacts (77 and 73 %, respectively) than those with lower (i.e. median) levels of tourism (58 %, $p < 0.05$, $\chi^2 = 6.257$). The decision tree model for the influence of the individual and household demographic variables and level of tourism in the village on overall perceptions of change (i.e. positive, negative, or both) showed a similar trend, with relative level of tourism to be the only influencing variable, those in villages with no tourism at all having more negative expectations of the future (Fig. 3).

DISCUSSION

We evaluated local expectations and perceptions of change, including the impacts experienced from tourism to

date, and used this information to anticipate the possible implications of government plans to fuel the local economy through developing tourism. Although tourism is our chosen context and a priority for the local government, our discussion is relevant to the wider context of economic development in rural, resource-dependent communities.

Our results showed largely negative expectations of change across the study villages, with a strong emphasis on socio-cultural impacts. These were attributed to two main drivers: diminished social capital (e.g. lack of leadership, cooperation, and delinquency among youths) and foreign influence. Foreign influence included workers in logging and the fish cannery, missionaries, military personnel, expats (mostly tourism business owners), and tourists. Economic growth and development were also perceived to be significant drivers of socio-cultural impacts. Our results showed that the majority of locals perceived that tourism had impacted their community in some way, despite minimal levels of exposure. Although only a small proportion of our sample had direct economic ties to tourism, the majority of respondents said that they would like to see more tourism in their villages. In the following discussion, we explore in more depth the roots and possible repercussions of the disproportionately negative expectations of socio-cultural change. We then examine the influence of tourism to date and the possible implications of our results for the government's plans for developing tourism in the region, and discuss potential impacts of economic development in general.

Recent studies confirm that small communities in our study region are experiencing significant environmental change (Aswani and Lauer 2014), yet the responses to our interviews showed a much stronger emphasis on social impacts, which were cited at least once by all of the respondents. Population growth and breakdown in leadership and social cohesion also featured highly as perceived threats to the future in other regional studies (Schwarz et al. 2011). Climate change was cited by many of our

Fig. 3 Decision tree (CRT method) showing the relationship between the relative level of tourism (high, low, none) and overall perceptions of change (Risk 0.25, SE 0.02). Note that the percentages of overall perceptions of change in figure differ from those attributed to all the impacts that were cited as these have been assigned at the individual level (e.g. if an individual cited two impacts and both were positive, then they are attributed as positive, etc.)

respondents, but perhaps not as often as one might expect given their exposure to climate change impacts and their high level of dependence on natural resources. It is also worth noting that these villages were involved in a significant climate change awareness-raising project immediately prior to the implementation of this study. If anything, this may have inflated the perception of climate change as a driver of expected change.

Although locals had very little economic involvement in tourism, they appeared to be supportive and optimistic with respect to further development of this industry. Host community support for tourism development in its early stages has been documented in the tourism literature (Doxey 1975; Butler 1980; Diedrich and García-Buades 2009); yet these inceptive stages can be a time of heightened socio-cultural impacts due to more direct interaction between locals and tourists and the fact that cultural differences may be accentuated (Butler 1980). Although locals did not explicitly cite tourism as a driver of expected change, our results support the idea that the large majority of respondents did perceive some impacts. Our model and contingency analysis showed that the level of exposure also influenced people's expectations of change. Villages with no exposure to tourism or relatively higher levels expected more negative social impacts. This points to the possibility that villages just starting to develop tourism may experience an initial surge in positive expectations, which may be overshadowed by the realization that tourism brings negative social change as it grows (e.g. Diedrich and García-Buades 2009). More exposure seemed to have a positive influence on overall expectations (i.e. across all categories of change). In particular, economic and development impacts were viewed as mostly positive when associated with tourism, yet the majority of respondents considered

them to be negative when expressing their expectations for future change in general. Since people in poorer (i.e. leaf) houses also expressed more negative expectations of change overall, it is possible that increased material style of life or some level of economic development makes people feel more prepared to cope with the future.

