Connecting Marine Ecosystem Services to Human Well-being: Insights from Participatory Well-being Assessment in Kenya

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Abstract The linkage between ecosystems and human well-being is a focus of the conceptualization of “ecosystem services” as promoted by the Millennium Ecosystem Assessment. However, the actual nature of connections between ecosystems and the well-being of individuals remains complex and poorly understood. We conducted a series of qualitative focus groups with five different stakeholder groups connected to a small-scale Kenyan coastal fishery to understand (1) how well-being is understood within the community, and what is important for well-being, (2) how people’s well-being has been affected by changes over the recent past, and (3) people’s hopes and aspirations for their future fishery. Our results show that people conceive well-being in a diversity of ways, but that these can clearly map onto the MA framework. In particular, our research unpacks the “freedoms and choices” element of the framework and argues for greater recognition of these aspects of well-being in fisheries management in Kenya through, for example, more participatory governance processes.

Keywords Kenya · Fisheries · Well-being · Ecosystem services

INTRODUCTION

The Millennium Ecosystem Assessment (MA 2005) led to greater international recognition of the dependency of humans on healthy and functioning ecosystems. The MA was based on a conceptual framework which sought to more clearly establish how ecosystem services, defined in the MA as “the benefits people obtain from ecosystems,” relate to human well-being (MA 2003). The MA framework (Fig. 1) lays out four groups of ecosystem services:

provisioning, regulating, and cultural services, which directly affect people, and *supporting services* needed to maintain the other services. Subsequently, these ecosystem services impact five inter-related constituents of human well-being: *Security, Basic material for a good life, Health, and Good social relations*. The fifth constituent *Freedoms and Choice* overlays all the other well-being categories since people’s freedoms, and the choices available to them, are influenced by, and have an influence over, the degree of well-being one achieves (MA 2003). Significantly, the MA highlighted the role of ecosystem services in enabling improvements in human welfare and as a necessary condition for poverty reduction and achieving the Millennium Development Goals (MA 2003, 2005). Well-functioning ecosystems are therefore even more crucial to poor communities whose well-being is directly tied to the provision of ecosystem services through, for example, providing food security or livelihoods (Duraiappah 2004; Bizikova 2011).

The MA’s conceptualization of well-being draws heavily from Deepa Narayan’s seminal research *Voices of the Poor* (Narayan et al. 2000), a large-scale participatory project funded by the World Bank in the run-up to the World Development Report 2000/2001 *Attacking poverty*. In response to the criticized dominance of non-poor, expert-led perspectives on poverty, the *Voices of the Poor* project involved over 60 000 poor women and men, across 60 countries, who were asked to share their own perspectives and experiences of poverty and, what is widely seen as its inverse, well-being (World Bank 2001). The research, while acknowledging the importance of context specificity, and the need to account for local factors such as culture and geography, was able to highlight five common themes which were widespread in people’s description of well-being (Box 1). As Narayan (2000, p. 22) writes

Fig. 1 The MA framework which connects ecosystem services to human well-being (MA 2003)

Ideas of wellbeing are strikingly similar across the range of participants. Despite differences of detail, and contexts that are diverse, complex and nuanced, the commonalities stand out. The same dimensions and aspects of wellbeing are repeatedly expressed, across continents, countries and cultures, in cities, towns and rural areas alike. And they are expressed by different people—women, and men, young and old, children and adults.

These five themes, which emerged from the voices of the poor study, clearly frame the way that well-being is conceptualized in the MA framework and provide a useful starting point to further explore how, in specific contexts, access to ecosystem services might relate to these dimensions of human well-being.

While the concept of well-being has become increasingly central to research and policy on ecosystem services

and sustainability more broadly (IISD 2011; Duraipappah et al. 2012), there are still large gaps in terms of what we understand about human well-being and its dynamic relationship with the environment (Butler and Oluoch-Kosura 2006; Carpenter et al. 2009; Coulthard et al. 2011). Polishchuk and Rauschmayer (2012) argue that debates on ecosystem services often emphasize the monetary value of services, as is seen, for example, in the growing popularity of Payment for Ecosystem Services (PES) schemes and the dominance of economic valuation studies in the ES literature. They, and others, advocate a richer, more dynamic, and multi-dimensional perspective for analyzing the effects of ecosystem services on human well-being, which goes beyond the provisioning of goods and services, to place emphasis on *capabilities*—the freedoms and choices people have to live a life that they value (Duraipappah 2004; Polishchuk and Rauschmayer 2012). The *Capabilities*

