Chapter 5
Livelihoods in the Context of Fisheries – A Governability Challenge

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Abstract As a study of how fishers make a living, livelihoods analysis is a core interest for fisheries governability. An understanding of the employment that fisheries provide, the livelihoods strategies that fishers pursue, and the sense of well-being that fishers derive from and associate with their ways of making a living is essential for policy that works to support fisheries. Given the diversity, complexity, dynamics and scale dimensions of livelihoods in fisheries, however, the translation of that understanding into policy is a wicked problem. This chapter argues for five reference principles that respond to the wickedness of livelihood governability: inclusion, reflexivity, attention to particularity, fostering adaptive capacity, precaution, and social justice.

Keywords Livelihoods • Employment • Wellbeing • Wicked problems • Principles

Introduction

Popular images of fishing commonly evoke romantic notions of fishers' livelihoods: fishermen in sou'westers hauling in gear on slippery decks in horrible weather; lithe, muscular men pushing off their catamarans through heavy surf; and, sometimes, foul mouthed fish mammies bargaining hard over the price of their fish. These and innumerable other more mundane tasks are central to the material world of fishers' livelihoods. They also hint, however, at how the realities of making a living

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in fishing are intertwined with conceptions of the practice of fishing. These conceptions are, in turn, deeply important in shaping the contours of livelihoods in different fisheries, and for different fishers and their households. As a governability problem, sustaining livelihoods in fisheries involves both material and interpretive considerations. Fisheries governance that seeks to support fishers' abilities to make a living must do so in ways that recognize local perceptions of what is right, satisfying, worthwhile, and appropriate.

An understanding of employment and livelihoods in fisheries that takes this position is in keeping with research on livelihoods that is now 25 years old (Chambers 1987). This chapter links livelihoods and wellbeing approaches in fisheries to interactive governance theory and, specifically, the notion of governability. My intent is thus to address the key question of how livelihoods in fisheries can be seen as a governability concern. What is the place of livelihoods in the larger problem of fisheries governability? In answering, I argue that a livelihoods perspective for governance not only provides insights into how people make a living, but it also reveals how they feel about their work. These considerations are important for governability, because the material, relational, and subjective dimensions of work in fisheries (Gough et al. 2007; Coulthard et al. 2011) have a significant influence on possibilities for change. More than this, however, the chapter highlights the connections between livelihoods, wellbeing, and interactive governance when the three perspectives are brought together. My principal argument here is that there is a logical fit among the perspectives due to their similar conceptual foundations.

Governability in fisheries is a wicked problem, and sustaining fisheries livelihoods is no exception to this. Following Jentoft and Chuenpagdee's (2009) logic, sustaining livelihoods in fisheries is a wicked problem for the following reasons: (1) the perception of a desirable and meaningful livelihood varies among the many actors and institutions related to it; (2) livelihoods in fisheries are constantly subject to modification and are never definitively ideal or sustainable; (3) problems with livelihoods are complicated by being embedded in larger social, cultural, political, economic, and ecological systems; (4) the diversity, complexity, and dynamics of fisheries livelihoods makes each case distinct; and, (5) fisheries governance, even that which is livelihoods sensitive, generally creates irreversible change for the ways in which fishers and aquaculturalists make their living.

In this chapter, I propose two ways to conceptually extend the understanding of livelihoods in fisheries as a wicked problem. First, linking livelihoods to the notion of wellbeing strengthens the livelihoods perspective, while also making useful connections to interactive governance theory's approach to governability. Second, in keeping with the meta-governance concern of interactive governance theory, I show that livelihoods approaches, wellbeing, and interactive governance are linked foundationally by their basis in a shared set of principles. These are inclusion, reflexivity, attention to particularity, fostering adaptation, precaution, and the overarching principle of social justice.

Employment and Livelihoods

Employment

Although my primary concern in this paper is with livelihoods in fisheries, I also reference employment as one way of emphasizing the material importance of fisheries and aquaculture globally. The distinction between employment and livelihoods is one of definitional fullness and complexity; employment being the narrower term and livelihoods the richer one. Employment is an economic measure of the jobs in different sectors of the economy, while livelihoods includes employment but contextualizes it within a range of other considerations.

Employment in fisheries does however require some further elaboration. Even as a seemingly straightforward concept, the term has important qualifications. Employment varies a great deal, for example straying far from the nine to five norm of work in industrial economies. Work at sea follows the rhythms of the seasons and the ecosystem, which diverge from the regularities of calendar and clock time. Early morning departures are the norm and work on board fishing vessels often involves long, gruelling hours of setting and hauling in gear and cleaning the catch and gear afterwards. Shore work also follows a schedule that varies with the time of departure and arrival of the boats, size of the catch, and the duties of provisioning, maintenance, and marketing. The onshore-at sea division further reflects the gendered character of employment in fishing; men's employment and women's employment are usually of a different nature with divergent forms of remuneration. The shore-sea distinction also points to the linkages of employment in the fisheries sector. The work of catching fish is only the first stage of employment in the fish chain and is generally only the smaller part of employment generated by the sector. Employment multiples of five to one are normal in calculating the employment impact of fishing (Béné 2006).