In broader terms, our results show that locals perceive economic growth and development, which is likely to be linked to foreign influence (e.g. foreign business owners and logging staff), to be a driver of socio-cultural impacts. Our results also showed a correlation between social, environmental, and demographic impacts. In isolated, resource-dependent areas in particular, the exploitation, conservation, and management of natural resources is inextricably linked to the social fabric of communities (Berkes and Jolly 2001; Bennett et al. 2014). Thus, negative social impacts, which may arise from even low levels of economic development, are likely to have negative repercussions for natural resources, resulting in a destructive negative feedback loop (Dasgupta and Ehrlich 2013; Stoeckl et al. 2013). The impacts of degraded natural resources on the economy, health, and well-being are especially acute in subsistence societies. For example, Cinner and Aswani (2007) suggest that decreased dependence on natural resources and increases in technological efficiency can break down socio-cultural characteristics needed to manage natural resources, raising the potential for negative environmental outcomes. Thus, the potential for tourism or other types of economic development to break down village cohesion and leadership could further erode the ability of destination communities to cope with environmental change.

The relationship between economic growth and development and natural resource degradation is contentious.

Some argue that the relationship is one of inherent conflict, where economic growth invariably leads to environmental degradation (Czech 2003). Others claim more of a U-shaped relationship, where economic development leads to degradation in the initial stages, but eventually provides more opportunities and capacity for conservation (Hollander 2003; Cinner et al. 2009). A commonality in the debate about the relationship between economic development and biodiversity is that impacts on natural resources can be at their highest and most destructive in the initial and intermediate phases of development.

Returning to our future tourism development scenario, the relationship between tourism and conservation has also been described as ranging from conflict to co-existence or even symbiosis (Budowski 1976; Wheeler 1995). Tourism can increase demand for natural resources, break down social structure, and fuel the economy, which can further exacerbate environmental and social impacts. For example, one study in coastal communities in Brazil suggested that tourism could make communities more vulnerable to food insecurity because it restricts access, which reduces flexibility of fishers to fisheries resources, and could also lead to destructive fishing practices (Gössling et al. 2004; Hanazaki et al. 2013). Conversely, there is the potential for tourism to shift dependence on natural resources for food to conservation in order to attract tourists, which could help Solomon Islanders become less dependent on uncertain natural resources. The proportionately more positive perceptions of economic growth and development linked to tourism indicate that local people may view this form of development as more favourable to other more extractive economic activities. However, local dependence on natural resources which would likely be favoured by tourists (coral reefs, rainforests) and tourism infrastructure development (mangroves) could result in conflicts for use of space and access (Aswani et al. 2015). Lack of experience could also limit locals from being able to use tourism opportunities as alternative livelihoods and could be one of the reasons so few of our respondents were engaged in tourism. In short, there are a number of possible outcomes, both positive and negative, and careful planning that takes into consideration the local context is key to ensuring a positive trajectory for tourism and other forms of economic development.

The importance of social capital in influencing equitable and positive outcomes from change has been well documented, particularly in the context of natural resource management in developing countries (Pretty 2003; Ostrom 2009; Gutiérrez et al. 2011). A number of studies specific to the Solomon Islands have shown that social factors such as self-organized stakeholder agency, cooperation, and social relationships associated with access to natural resources have strong influences on the ability of communities to cope with change (Schwarz et al. 2011; Lauer