Box 1 Common elements of well-being drawing from Narayan et al. (2000) and the MA (2003)

1. *Basic material well-being: having enough for a good life*, including secure and adequate livelihoods, income and assets, enough food at all times, shelter, furniture, clothing, and access to goods
2. *Bodily well-being/health*, including being strong, feeling and looking well, and having a healthy physical environment
3. *Social well-being/good social relations* including social cohesion, self-respect and dignity, good gender and family relations, and the ability to help others and provide for children
4. *Security*, including secure access to natural and other resources, safety of person and possessions, security in old age, lawfulness and access to justice, and having confidence in the future (being able to look forward)
5. *Freedom and choice*, including having some control over what happens and being able to achieve what a person values doing and being; a fundamental aspiration to be able to make choices

Approach pioneered by Amartya Sen, Martha Nussbaum, and others, has played a significant role in how human development is currently conceptualized in academic research and international policy. At its heart is the broadening out from assessing development on the basis of wealth (income and commodity command) and utility (desire fulfillment) (Clark 2002) toward a multi-dimensional framing around rights, freedoms, and the *quality of life* that people are capable of achieving (Sen 1999; Robeyns 2005). The Capability Approach focuses on not only the *end* goals of increased *well-being* but also the *means* to achieve these goals conceptualized in people's *capabilities* to function—what people are able to choose to do and to be. Sen (1999) argues that it is the freedoms and choices that people have, to be able to live the kind of lives they want to lead, that is ultimately important. Capability, therefore, speaks directly to the overarching “freedoms and choices” component of well-being and is at the heart of the MA framework.

Drawing from empirical data collected in Kenya, this paper discusses how coastal fisheries stakeholders perceive well-being and how they relate their own capabilities to pursue a “good life” (“maisha mazuri” in Swahili) to coastal ecosystem services. We selected participants based on fisheries-based livelihood groups which led to a focus on the connections between well-being and the provisioning ecosystem service of fish. Previous research in coastal communities, including Kenya, has found that poor men and women tend to prioritize the importance of provisioning services and their function of supporting livelihoods over other ecosystem services (Brown et al. 2008). Fish serves as a critical provisioning ecosystem service, as both a livelihood and source of food security, for an estimated 12 000 marine fishers in coastal Kenya, a figure which swells to 200 000 (7.5 % of the Kenya population)

when support workers and household dependents are included (Degen et al. 2010). The paper continues with an overview of the Kenyan study site and the participatory methods employed. We then frame our results and discussion around three themes: (i) how well-being is perceived by people and how it relates to fishing, (ii) key changes that are affecting the achievement of well-being on the Kenyan coast, and (iii) future aspirations that people hold for the coast/fishery. We map our findings onto the categorization of well-being as it is used in the MA framework and unpack how each of these dimensions relates to the Kenyan fisheries context. We conclude with some implications for fisheries management approaches.

MATERIALS AND METHODS

Study Area

Approaches to fisheries management in Kenya, generally, have been dominated by gear restrictions and limiting access to the sea in order to promote sustainability of marine resources. However, at the same time, over half of the population in Kenya's coastal province lives below the poverty line (Degen et al. 2010) which, when combined with low literacy rates among coastal fishers and a lack of employment opportunities outside of fishing (Hoorweg et al. 2000), creates potential tension between marine conservation and livelihood/development agendas in the region. Perhaps a symptom of this tension, the implementation of management regulations has often proven difficult, with continued use of illegal gear, such as beach seine, remaining evident in many landing sites (Evans et al. 2011). More recently, there have been efforts to explore the implications of marine conservation on fishers' lives (Cinner et al. 2010) and to design options that can meet the dual objectives of marine sustainability and support of livelihoods, for example, gear change rather than blanket fishing bans (Cinner et al. 2010) and exploring scope for alternative livelihoods (Cinner et al. 2010).