As Béné (2006) points out, it is standard in treatments of small-scale fisheries to talk about the importance of fisheries from an economic point of view. Fisheries are said to generate high levels of employment and serve as an important economic driver, particularly in developing countries. Béné (2006) goes on to note that when these statements are subject to closer scrutiny, fisheries only make relatively minor contributions to national economies, with the exception of a few countries such as Senegal. Nonetheless, fisheries and aquaculture, particularly in their small-scale forms, do offer direct and indirect employment for large numbers of people globally. Estimates of this number range from 29 to 100 million (Béné 2006, 22–23). According to global data compiled by the FAO (2009), forty-three and a half million people were directly employed in fisheries and aquaculture in 2006. Of these, the vast majority (86%) were in Asia and most (60%) only worked part-time (FAO 2006, 2009, 23). While aquaculture provided only 8.6 million jobs in 2006, it is growing faster than capture fisheries employment, which has slowed considerably and even gone into decline in countries like Japan and Norway (FAO 2009, 23–25). When dependents are included, the significance of employment in fisheries and

aquaculture is even more evident; the FAO (2009, 23) estimated that the total number of people dependent on these sectors was approximately 520 million in 2006, or 7.9% of the world's population (FAO 2009, 25). These figures, along with other reasons such as food security (see Chap. 6), clearly show that it is in society's material interest to be concerned with the state of fisheries and their governability.

Livelihoods

The notion of livelihoods was elaborated within the literature on international development as part of attempts to refine the understanding of and approaches to poverty. Rather than focus on poverty in fisheries, however, our intent in this chapter is to trace some of the implications of livelihoods thinking for fisheries governability more broadly (on poverty in small-scale fisheries see Béné 2003; Thorpe et al. 2007; Jentoft and Eide 2011). In this section I provide an overview of the livelihoods concept, critical comments on it, and indicate how coupling livelihoods with wellbeing may address some of its shortcomings. I leave the full application of livelihoods to fisheries governability for the next section of the paper and limit myself here to indicating how livelihoods and wellbeing concerns are as pertinent to fisheries as they are to other sectors.

Attention to livelihoods in the development literature was an explicit attempt to extend the work of Amartya Sen and Robert Chambers on the multidimensional nature of poverty (Béné 2003, 957–958). The seminal work of these two scholars challenged earlier approaches to poverty that are narrowly focused on income-based measures and complement a social science understanding of the social complexity of small-scale fisheries (Johnson 2006). With reference to famine initially, Sen (1981) showed how hunger and poverty cannot be explained by limited resource endowments, but rather by problems of distribution that result from institutionally entrenched differences in power. He introduced the idea that power differences constrain people's entitlements, or their abilities to secure the various resources necessary to ensure their health, wellbeing, and even survival. In later work, he extended his analysis into the capabilities approach, which seeks to identify the social structural factors that constrain entitlements and the development interventions that can counter them (Sen 1992, 1999). While Sen showed how poverty acts to constrain possibilities for individual action, Chambers emphasized the importance of understanding the particularities of the experience of poverty. He argued that approaches to poverty within development rely upon expert driven assumptions and templates that generate large-scale poverty reduction programs that often miss the targeted poor by wide margins. One of Chambers' key contributions was to argue for rapid rural appraisal as a methodological approach for tapping into diverse experiences of and explanations for poverty (Chambers 1983).

Livelihoods approaches have sought to draw together and formalize these insights into frameworks for the assessment of poverty. Although the Institute for Development Studies approach spearheaded by Chambers may be considered the

primary point of reference, there are numerous variations of the livelihoods approach with different categorizations and weightings of incorporated variables. Following Sen and Chambers, livelihoods approaches share the basic assumption that, like poverty, livelihoods are diverse, multidimensional and comprised of varying sets of assets or capitals that people employ to cope with threats to their wellbeing. In keeping with Chambers' actor-centered approach, livelihoods approaches treat the poor as creative agents who seek to use their resources, regardless of how limited they might be, to meet their needs as effectively as possible. Livelihoods approaches may be applied at multiple scales (Scoones 1999), but are most commonly applied at the household level (White and Ellison 2007, 160). This is sensible, because most people organize production, distribution and reproduction at that level. Scoones (1999) notes that while livelihoods approaches are intended for use in developing country contexts, they are universally applicable. Livelihoods approaches also have origins in the sustainability discourse, with sustainable livelihoods a common pairing of concepts. This connection points to the idea that resilient livelihood strategies are those that can cope with threats and resist shocks. Resilient livelihoods are evidenced in fisheries by features such as the multiple gears and diverse knowledge that fishers possess, and the common integration of non-fisheries activities into their livelihood strategies (Allison and Ellis 2001; Allison and Horemans 2006). The connection also indicates awareness of the fact that many rural livelihoods have significant and direct reliance on ecosystem services, and that there is a relationship between sustainable livelihoods and the sustainability of resource use. These are, of course, obvious features of fisheries.