et al. 2013). Social capital also plays a positive role in reducing social and ecological vulnerability, particularly in the case of resource-dependent communities (Cinner et al. 2013). Our study indicates that this role could also be relevant to minimizing negative social impacts of tourism and other forms of economic development. The fact that aspects of social capital feature so prominently in the responses of our surveys indicates that there is still a strong sense of community within the sample villages (albeit that it is being eroded), which further lends itself to the probability that strengthening community ties and customary law could be an effective strategy for ensuring positive outcomes of change. For example, Holladay and Powell (2013) found that strengthening social bonds, trust, networks, and local control in Dominica in the Caribbean was important for increasing the ability of the village to cope with changes from tourism. It is important to recognize, however, that social capital cannot be seen as a panacea for ensuring collective benefits from change if, for example, it is not equally accessible to all members of a community (Ostrom 1998; Pretty 2003). Furthermore, strong leadership does not always lead to positive outcomes as leaders' incentives may not always be aligned with those of their followers (Ostrom 1998; Evans et al. 2015). So, while social ties and customs can be positive for ensuring collective benefits, they can also reinforce existing inequities (e.g. paternalistic or exclusive societies). This means that efforts to build capacity in this space should be linked to monitoring of equitable outcomes among different demographic groups. For example, the different perspectives of change held by poorer, leaf houses in our study communities is an indication that marginalized groups may be more vulnerable to negative impacts.

Local traditions and belief systems will likely need to adapt to changing management regimes associated with new forms of development (e.g. co-ownership of tourism resorts across clans). Thus, capacity building and education focussed on raising awareness about foreign cultural differences could also give local people the tools they need to absorb social change and still maintain important cultural attributes. For example, Cole (1997) took measures to follow up her study on tourism in a small Indonesian village by educating locals and tourists about cultural differences. As a result, she observed an improvement in local attitudes towards tourism. Lepp (2008) also showed that attitudes towards tourism improved in a Ugandan village through educational programmes allowing residents to acquire a basic understanding of tourism. In the case of Papua New Guinea, Wearing and McDonald (2002) recommended that participatory research, engagement, and sharing of knowledge among tourism developers and locals be integral to tourism development. Coordinated approaches which involve local collaboration and learning with

multiple agencies (e.g. NGOs, private sector, local organizations, researchers, government) are increasingly recognized as ways of improving natural resource management, and have been shown to be effective in the Solomon Islands (Cohen et al. 2012). Collaborative, participative approaches that build on the current research could help the government align their aspirations for development with local needs. Given the strong ties to place governed by CM, participatory mapping exercises could also be useful for negotiating the spatial aspects of tourism and other types of development (Aswani et al. 2015). Research and collaboration with local people could also be used to develop educational tools for schools to help build capacity among the younger generation to deal with Westernization in general, thus paving the way for a more adaptive society better equipped to benefit from development initiatives.

CONCLUSIONS

Experiences of past changes are likely to be reflected in the social memory of communities, thus shaping their expectations of future changes. We demonstrate the value of an inductive approach to exploring local perceptions and expectations of change and anticipating possible consequences of tourism and other forms of economic development and demonstrate the potential for expectations of economic benefits to lead governments to support economic growth and development without fully understanding potential impacts on isolated, resource-dependent communities.

Our results convey a simple yet clear message; in Roviana, locals expect that future change will bring negative consequences, most commonly related to negative social impacts. The data indicate that there is a strong likelihood that development in the region to date has been a double-edged sword. Further, a breakdown of the social system in Roviana is likely to result in negative feedbacks in the natural environment, potentially increasing vulnerability to environmental change. Tourism development, which is viewed by the government as a potential solution to decreasing capital extraction of natural resources and to climate change impacts, could, in fact, have the reverse effect. However, local support for tourism indicates that, with proper planning, tourism could be more favourable than other forms of economic development.

This study is broadly contextual and site specific, and more in-depth research is required to explore the individual- and village-level variables, particularly those related to social capital that influence the outcomes of economic development-induced changes in the Solomon Islands and elsewhere. In understanding this, efforts can be made to

build and capitalize on those qualities so that communities are better equipped to benefit from and carve their own paths to development.

Acknowledgments We would like to thank the staff at the Zela Field Research Station for invaluable field support and Roddy Mae Bule, chair of the Roviana Conservation Foundation for help with logistics in Roviana Lagoon. We would also like to thank the anonymous reviewers for their valuable insights and contributions to this report. This work was supported by the Pacific Adaptation Strategy Assistance Program, Australian Department of Climate Change and Energy Efficiency [ABN 50 182 626 845].

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