This research focussed on small-scale fishers and traders operating at Nyali beach, a landing site situated close to the rapidly urbanizing port city and tourism hub of Mombasa, and within the Mombasa Marine Park and Reserve. Since 1986, fishing has been excluded from the Marine Park (no-take zone); however, fishing continues in the adjacent “Reserve” area (restricted gear). Both areas are managed by the Kenya Wildlife Service (KWS). The marine parks also support a large tourism sector, which generates revenue for the KWS through park fees for diving and snorkeling. However, relatively little is known about the scope of marine park-based tourism to improve fishers' socio-economic conditions (Cinner et al. 2010). Nyali beach was

selected as the study site since several different types of fishers and vendors operate in that area, providing opportunity to seek out possible differences between user groups and also due to existing good relations between the interviewers and the fishing community. Five focus groups were selected:

Beach seine captains—they oversee the (illegal) beach seining fishing operations, deciding where people go fishing and how the catch and money are to be divided. They often own their own boat and gear, or can be selected by a boat owner to captain his seining activities.

Beach seine laborers—the main crew who accompany the beach seine captain. Many have limited fishing experience and are responsible only for pulling the net; around 50 people can be employed as part of a beach seine crew.

(Mixed gear) Net and spear gun users—fishers who use both spear guns (an illegal gear in Kenya) and small nets (the latter is used more during the rough Southeast monsoon period). They are experienced, strong swimmers as they do not use any vessels.

Women fish vendors (mama karangas)—women fish vendors located at the landing site, who buy small quantities of low-value fish, which are sold locally (often fried). Mama karangas tend to have low socioeconomic status and limited education, capital, or opportunities (Matsue 2009).

Male fish vendors—anecdotally, male traders seem to have a higher socioeconomic status and purchase most of the higher-value fish, which they sell to a higher end market including beach residents, hotels, and other towns outside Mombasa (Abunge, own observations). A study by Degen et al. (2010) on earnings of male fish traders in coastal Kenya supports this observation, since they documented that men earned Ksh 1693 (US\$19) per week, in comparison to women who earned only Ksh 795 (US\$9) per week (during 1999–2001). Similarly, they described that the poverty line for households was reached by 30.8 % of male traders, but only by 8.8 % of female traders (ibid).

Methodology

Drawing from participatory well-being assessment methodology (Narayan et al. 2000; Billson 2006; Camfield 2006; Camfield and Tafere 2009), one focus group discussion was conducted at Nyali beach with each of the five livelihood groups. Attention was paid to social relations and differences in power, for example, interviewing beach seine crew and their captains separately. All discussions were conducted in Swahili and recorded, allowing for full transcriptions into English. Each focus group discussion

started with an “ice-breaker” question, which also explored general values held by participants around living well: “How would you describe, in general, a person who is (and who is not) doing well in this community?” The discussion was then structured around four main themes (below). For each question, the group was encouraged to discuss and agree on their response, so responses are collective answers, rather than lists of individual answers. The group was also encouraged to explain their rationale behind each response, which was recorded and transcribed.

Focus group questions:

- (i) Discuss and list the main aspects of life that are needed to live well in your community.

Components of well-being were written on a flip chart (using sticky notes) and explained by participants as the list was constructed. This question also included a ranking exercise; once the list was completed, each group was asked to discuss and rank the top 3 most important well-being components, and to give additional detail as to the rationale behind their selection. While the ranking of well-being components is a difficult process, and perhaps loses some meaning (for example, can one realistically be asked to choose among education of children, health, and money?), the exercise of working as a group to prioritize certain well-being components led to some insightful discussions among the participants. Not all groups were able to rank the components, which were subsequently left blank (see Table 1).

- (ii) Discuss the degree of accessibility of each well-being component for your livelihood group.

After listing, participants were asked to weigh each well-being component in terms of how accessible they perceived it to be (generally) for people within their livelihood group, using a Likert scale from 1 (Easy to access) to 4 (Very difficult to access). This was also a problematic question to ask in a focus group setting, given that (despite livelihood similarities) different people will inevitably have different capacities to access each well-being component. We tried, however, to gauge people’s perceptions on accessibility more generally by using phrases such as “...how accessible is ‘good health’ for fishers like you in this community?” rather than asking about the FG participants themselves.

- (iii) What are the main past changes (over the past 10 years) that had enabled or disabled people’s capacity to achieve the identified components of well-being (stressing that these can be both positive and negative changes)?
- (iv) What are your hopes and aspirations for the future coast in Kenya?