Livelihoods approaches are typically organized around frameworks that establish a logical relationship among the key elements deemed to constitute a livelihood (Bebbington 1999, 2029–2030; Scoones 1999, 4; Allison and Ellis 2001, 379; Allison and Horemans 2006, 759; Bebbington et al. 2007, 181). These are schemas that attempt to capture the dynamic relationship between the creative attempts of actors to construct their livelihoods in the context of a variety of structuring forces. The exercise of agency is interpreted through the use people make of their livelihood assets. The range of these assets and how they are identified, alternatively as capitals or resources, varies from framework to framework. Among the examples considered here, the commonly shared assets are natural, human, and social capital. In addition to these, some schemas lump together physical and financial capital, while others separate them. Political and cultural capital are additional variables that are occasionally used. The configuration of assets that different authors use represents different ways of splitting up the important variables that influence livelihood sustainability. Each type of asset refers to the resources that individuals and households may draw upon. They include, among others, access to social networks, natural resources, and money and material goods; personal health, skills and knowledge; and the degree to which one can lay claim to or mobilize socially significant meanings and symbols. Assets are not mutually exclusive and, instead, are deeply interconnected (cf. White and Ellison 2007). In small-scale fisheries, for example, the social capital of kinship networks may facilitate access to financial capital in the form of loans or to natural capital in the form of access to prime fishing sites.

A major impetus for the multiple asset basis of livelihoods was the need to challenge the idea that rural individuals or households depend solely on a single natural resource dependent sector like agriculture or fisheries (Ellis 2000). Rather, and increasingly so as the pace of development increases, livelihoods transcend particular sectors. Even within specific sectors, livelihoods build on multiple opportunities from extraction to processing to trading to credit. Livelihoods approaches focus on how and why individuals and households choose to invest in and balance their different assets in order to make a living. The combinations they use are identified as the set of different possible livelihood strategies.

Livelihoods are constrained and given opportunity by the broader structural context within which they take place. These structures are institutional in the broad sense of being the economic, social, cultural, and political conditions that operate at multiple scales from the hamlet to the region and beyond. Thus, as Ram (1992) has eloquently demonstrated for South Indian fisheries, livelihood opportunities for women are generally significantly different from those for men. At a broader scale, Greenberg (2006) has shown the power of economic and political factors to structure livelihood opportunities in Mexican fisheries. Structuring influences also include changes over time of a non-institutional nature, although these changes may have institutional causes and may be filtered by institutional structures. In the vulnerability and risk literature, these are divided into shocks, trends, and seasonality (Allison and Horemans 2006), each referring to types of pressures, sudden, intensifying or recurring, that test livelihood resilience.

This last point provides a connection between the core structure-agency logic of the livelihoods approach and the natural environment. As mentioned above, sustainable livelihoods is a very common conceptual pairing that reflects the frequent application of livelihoods approaches to contexts where households are dependent on ecological goods and services. One ‘bracketed’ livelihoods approach (see below) is to see households as adapting to the vagaries of an external natural environment. Increasing the sustainability of livelihoods could then involve a number of strategies, whether through building human and social capitals that permit the construction of alternative income generating activities or through strengthening social and political capital so that those at risk can pressure or work with the state to strengthen institutional and infrastructural defenses against threats. Vulnerability reduction in this sense connects livelihoods analysis to complex socio-ecological systems literature and the notion of resilience. As indicated below, however, there is still more work to do to make livelihoods approaches more effectively cross-scale in their reach.

The primary challenge to, and the root of critiques of, livelihoods approaches is with the interplay of assets representing agency and the institutions and other factors representing structure. Bebbington et al. (2007, 183) note that most livelihoods analyses tend to ‘bracket’ the structural side in order to focus on the analytically original part of the livelihoods approach; the interplay of the capitals. This is problematic, as assets and institutions are in ongoing, mutually constituting relationships. Thus, the perception of the opportunities that an asset may present depends on the specific context. In different fisheries or for different individuals within a specific fishery, for example, debt relationships with moneylenders that involve social and

financial capital may be either liberating, oppressive or a combination of both (Johnson 2010). An important shortcoming of livelihoods approaches is the lack of acknowledgement that the decision to disentangle structure and agency in the capitals-institutions framework is often accomplished by freezing the interplay of structure and agency in constituting the possibilities for action.

Two recent book chapters address this limitation of livelihoods approaches (Bebbington et al. 2007; White and Ellison 2007). Bebbington et al. (2007) argue that livelihoods approaches have engaged in two disconnecting practices. The first of these is the 'bracketing' mentioned in the previous paragraph. The learning that needs to take place in this regard is for those development agents who employ livelihoods approaches to be much more attuned to the ways in which local livelihoods strategies are informed, in a dynamic manner, by broader political economic relationships. The second disconnection is between the perspectives or worldviews of development agents like non-government organizations and the perceptions of, or perceptions of the possibility of, alternative paths of development. Certain options seen as desirable by non-government organizations may be seen either as undesirable or unfeasible by target populations.

While Bebbington et al. (2007) see the livelihoods approach as needing some reorientation, White and Ellison (2007) argue for a more thoroughgoing rethinking grounded in a social constructionist position. Like Bebbington et al. (2007), they flag the disconnection between development agents and the targets of development. To White and Ellison (2007) this results from the failure of outsiders to comprehend that their positions, like those of the development subjects whose lives they seek to improve, are constituted by social, cultural, and political relationships. Without this self-awareness, livelihoods approaches simply become inflections of dominant economic perspectives in development. The risk, as it relates to livelihoods, is with the terms and categories that livelihoods approaches use. They must not be seen as employing standard templates with universally applicable categories of capitals. Instead, contextually sensitive livelihoods approaches would acknowledge that the resources that people employ are not fixed in meaning and are thus assets in struggles for power.