Table 1 Well-being criteria chosen by different livelihood groups operating at Nyali beach mapped onto the MA categories. *Notes* The table also details “Importance ranking criteria” {1st, 2nd, and 3rd most important for well-being} and “Access criteria” {easy, difficult, very difficult for the group to access} as agreed by each group. Blank spaces indicate that the component was not mentioned by the group

MA criteria for well-being	Well-being component as identified by the group	Beach seine crew	Beach seine captains	Male fish traders	Female fish traders	Spear/net fishers
Security	Savings		Difficult	Difficult		
Basic material for good life	Alternative business			Difficult	Difficult	
	Donors				Very difficult (Rank 1st)	Difficult (Rank 1st)
	Fishing equipment			Difficult		
	Freezer			Difficult	Difficult	
	Good business	Difficult				
	Good house	Difficult (Rank 1st)		Difficult		Difficult
	A good Job		Difficult (Rank 1st)	Very difficult		Difficult (Rank 3rd)
	Land for farming	Difficult				
	Loans			Difficult (Rank 1st)	Very difficult	
	Money	Very difficult	Difficult (Rank 2nd)	Difficult		
	Starting capital					Difficult
	Transportation			Difficult		
	Good health				Easy (Rank 3rd)	Easy
	Family					Easy
	Good neighbors					Difficult
Good social relations	Social development groups				Easy (Rank 2nd)	
	Decision making					Difficult (Rank 2nd)
Freedom of choice	Developmental mind		Difficult (Rank 3rd)			
	Education	Difficult (Rank 2nd)	Difficult		Difficult	Very difficult
	Education of children			Difficult		
	Knowledge/experience	Difficult (Rank 3rd)				

RESULTS

Interpretations of “Doing Well” in Coastal Kenya

The responses elicited by this question were useful in establishing links between a resource that someone has and the broader meaning as to how that resource contributes to well-being—a critical link in interpreting ecosystem benefits. As Sen (1999) argues, resources and assets are not the end goals of well-being, they are simply the means to achieving “something else”—a set of capabilities to live a life that is valued. Duraiappah (2004) similarly seeks to broaden out discussions from resources to capabilities by asking what a resource enables a person to do and be, and why this contributes to greater well-being for the person.

These differences between means and end goals emerged clearly from participant descriptions of a person “who is doing well” in the Nyali beach community. For example, two fishermen (see below) describe having “a job” as a means to achieve an end goal of being happy and of having the freedom to do what one desires:

A job is important. It makes one a better person in the society, it boosts your morale in the society and thus your happiness. (*Beach seine captain*)

A job is important as it acts as the foundation of life. When you have a job, then you have a future and a direction in life and you can do what you desire. You can have a house, feed your family. (*Net and spear gun fisher*)

Similarly, the capability to educate one's children can lead to several well-being outcomes, as is highlighted by the following responses:

A family or society member who takes his kids to school is usually respected. He is respected and society often seek advice from him. (*Beach seine captain*)

People judge your wellbeing on the education of your children....education for your children is the only guaranteed inheritance they can get from the parent. In case some catastrophe befalls the family and all assets disappear, then the children can make use of the education to bring back the family to economic stability through employment...." (*Woman fish vendor*)

Here, we see how educating children can be associated with gaining respect from others, and income security in case of shocks—both are valued aspects of living well (Box 2).

Components of Well-being Required for a Good Life, and Perceived Accessibility

Table 1 shows the lists of well-being criteria as generated by each livelihood group. These have been roughly categorized (by the authors) into the MA well-being criteria (left hand column) to demonstrate how the MA framework might be interpreted in a Kenyan coastal context.

Almost all well-being criteria were ranked as being difficult or very difficult to access by each group. The exceptions were good health (ranked as “easily accessible”

by the two groups which mentioned it (female fish vendors and mixed gear fishers)), access to social development groups (easy for female fish traders), and good family relations (easy for Spear and net fishers). There are also potential “emergent” differences between what different groups might prioritize for well-being; for example, traders spoke of the importance of “freezers,” which were not mentioned by fishers, while “knowledge/experience” of fishing was mentioned by beach seine laborers, which may relate to being able to fish and being selected as part of a crew. However, a methodological limitation of asking an entirely open question on well-being is that some aspects of well-being might not be raised within the discussion. This may not be due to their lack of importance, but simply due to lack of thought or time to mention them. It is important not to over-interpret absent well-being criteria; hence, differences between groups are not further elaborated here.

Table 1 also highlights several well-being components which were ranked as the top three most important ones. Some of these components are self-explanatory—health, a job, money, and a good house—and were also raised in the earlier responses around living well. The importance of money, however, warrants further discussion as, while an obvious material well-being component, there was substantial discussion on the source of money and, in particular, the importance of having a donor, loans, or access to starting capital for a business. The importance of having a donor was ranked as a top priority for well-being by two groups—women fish vendors and Spear and net fishermen. Women discussed the importance of donor agencies through their provision of business development support, social development groups, and opportunities for

Box 2 Interpretations of doing well in Nyali, Kenya. *Note* FG results were combined in this analysis, as there was no substantial difference in the range of topics discussed between groups

Aspects of doing well	Aspects of not doing well
<i>Wealth</i> : sufficient money to cater for essential needs of the family, stable bank account, and savings	<i>Lack of food</i>
<i>Job</i> : a job that is satisfying and pays well to meet the family's needs, good operational business	<i>Poor house</i> : insufficient space for the family or unable to pay rent
<i>Land and assets</i> : property, productive agricultural land (shamba), a good house, cows, livestock, and poultry	<i>Poor business</i> : no development and only surviving at subsistence levels, lack of discipline and ethics in business (no records kept, no savings, no future plan, and mindless spending), having debt
<i>Having children</i> : taking kids to school, providing for children (education, nutrition, clothing, and sufficient parental love)	<i>Destitute children</i> : one who cannot meet the education needs of his/her children, low upkeep of children (poor clothes, dirty, and mannerless), lack of children
<i>Decision making</i> : good thinking and decision making	<i>Poor Health</i> : people with a physical disability, alcohol abuse, suspicion of having HIV
<i>Good Health</i>	
<i>Relationships</i> : spending time with family, having good friends, happiness in the family	<i>Relationships</i> : no support from other people and lack of parental blessings (mistreatment of parents can result in a traditional curse “kukosa radhi”)
<i>Religion</i> : following religious guidance	<i>Bad luck</i> : Cursed/unlucky person, a person who is capable of doing things but has nothing to show for it, does not have a wife, arrested by police all the time
<i>Blessings</i> : to have blessing from god and parents	
<i>Personal security</i> : avoiding theft and relating well with other community members	

alternative livelihoods to reduce their dependency upon fish vending and buying, as is illustrated by the following quotes from the FG discussion:

We don't really see any benefit in this work, it is all struggle in order to feed our families from the little that we get...I am still in this work not because it is highly profitable but because this is the only work I know how to do! If I had tried other occupations/businesses, I would have already left this behind, but for now, I have no choice. (*Woman fish vendor*)

Women fish vendors are frequently exposed to falling income and, in some cases, exploitation by male fishers (Abunge, own observations) as fish prices fluctuate, which has led to conflicts between vendors and fishers at several landing sites (ibid). Women fish vendors, in particular, stressed the importance of having access to cash in order to buy fish from fishermen:

You buy 5 kg (of fish) today and, after selling, you feed the family with the income gained. The following day, you have less cash to buy another 5 kg of fish, so you buy less. The fishermen are quite strict and cannot lend us fish on credit. With increased prices for oil to fry the fish, and transport costs to and from the beach, we need support as we have no alternatives. (*Woman fish vendor*)

The fishermen clearly associate having a donor with opportunities for gaining new fishing gear—as has occurred in neighboring fishing communities. There was also recognition that, in order to attract a donor, one requires good contacts, a good plan, and to work together as a community with “one voice”:

You must all sit down to discuss because we must have one mind in order to convince the donor. Remember the donor does not stay here and so great plans must be put in place to get them. (*Net and spear gun group*)

There was also discussion among net and spear gun fishers that perhaps the reason that Nyali had not yet successfully attracted donor money was due to the presence of illegal beach seining in the area. Interestingly, the discussion of donors also arose in the beach seine focus group (mixed captains and laborers) and they gave quite a different perspective—rather than donors being important for well-being, they worked against it. In order to have well-being...

We need to be strong financially to reduce the influence from outside especially donors. Most of these policies that are not good for fishers are usually donor driven and yet a donor does not live hear

neither does he understand our culture. For example a donor comes here and takes photos of our gears e.g. spear gun and beach seine then goes back and says that he will only support the government if the type of fishing is banned. We used to have a lot of independence, but not anymore. (*Beach seine captain*)

Here, we see how a well-being component “having a donor” may contribute to some people's well-being (women vendors and legal fishermen), but detract from others' well-being (beach seiners), indicating the conflict that exists among different user groups within the fishery, as well as between conservation and livelihood objectives. So, the material well-being of some stakeholders is in conflict with the freedoms of others whose independence is compromised by the political influence of conservation-minded donors. It is exactly these types of conflicts, among different well-being needs and perspectives, that a well-being analysis seeks to illuminate and address (McGregor 2009; Coulthard et al. 2011).