There are three implications of White and Ellison's (2007) critique for livelihoods approaches. First, development practitioners – or fisheries managers – must make more effort to reflexively understand their own positions. Second, there must be acknowledgment that the boundary within livelihoods approaches between capitals and context is artificial and that, in reality, all capitals are actually resources that are given their meaning and power by locally relevant conditions. Third, each livelihood resource itself is not a discrete, universal category. Instead, resources may be given meaning by multiple categories. White and Ellison (2007) give the example of land, which can be given meaning as natural, social, cultural, and political capital (White and Ellison 2007, 167). With reference to work such as that by Bavinck (2001), it is easy to see how maritime space similarly can be a powerful social construction where different groups of fishers and government agents have divergent perceptions of marine space. Despite these layers of complexity in understanding livelihoods construction, however, it remains important to make the effort

to apply and further refine livelihoods approaches. Careful scrutiny of how development practitioners or fisheries governors operationalize livelihoods must be matched with similar care for how local perceptions are significant in the ongoing building of livelihoods.

The chapters by Bebbington et al. (2007) and White and Ellison (2007) are in an edited volume on the topic of wellbeing in development (Gough and McGregor 2007), and are concerned with how wellbeing may complement livelihoods perspectives. Wellbeing may be thought of as the meta-goal of development; it is the objective that development understands as 'good change' (Chambers 1997) and seeks to pursue. Livelihoods as a development strategy therefore seek to enhance wellbeing. More than just specifying the goal, however, wellbeing also provides important complementary insights that enhance the livelihoods approach. Like livelihoods, wellbeing is both the end and a means. As individuals, households, and communities increase their wellbeing, they also increase their capacities to aspire to improve their wellbeing further. Greater health, improved knowledge, deepened social networks and other factors all contribute to wellbeing, while also strengthening the basis for the further pursuit of wellbeing. Wellbeing is also a development objective and a way of thinking about development. As with livelihoods approaches, wellbeing as a perspective emphasizes the multiple dimensions of what constitutes wellbeing, their changing intersections, and the bases they provide for agency and motivation.

More than just reinforcing livelihoods approaches, however, wellbeing also challenges them to be more attentive to the social and cultural construction of what good change represents. It pushes the livelihoods perspective to more consistently examine and seek to bridge the disconnections that separate development agents from development subjects and livelihood resources from context. The wellbeing approach argues that notions of wellbeing are given meaning in the context of particular social relationships and the cultural ideas that inform them. While there is a degree of objectivity to wellbeing in such forms as general human needs for nutrition, shelter and health, even these conditions may vary considerably. As humans, we are capable of adapting to conditions of great deprivation or relative opulence and consequently shift our standards of the normal preconditions of wellbeing (Biswas-Diener and Diener 2001). Equally, the weighting of resources that contributes to wellbeing varies by context. Coulthard (2008) has, for example, shown how the Pattinavar fishers of Pulicat Lake emphasize the social and cultural importance of attachment to traditional fishing methods as a determinant of their wellbeing. This disadvantages them in relation to newcomer groups in the fishery who are free of such constraints and use other fishing methods that are more productive in the current ecologically degraded lagoon context (Coulthard 2008). The case illustrates how particular conceptions of wellbeing link to livelihood strategies and gives insight into how rationality is socially and culturally specific.

Bearing in mind the overarching idea that social relations and meanings shape the possibilities for action using resources, wellbeing can be operationalized in three dimensions (Gough et al. 2007; Coulthard et al. 2011). First, wellbeing seeks

to identify the degree to which objective and subjective needs at the individual or household level are met. Needs are understood to include the requirements necessary for wellbeing in a particular context. Second, wellbeing addresses the degree to which individuals are able to act in socially meaningful ways to achieve their wellbeing. It is conceivable that an individual's needs may appear to be met but that social restrictions on their action prevent them from working to achieve that to which they aspire. Third, wellbeing is concerned with whether individuals are satisfied with the outcomes that they are achieving. With reference to this aspect of wellbeing, we can understand situations where individuals are superficially well off, yet continue to be dissatisfied. This outcome is common where material wants are taken care of but insufficient attention has been paid to addressing spiritual, relational or intellectual satisfactions. These three dimensions of wellbeing can be paraphrased, as in the introduction to the chapter, as the material, relational and the subjective.

For the remainder of the chapter, I discuss the implications of livelihoods for governability with a stretched definition of livelihoods that assumes the incorporation of a wellbeing dimension. At times I will explicitly draw out the analytical emphasis of wellbeing; otherwise I will leave it implied. I recognize that this is provisional hybridization and that more theoretical work needs to be done on how the two perspectives are complementary. As I note below, however, there are solid epistemological grounds for linking the two.

Livelihoods and the Governability of the System-to-Be-Governed

Governability is at once about describing the contours of a System-to-be-Governed – assessing, in effect, the systemic characteristics that either obstruct or facilitate solutions to perceived problems – and a normative estimation of the key elements that can contribute to improved governability. These two dimensions of governability are interwoven: what governability analysis looks for as constituting a governable system is influenced by the normative variables that it prioritizes. Nonetheless, in considering livelihoods as a governability concern, I separate the two aspects of governability in this and the following section in order to facilitate my presentation of the task. As I argue at the beginning of this chapter, the challenges that livelihoods pose for governability are illustrated well by the wicked problems idea. Additionally, governability, livelihoods and wellbeing thinking share similar normative concerns with respect to inclusion, reflexivity, particularity, precaution and social justice. This foundational complementarity makes them natural partners in efforts to broaden the terms of fisheries governance. This section addresses the first argument with reference to the System-to-be-Governed, while the following section deals with the second argument with reference to the Governing System and Governing Interactions.