What is perhaps most striking about the results in Table 1 is that almost all of the well-being components that can be classed within the “freedom and choices” criteria of the MA framework appeared in people's top three rankings. This perhaps emphasizes the high priorities people place on freedoms and choices, and (in line with Sen) highlights the centrality of capabilities to people's well-being. For example, the lack of involvement in decision making was raised by two groups of fishers—spear gun and net fishers and beach seiners—and reflects some of the conflict and controversy between fishing livelihoods and marine conservation interventions, which have been driven by government, donor, or NGO agendas, as is commented by a spear gun fisherman (also an illegal gear):

The worst thing is to be forced to do things against your will. It will not succeed. So donors give money but let us decide what's good for us.... You are the one who knows the sea and its problems but someone comes up and tells you that the best thing to do is to stop fishing! (*Net and spear gun group*)

Imagine a story...Someone has gone to the hospital because he was sick and could not walk. The doctor gives him a stick to help him walk, then you, and your mind as a manager, start shouting to him ‘Stop walking! stop walking!’ What do you expect from this person? he can kill you... I have really struggled to reach where I am without your help then you are stopping me. You are asking me to stop and yet my kids are crying of hunger! (*Net and spear gun group*)

Another aspect which arose in discussions was the importance of having a “developmental mind,” expressed in Swahili as “akili endelevu,” as is highlighted by the

following excerpt taken from the beach seiner focus group (captains and crew):

A development mind - If you have this, you will be able to develop. If you have a good mind, you will know how much you have in terms of property, savings, and money & be able to plan how to use it... A rich man has no 'brains' - All he thinks of is how much money has coming in and how much has gone out, but a poor man, once he gets money, he thinks of how to move ahead and improve himself....Education is said to be important but it depends on what you do with that education...

The idea of a “developmental mind” is an indication of how people themselves aspire to plan, develop, and improve their own quality of life, and suggests that people are well aware that it takes more than resources and money alone to do this—one needs to also have aspiration and “a plan.” A developmental mind clearly relates to the development of one’s own capabilities. Narayan et al. (2000) argue that this is “fundamental aspiration”:

Participants in many contexts say that they want to be able to make choices, to decide to do basic things without constraint, to live in a predictable environment and have some control over what happens.

They also illustrate how powerlessness and a lack of the ability to plan ahead lie at the core of people’s descriptions of a bad life, and they come hand in hand with frustration and anger, as we also see here in the discussion around powerlessness in decision making around fishing access. In

Kenya, the development of marine parks and growing restrictions around fishing access have, in some cases, created conflict and discord with local fishing communities (and also within those communities) as different interests compete (Tuda et al. 2007; Signa et al. 2008). As such, people’s capacity to aspire and have freedom to live a life they value may be impacted by marine conservation in ways which currently are little understood. In response to this, our research further explored the major events, changes, and trends which people themselves describe as impacting their capacity to achieve well-being

Key Changes in People’s Ability to Achieve Well-being

Each focus group was asked to list the main changes, trends, or events that had affected their ability to achieve well-being over the last 10 years (stressing that these could be either positive or negative changes).

As Table 2 shows, many of the changes listed relate directly to fish, a provisioning ecosystem service. Reduced *availability* of fish was blamed primarily on there being more people fishing (increased competition), environmental pollution, and on habitat loss, in particular, the loss of seagrass beds. Reduced *access* to fish was attributed to a growing number of marine parks, gear restriction, high prices (for vendors), and beach development.

Many of the discussions highlighted a conflict between fisheries and the tourism sector, tourism being seen as the main beneficiary of marine parks (which are used by tourists as recreation grounds), tourism infrastructure and

Table 2 The main changes (over the last 10 years) which have affected people’s ability to achieve well-being