The development of the idea of governability, as it relates to fisheries, links to a broader perception that there is a need to develop tools that that can help us better

understand fisheries systems, and especially small-scale fisheries systems, in the wake of the failures of earlier simplifying models of fisheries and fisher rationality (Berkes et al. 2001; Charles 2001; Andrew et al. 2007). The foundations of the governability tool for analysing fisheries systems is the threefold division into the System-to-be-Governed, the Governing System, and Governing Interactions. Each of these are characterized by diversity, complexity and dynamics and subject to cross-scale interactions. Livelihoods are part of the System-to-be-Governed, but their characteristics influence the Governing System and Governing Interactions, just as these latter systems shape the former. As with the System-to-be-Governed, more generally, livelihoods in fisheries and aquaculture are diverse, complex, dynamic, and influenced by factors at different scales. These governability characteristics have consequences that make livelihoods governance a wicked problem.

Diversity refers to the qualitative differences among elements in a given system (Kooiman 2002, 232 and 194–196). In fisheries and aquaculture, livelihoods diversity is evident both between and within different systems. Small-scale fisheries are sufficiently diverse that they challenge widely held assumptions about fishing. Béné (2003) and Thorpe et al. (2007) have shown, for example, that the images of fisheries as poverty-ridden refuges of the last resort, although sometimes true, are often inaccurate. Coastal small-scale fishers in the central region of Gujarat's fishing industry, for example, are generally better off than their average agriculturalist counterparts (Johnson and Sathyaplan 2006; Sathyapalan and Johnson 2008). Similarly, fishers on the large lakes of south central Africa, while not rich, are generally better off than their non-fishing agricultural neighbors (Allison 2005). In some cases, the poorest rural dwellers do not have access to many forms of fishing, which can be lucrative (Béné 2003). Fisheries are also frequently assumed to be a sector in which fishers are largely autonomous. Yet, as the livelihoods in fisheries literature shows, the norm is rather for fisheries and aquaculture to be integrated with other sectors (Allison and Ellis 2001; Allison and Horemans 2006). In many parts of the world, such as Goa for example, farmers may become aquaculturalists on their land in the rainy season (Rubinoff 1999). Historically in Atlantic Canada (Johnson 1999), and presently in many parts of Africa and Asia, fishers and members of their households are also farmers, foresters, gatherers and workers in industrial or service sectors. Seasonal dependence on state transfer payments is also a standard element in Canadian fisher's livelihood strategies. Fishers' livelihoods may be buffered by highly developed forms of community-based governance or these may be virtually absent (Jentoft et al. 2009). Diversities between and within fisheries that affect livelihoods range across a host of these and other variables, such as technology, ecology, mobility, gender relationships of work, knowledge, market relationships, degree of subsistence, institutional development and so on. All of these factors reinforce the fourth dimension of fisheries as a wicked problem that each particular problem is distinct, requiring governors to constantly refine their knowledge and adapt their responses.

Complexity measures the density and extent of relationships within a system. The greater the density of relationships, and the wider the bounds of a system, the greater is its complexity (Kooiman 2002, 177–199). In terms of governability,

livelihoods in fisheries and aquaculture are complex for many reasons, of which I single out three here. First, the diversity of options that constitute livelihoods result in numerous combinations that make the outcomes of governance interventions unpredictable. Second, livelihoods are formed in the context of relationships and in reference to value systems that create additional layers of complexity in understanding choices and actions. Third, fisheries and aquaculture livelihoods are cross-scale in nature: ecological, market, migration and other linkages make defining the system itself complex, not to speak of the isolating pathways of causality in decision-making around livelihoods choices.

Complexity often creates unexpected or paradoxical effects that challenge fisheries governability. In relation to the first type of complexity that I raised in the previous paragraph, a paradox of governance in fisheries is that attempts to reduce capacity often fail. This is true of boat buyback schemes, where the total number of boats may be reduced while fishing capacity is maintained, because the remaining fishers in the fleet develop ingenious means to expand capacity. They accomplish this by, for example, building bigger boats or increasing the power of their engines or the effectiveness of their gears. In this case, fishers use their intimate understanding of the possibilities for intensification afforded by their livelihoods to increase their effort.

With reference to the second form of complexity, fishers may also fail to respond in predictable ways to attempts to encourage their livelihood diversification to reduce fishing pressure. Research by Pollnac et al. (2001) has shown that fishers often fail to behave predictably when offered relatively lucrative alternative livelihoods (Pollnac et al. 2001; Sievanen et al. 2005). In some instances they may reorient to other activities like seaweed farming; in other cases new income sources may just facilitate intensification of fishing effort. Cases like these illustrate that simplifying assumptions about fishers' rational economic behavior, while convenient as a basis for management, are a poor guide to fishers' actual behavior. Fishers often value their work and are loath to leave it (Pollnac and Poggie 2008).