Changes over the last 10 years	Beach seine laborers	Beach seine captains	Male fish traders	Female fish traders	Spear/net fishers
Beach development	Negative	Negative		Negative	Negative
Creation of parks	Negative	Negative	Negative	Negative	Negative
Decrease in catch	Negative	Negative			
Lack of alternative jobs	Negative				
Population increase	Negative				
Pollution	Negative				Negative
Bad government policies	Negative	Negative		Negative	
Increased no. of fishers		Negative			
Gear restriction		Negative			Negative
High cost of living		Negative	Negative	Negative	Negative
Political instability			Negative		
Environmental disasters			Negative		Negative
Poor fishing gear			Negative		
Reduced seagrass and weeds			Negative		Negative
High fish prices				Negative	Negative
Cultural changes					Negative
Sea urchins					Negative

development being blamed for coastal pollution, and the loss of landing sites and beach access (essential for fishing operations) through the establishment of private beach areas for tourist hotels. Some of the changes describe conflicts between local fish-dependent people and more powerful actors such as wealthy tourism developers, and the KWS, responsible for implementing restrictive fishing laws.

As the following extracts illuminate, fishers and vendors feel aggrieved at the imposition of restrictions and being excluded from the benefits that tourism development might bring to the area:

You know, we are not allowed to have the nets here. Instead they want to come and clean the water and make it all nice, bring their boats, so that they can have tourists. (*Female fish vendors*)

Parks have increased conflicts in this area. The officials are always coming with restrictions e.g. Beach seine, spear gun restriction, without proper explanation...they can appear anytime to arrest a fisher without an offence... (*Net and spear group*)

It's also unfair that the officers from the park do not arrest those polluting the waters, you know like those who are dredging (for coastal development). But if a fisherman was to fish outside the given boundaries then they are quick to arrest him. (*Female fish vendor*)

The Park has no benefit for fishers, only the government through tourism. (*Net and spear group*)

Other changes highlighted conflicts between resource users *within* the community. For example, the high price of fish was seen by women fish vendors as a threat to their well-being, but it is a benefit to the fishers who can charge more for their catch. As the following interview excerpts indicate, women fish vendors seem to be particularly struggling with the increased price of fish, overall increases in the cost of living, and a lack of alternatives:

Because there is less fish, the price that we pay for fish has increased. We cannot make progress. But the fishermen have a right to increase the price, especially those who travel far and use a lot of fuel ...We have been left behind because the cost of the stove (jiko) (charcoal and cooking oil) have really increased. This has reduced our earnings immensely. The fish industry has defeated us... (*Woman fish vendor*)

The vulnerability of women fish vendors has been further exacerbated by the enforced ban on beach seining, which is an important provider of small and cheap fish to local markets and is largely bought by women vendors (Abunge, own observations). This is clearly recognized by the women fish vendors:

The Government does not want use of beach seine (juya) and this affects our livelihood and business since we solemnly rely on beach seine...The Government insists on specified nets while it cannot offer these net to the fishermen. This interferes with our fishing activities. If Beach seine is removed, what will we depend while they have not brought us any other equipment. (*Women fish vendor*)

Interestingly, none of the groups mentioned any positive changes to their well-being, which may reflect a methodological limitation. For example, using a group debate in a public setting may encourage participants to air their grievances and problems rather than comment on positive changes to their lives. This could be attributed to a desire to highlight aspects of “illbeing” in the hope that those conducting the research can do something about it, or it may be down to a reluctance to discuss improvements in a group setting for fear of envy or the “evil eye” from other group members. Nevertheless, a tendency to stress the negative in subjective accounts of quality of life needs consideration and points to the importance of accompanying *objective* indicators of well-being (what people actually have) alongside subjective interpretations (Coulthard et al. 2011; Britton 2012; Britton and Coulthard 2013).

Future Aspirations for the Coast—The Hope for Fisheries Development

Each focus group interview was concluded with a discussion on people's hopes and aspirations for the future coast in Kenya, where they would see themselves in that future, and what actions they felt were necessary to bring about a good future. There were mixed responses to this set of questions and, in several cases, people expressed their expectations of what would occur rather than what they actually hoped would happen. Nevertheless, there emerged a clear overriding aspiration, across all focus groups, for fisheries development, improved fish catches, and greater profits. Many of these aspirations were articulated by a desire to expand to offshore fishing, using larger boats, ring nets, and even trawlers to access a perceived abundance of pelagic and deeper water resources, as is expressed here by the Net/Spear fishers:

The world has changed a lot and us too as fisher men we have to change. There are too many fishermen in a small area and we are still using seines which our grandparents also used. We need modern vessels, and we also have to go into deeper waters. Whilst now there are complaints that we are destroying the fishery, if we had those modern vessels, within a year after migrating to the deeper waters, these bits near the shore would be restored...

Fish vendors similarly agree on the potential benefits from Kenyan fisheries development, as is illustrated by the below comments from women fish vendors:

If the fishermen could get the needed fishing equipment that would be good because they would be able to fish in the deep waters....The reason why the fishermen charge us high prices is because they too are fighting to survive and to make a living. If they were able to catch lots of high quality fish, they would gain from that and so would we.

There was similar agreement across focus groups as to what was needed to happen in order to develop offshore fisheries and secure the benefits from it. Participants advocated the need for training and capacity building among fishers to be able to access, and use, new gear and boats. There was also a belief that collective organization, leadership, cooperation among different users, and good governance were crucial. As one mixed gear fisher put it,

If nets and spear fishers will put their heads together, we will be able to get answers. At the moment every fisher has his mind and some are destructive while others are good...only through co-operation we can be able to change others.

There was also recognition of the potential for Beach Management Units (BMUs) to be an effective vehicle to instigate and deliver fisher cooperation and aspirations to be more closely involved in the fisheries department's meetings. The value placed in collective organization, action, and partnership is also evident among women vendors who also advocate joining forces with fishermen to secure greater catches:

We must form our own group and register ourselves...That way we can represent ourselves as 'mama karangas' and state what our needs are. At the moment, the beach seine net is prohibited and so is the spear gun, we have no choice but to get new equipment. If we were to go individually they would simply ask us which group we are from or whether we have an account. But as a whole group, we could get a ring net and then we would collaborate with the fishermen and that way we would have money for our group and after they have fished they would bring us the catch so that we can sell it in the market.

DISCUSSION

Polishchuck and Rauschmayer (2012) suggest that while ecosystem services might be seen as a good or service, and as such clearly influence people's capabilities, there is a

need to explore how ecosystem services convert into achieved functionings—what people are able to do and be, and how this shapes their level of well-being. They argue that this conversion is usually done through mono-dimensional valuation, e.g., utility expressed in monetary terms, and is therefore limited in its reflection of a diverse and multi-dimensional notion of well-being. This research, drawing in participatory methodology, revealed a diverse range of factors which fishers and traders in Kenya perceive as being important for well-being. The explanations behind their importance also point to the connection between well-being as a process and as an outcome, where the action of earning income (and having money) leads to a broader well-being outcome, such as being respected within society, feeling economically secure, and having the freedom to make choices.

This analysis speaks well to Robeyns (2006) who calls for greater engagement with the complexity of well-being with a focus on capabilities. She argues,

Assessments of wellbeing...or the development of a community or country, should not primarily focus on resources, or on people's mental states, but on the effective opportunities that people have to lead the lives they have reason to value.

The importance of freedom and self-determination for many participants in our research was clearly evident, for example, through the concept of a "developmental mind." This potentially presents a challenge to (and perhaps an explanation of the failure of) coercive environmental management. If well-being is valued as an ultimate objective of management, then even attempts to improve material well-being (for example, development of alternative livelihoods) may be rejected if they are perceived as being imposed and undermining freedom of choice.

It also, however, raises a possible tension within ecosystem services and human well-being debates. If people's well-being, at least partly defined as having freedom to live a life that is valued, clashes with the limitations of ecosystem service provision and health, conflict may arise. It should not therefore be assumed that ecosystem services and human well-being are easily married—there are tensions and trade-offs implicit within the MA framework, which can only be teased out by a thorough understanding of the linkages between both.

The challenge of a combined Ecosystem–Well-being approach is to put well-being in the context of biophysical, social, and technical limitations. For example, the near universal aspiration for larger boats and offshore fishing is based on an assumption of the availability and abundance of that resource, and the social dynamics of that kind of fishery development. While there may be scope for the development of semi-industrial offshore fisheries in the

region, there are uncertainties about the reliability of the resource, the distribution of jobs in the fishery, or the availability of the catch for local traders and consumers. Benefits may be captured by elites, while jobs created may be fewer or not available to the inshore fishers.

However, some of these concerns around the distribution of benefits of fisheries development were also raised in the focus groups discussion, as is evident from the proclaimed need for better organization and collective action within fishing communities. Current approaches to fisheries management could further build on that appetite for collective and community-based management, for example, through further support and development of BMUs. Shaping management approaches, with greater recognition of people's existing well-being strategies and aspirations, may ultimately create greater buy-in and support for the management locally, with potential to reduce conflicts among different users of the marine resource.

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