The work by Pollnac et al. (2001) also links to the third form of complexity, namely the unpredictability of cross-scale and cross-sector linkages. As the cases above attest, fisheries are often highly diversified. Fishers, however, have limits to their flexibility. Tourism development, for example, may be seen as a development strategy that is relatively benign for fisheries, while potentially providing important possibilities for livelihoods diversification. In some instances such interventions create new complementary opportunities for fishers (Pascual 2004), while in others they threaten fishers' very access to the sea (Boissevain 2004). The promotion of new coastal development related to tourism or any other new economic activity that intends to benefit fisheries should first be based on a thorough governability assessment that considers particular social, demographic and cultural factors. Social justice concerns need to be considered, as elite groups within a fishery may be well placed to benefit from new developments that disadvantage less powerful groups. The cross-sectoral linkages in fisheries reinforce the livelihoods' approach insight that fisheries governance and development cannot be considered a sector-specific problem alone. This is a clear connection to the third dimension

of wicked problems that fisheries problems are embedded within broader scales, including inter-sectoral economic relationships. That different groups may disagree on the advantages of cross-scale connections, as in the case of the tourism example, illustrates the first dimension of wicked problems that problems are complicated by varying perceptions.

On one level, dynamics in interactive governance theory is just the recognition that change is a significant consideration for governability. Without paying attention to regular changes over the daily or seasonal cycle and to the prevalence of unpredictable change in fisheries, fisheries governance is ill equipped to understand fisher behaviors. This observation is one of the key insights that livelihoods approaches have drawn from international development with their demonstration that adaptation to trends, shocks and associated uncertainty is an important feature of household livelihoods strategies in fisheries (Allison and Ellis 2001). As both livelihoods approaches and interactive governance theory recognize, dynamics in fisheries are discontinuous; change takes place in fits and starts (Kooiman 2002, 200–203). In this sense of dynamics, livelihoods and interactive governance are linked to complex adaptive systems thinking and resilience (Gunderson and Holling 2002). Fishing households, or fisheries as a whole, that are better able to bounce back from unexpected changes are more resilient.

The strategies that fishers develop to cope with dynamics in fisheries are part of the landscape of governability that must be considered when developing governance interventions. Likewise, the forces that drive dynamics must be also considered. On the one hand, research has shown that livelihood diversification at the household level is extremely important as the basis for evolving strategies to adapt to seasonal changes and unexpected shocks (Marschke and Berkes 2006). On the other hand, adaptive strategies for sustaining livelihoods can also contain paradoxes for governability. Class relationships in fisheries can be highly unequal and have historically often come under attack as unjust. Yet, the cyclical, recurrent debt relationships reinforced by the social norms on which they are often based are also an adaptive system that responds to the uncertainty and risk of fishing (Ommer 1989; Platteau 1995). Indeed, these kinds of debt relationships are a strategy to sustain fisheries livelihoods that is equivalent to livelihood diversification in that both provide insurance against risk. In the case of debt relationships, it is a knotty governability problem to ascertain when they are functional or perverse (Johnson 2010). Fisher strategies to sustain livelihoods over time can also break down and their inability to adapt can be a constraint on governability. The previously mentioned Pulicat Lake case (Coulthard 2008, 2011) illustrates the ossification of a once successful adaptive strategy. Coulthard (2008, 2011) shows how the historical system of property rights in stake net fisheries failed to adapt to changing cross-scale social, economic and ecological conditions with serious consequences for the livelihoods viability of the Pattinavar caste. Dynamics are thus of considerable importance for fisheries governability; they direct the attention of governors to the features of specific fisheries that build or limit resilience. The Pulicat Lake example also shows the link between dynamics and the fifth type of wicked problem; solutions to fisheries problems create their own legacies that can result in perverse path

dependencies or adaptive failures. This is an extremely important caution for fisheries governors to bear in mind: answers to problems in fisheries and aquaculture at one moment in time may later hamper governability. More generally, though, dynamics is about the second dimension of wicked problems that solutions to livelihoods shortcomings are only ever provisional in an unending effort to respond, reactively or proactively, to an always changing social-ecological environment.

In order to convey the interactive governance approach to livelihoods governability, I have sequentially presented diversity, complexity and dynamics. As should have become apparent in the examples above, that separation is artificial. This is evident first in that I did not attempt to separate out the fourth aspect of governability, scale, which makes appearances in the complexity and dynamics sections. Upon closer inspection, it is also apparent that I could not avoid some crossover of the other concepts. Thus, for example, diversity appears as a potentially desirable governability characteristic to cope with dynamics, while the complexity of fishers' knowledge (and perhaps their social complexity in knowledge sharing) means that they dynamically adapt to attempts by state authorities to limit their fishing effort. Needless to say, the intersection of diversity, complexity, dynamics and scale makes it important for governability to be seen as an approximation that should be subject to ongoing revision. In this sense, governability assessment is compatible with adaptive management approaches to fisheries governance.

Livelihoods Governability: Other Dimensions

The wicked problem of the governability of livelihoods in fisheries and aquaculture extends beyond the System-to-be-Governed. If sustaining and strengthening the livelihoods and wellbeing of fishing populations are held to be important, then it is also important that the Governing System has the capacity to understand the constructions of livelihoods and wellbeing in the System-to-be-Governed while fostering the ability to learn through Governing Interactions. Interactive governance argues that governance is grounded in normative principles at the meta, or third order, level (Kooiman et al. 2005, 241–244). In what follows, I make an argument for a first list of principles to underpin a wellbeing sensitive approach to the governance of livelihoods in fisheries. The principles are inclusion, reflexivity, attention to particularity, fostering adaptive capacity, precaution and social justice. Of these, social justice can be considered overarching. Both interactive governance and livelihoods approaches are oriented towards preserving employment and livelihoods for the largest number in a sustainable manner. This leads both approaches away from policies such as subsidies for fleet modernization or rationalization through individual transferable quotas that often benefit a few at the expense of many.

The remaining principles can be grouped together as part of a larger epistemological challenge from fisheries social science to the equilibrium-based bio-economic

models that have dominated fisheries policy (Allison and Ellis 2001). The latter have increasingly been conceptually, ethically and empirically challenged by the continued erosion of global capture fisheries and catastrophic events like the 1992 Newfoundland cod moratorium. In this recent 'post-equilibrium' based fisheries social science, there is an acknowledgement that the diversity, complexity, dynamics and multi-scale nature of governability – in short its wickedness – require responses that accept uncertainty and seek to apply adaptive principles of learning-by-doing (Armitage et al. 2007; Schwach et al. 2007).

In terms of compatibility between the Governing System and the System-to-be-Governed, then, the connection between livelihoods, wellbeing, and governability shows a set of shared principles that should guide governance. Post-equilibrium fisheries governance recognizes that formal governors are not omniscient. This insight necessitates the *inclusion* of a diversity of stakeholders in data collecting and decision-making processes that consider the importance of livelihoods. *Reflexivity* is a synonym for adaptive management at the institutional and co-governance levels in that it asks governors to monitor their interventions and to be willing to ask themselves foundational questions about principles and purposes. Inclusion and reflexivity acknowledge the first dimension of wicked problems that suggests that different participants have different perspectives, and that ongoing efforts need to be made to ensure those perspectives are heard. Consistent with the fourth dimension of wicked problems, livelihoods approaches and the governability perspective share the assumption that strengthening livelihoods necessitates consideration of the *particularity* of each case. In seeking to balance support for livelihoods with other societal priorities (wicked problem 3), the Governing System needs to bring fresh eyes to each challenge. At the same time, the Governing System needs to remain always aware that particular problems evolve and that it is therefore perpetually necessary to foster its own *adaptive capacity* and adaptive capacity in the System-to-be-Governed (wicked problem 2). With regard to livelihoods, *precaution* asks governors to bear in mind the history of interventions in fisheries that have had major impacts on employment and livelihoods and seek to minimize the risk that future interventions imperil the basic principle of social justice (wicked problem 5). This must of course be done while also seeking to address sustainability concerns, a factor that brings us back to the complexity of wicked problems and hard choices in fisheries governance.

The discussion of the principles to which the Governing System needs to make reference to accommodate livelihoods and wellbeing concerns is also directly relevant for Governing Interactions. The ability of the Governing System to be attentive to the livelihoods needs and aspirations of fishers and aquaculturalists requires the development and maintenance of effective channels of communication between the Governing System and the System-to-be-Governed. The maintenance of these channels is subject to principles of social justice, inclusion and reflexivity. All stakeholders should have access to them and institutional mechanisms should exist to compensate for the differences in capacities that exist among different groups to make their voices heard.

The portrait I have painted thus far in this section is highly idealized and far from the messy, contested, and complex political economy of fisheries and aquaculture

throughout the world. Nonetheless, such a rosy ideal is a useful reference point when thinking about alternative paths to fisheries governance that give greater weight to social justice and livelihood concerns. It also helps us to think about taking further steps towards the implementation of interactive governance systems responsive to the wicked challenges of fisheries and aquaculture governability.

As Chuenpagdee and Jentoft (2009) point out, one entry point to the empirical operationalization of livelihoods governability in fisheries is through the governability assessment matrix (Table 5.1). The advantage here of the matrix is that it forces a more precise application of the foregoing theoretical discussion. Each of the cells in the table not only represent summary points of the discussion from this and the previous section, they also point to important ways in which that theoretical discussion can be linked to more specific, research-relevant questions related to governability for livelihoods and wellbeing.

In contrast to Jentoft's (Chap. 4, this volume) first stage operationalization of social justice, the specification of broad research questions through the governability assessment matrix here has a different balance. In Table 4.1, in keeping with the ethical focus of his chapter, Jentoft's analysis concentrates on the ideal dimension of reference principles in his governability assessment. The questions in Table 5.1, in contrast, put significant weight on material and social relational dimensions as well, and do so in a way that is consistent with an analytical wellbeing perspective. They are also guided broadly by the social justice and post-equilibrium principles articulated in the first part of this section.

In terms of diversity, the governability assessment of livelihoods asks about the range of material livelihood practices that are present in a given context, the governing bodies tasked with supporting livelihoods, and whether governance interactions represent the full range of fisher or aquaculturalist groups and related governing interests. For complexity, which is concerned with the relationships among those involved in fishing and governing fishing, the matrix tries to identify how social relationships and cultural norms constrain or facilitate opportunities to engage in livelihoods and the governance of those livelihoods. Dynamics looks at the pattern of change in a given fishery's livelihoods arrangement, the institutions responsible for governing livelihoods, and the ability of those institutions to sustain constructive Governing Interactions to cope with change. Finally, governability assessment asks us to consider how livelihoods options are linked across scale, and how those linkages may benefit some more than others. Similarly, scale considerations are an important concern when assessing the capacity of the Governing System to formulate policy and take actions relating to livelihoods. They are also of importance when assessing which groups may have greater power over the decision-making process.

The general intent of this chapter, and the specific intent of the foregoing table, to integrate livelihoods and wellbeing into the understanding of governability are paralleled elsewhere. A paper by authors from the WorldFish Center (Andrew et al. 2007) proposes a first sketch of a tool for the 'assessment and diagnosis' of small-scale fisheries. The tool offers a possible and complementary entry point for thinking about how to implement a livelihoods sensitive interactive governance approach. Andrew et al. (2007) argue that while small-scale fisheries are highly diverse – they

Table 5.1 Livelihoods governability assessment matrix

	Governing system	Social system to be governed	Governing interactions
Diversity	Who are the governing authorities (individuals and institutions) responsible for livelihoods and wellbeing and what are their reference principles?	What are the constituent livelihood options and their combinations in the fishery of focus?	To what degree do the institutions governing livelihoods and wellbeing represent the diversity of actors engaged in diverse livelihoods options and the diversity of relevant governing agents?
Complexity	What are the relationships among guiding principles related to livelihoods and wellbeing and among the advocates of those principles?	How are possible livelihoods options and their combinations variably available to members of different social and economic groups?	How do governing principles related to livelihoods and wellbeing intersect with the interests of different groups in the fishery and the governors who represent those groups?
Dynamics	How and why have the governing institutions responsible for livelihoods and wellbeing and their reference principles changed over time?	What are the trends, shocks, and other temporal uncertainties associated with livelihoods in the focus fishery?	To what degree do institutional arrangements facilitate interactive discussion of principles to guide decision-making about livelihoods responsive to changing conditions?
Scale	How are the institutions and principles related to livelihoods and wellbeing influenced by broader political-economic contexts?	How are livelihoods options constrained or broadened by cross-scale economic, social, political, and cultural interactions? How are different individuals and groups variously positioned to take advantage of these?	How are the possibilities for governance of livelihoods and wellbeing shaped by broader political-economic influences?

only imply that they are complex and dynamic too – their importance needs to be recognized by the development of a standard yet flexible framework to assess and diagnose them (Andrew et al. 2007). There is, nevertheless, still a long way to go in terms of winning the argument that fisheries governance is more than management;

that it should also be about development that sees beyond sectoral divisions and recognizes that the pursuit of wellbeing requires a profound understanding of local realities that social science is best equipped to provide. One plank in the argument returns us social justice: an understanding of governability that includes the sensitivity of livelihoods and wellbeing approaches is better equipped to meet principles such as inclusion that constitute social justice. It will also hold a more realistic perspective on social diversity, complexity and dynamics, as well as the cross-scale and inter-sectoral relationships that make the application of fisheries governance so complex in terms of outcomes that respect core principles. The second dimension of the argument is that a broader conception of fisheries governance may also be in society's best interest, particularly in developing countries. Given the large populations involved in fisheries and aquaculture and their economic contributions, which are often significant at the regional level, a full understanding of fisheries and aquaculture governance, such as I propose here, is most promising in terms of the likelihood of creating sustainable fisheries that continue to contribute socially and economically.

Conclusion

There are two ways to argue for livelihoods having a central place in fisheries and aquaculture governability. The first of these is the social justice argument that the maintenance of employment and livelihoods in fisheries is important as part of society's moral responsibility to strive to ensure decent and meaningful lives for all its members. The second argument is practical. Given the large populations dependent on fisheries globally, their regional economic significance, and their contribution to regional and global food security and high value trade in foodstuffs, it is in society's interest to ensure their livelihood sustainability.

The argument for the importance of livelihoods in fisheries and aquaculture governability has been secondary in this chapter, however, with the assumption that the argument for sustaining livelihoods in fisheries is largely self-evident. I have been much more concerned with understanding how livelihoods can be seen as a governability issue in fisheries. My basic argument in that regard has been that livelihoods and governability share a foundational complementarity. In epistemological terms, they are both approaches that fit with a post-equilibrium view of fisheries governance. This correspondence is brought out more strongly when they are coupled with the idea of wellbeing, which shows that livelihoods are diverse, complex and dynamic attempts to achieve a desirable way of living in particular social, cultural, economic, political and ecological contexts.

Translation of the insights arising from a wellbeing sensitive approach to livelihoods as a governability problem into practical tools for sustaining livelihoods is a wicked problem. Livelihoods are multiple and potentially competing; one person's pursuit of wellbeing may threaten another's. Moreover, configurations of livelihoods are dynamic and embedded within broader factors that transcend sectoral and regional governance, and, once undertaken, governance interventions stimulate their own

remorseless consequences for good or bad. These complexities must not, however, be reason to abandon the effort to integrate livelihoods considerations into fisheries and aquaculture governance. Even if the analytical and methodological tools of livelihoods, wellbeing and governability are still in development and remain a tough sell in fisheries management circles, the fact that they have made inroads at WorldFish and the FAO (Andrew et al. 2007; Béné et al. 2007) indicates the shortcomings of alternative standard approaches and the dire straits of many populations and regions that depend upon fisheries and aquaculture for their economic and social wellbeing.

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