

CHAPTER 9

Local Embedding and Economic Crisis: Comparing Lobster Chains in Belize, Jamaica and Nicaragua

Iris Monnereau and A.H.J. (Bert) Helmsing

ABSTRACT

This chapter argues that to examine the effects of global chains on local economic development, we must consider not only upgrading within chains but also their local embedding. Embedding is operationalized with elements of business systems theory. With a comparative analysis of lobster chains in Belize, Jamaica and Nicaragua, we identify similarities and determine the extent to which differences in the chains can be explained by variations in their local embedding. A look at how the actors fared in the recent economic crisis shows chain based transmission of effects, while variations in local embedding explain differences in how upstream actors cope.

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9.1 INTRODUCTION

What factors and forces shape opportunities for local economic development under conditions of globalization of production and trade? Discussions on this question in the past few years have focused on the role of global value chains as a principal avenue for local economic development. Value chains are said to shape opportunities for insertion into markets and for upgrading of local enterprises. Upgrading can take different forms: process, product, functional and intersectoral. Functional upgrading has been considered the best avenue for local economic development, as it results in greater value appropriation by local enterprises. However, the degree and nature of upgrading of local enterprises is greatly influenced by their relationships with other firms in the chain. These relationships have been categorized in various ways (e.g. Schmitz 2004). Consequently, research along these lines has concentrated on governance of the chains to define these relationships and the room available for upgrading.

Global value chain theory suggests that dynamics in the relationships between chain actors are primarily defined by technology and market factors (Gerrefi et al. 2003). Chains may be driven by the producer, the buyer or the trader (Gerrefi 1994; Gibbon 2001). Buyer-driven chains are often argued to offer greater opportunities for functional upgrading than supplier-driven chains (Schmitz and Knorringa 2000). But opinions have become more nuanced of late, as functional upgrading neither always results in greater competitiveness nor is it always the most desirable for local economic development. Intersectoral upgrading and downgrading are alternative policy options (Meyer Stamer 2004). Though there is now less agreement on upgrading as an avenue for local economic development, inter-firm relations are still the focus of research, and the governance of chains is still seen as the principal explanation. Governance of chains is predominantly top-down: either Northern buyers or manufacturing firms or traders dominating a chain have the decisive influence on the position and positioning of producers in the South and on local economic development.

This is a rather narrow approach to understand local economic development, as little attention is paid to the local conditions shaping the position and positioning of Southern producers. In this chapter we therefore want to go beyond chain governance and consider other actors and factors that can explain opportunities for local economic development and for strengthening/improving the position(ing) of Southern producers.

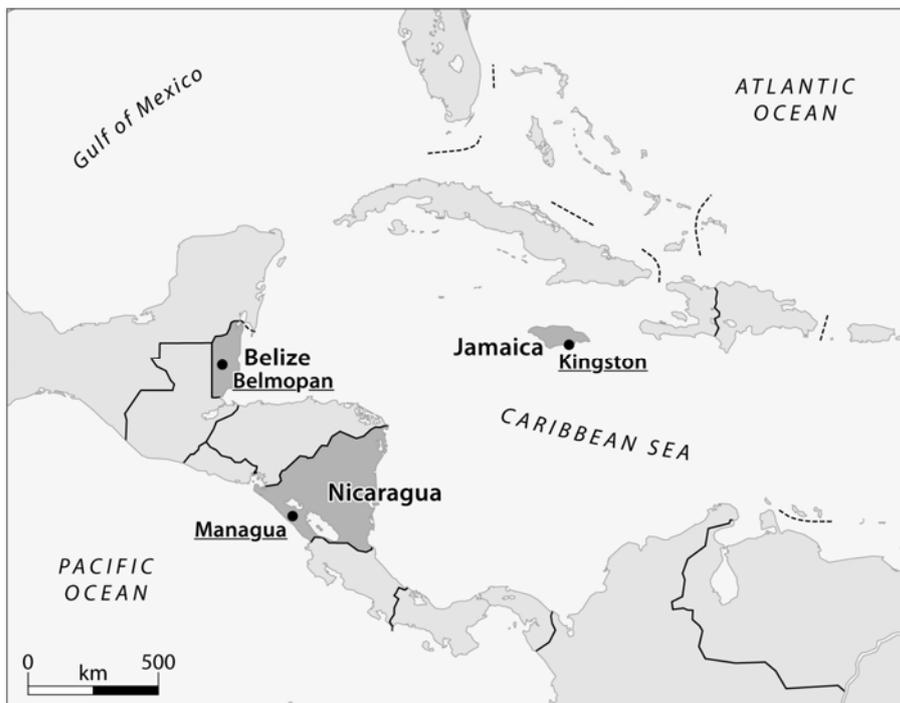
In our search for a broader explanation, we draw on the global production network (GPN) school of thought (Coe et al. 2008) and on business systems theory (Whitley 1999). As recently elaborated, amongst others, by Bair (2008), GPN stresses the importance of analysing the embedding of such production networks (ibid.). It goes beyond the linear structure used in the GVC approach to incorporate different kinds of networks. GPN attempts to encompass all relevant sets of actors and relationships, as chain governance alone may not have sufficient explanatory power to unravel the positioning of particular actors or firms in the chain (Bair 2008). Moreover, chain governance is not solely defined by technology and market structure but also by non-market-based power. The existence of barriers to entry can help us to identify power asymmetries (Kaplinsky and Morris 2001, 2008).

The GPN approach distinguishes three levels of embedding: functional, societal and territorial (Coe et al. 2008). In addition, it recognizes that actors in particular global chains may be operating in multiple networks, and this very fact influences their positioning in particular networks or chains (ibid.). However, the GPN approach offers

only a heuristic framework and lacks operational specificity (e.g. on the different types of embedding). We must therefore search for ways and means by which the framework can be made more specific. In that regard and in this chapter we draw upon business systems theory to assist us in framing the societal embedding of networks. This theory was originally elaborated at the national level and used to explain differences in economic achievements across Asian economies. To do so, Whitley (1999) analysed the nature of national economic institutions and economic coordination, notably (i) the nature of the state, (ii) the nature of state-business relationships and (iii) the nature of the firm itself or way of doing business in a particular territory. Originally, Whitley was rather critical of the effects of globalization on national business systems. Later he emphasized the importance of examining interactions between global changes and national business systems, as these produce continued national divergences in ways not inconsistent with the GPN approach. Territorial embedding is operationalized by examining how actors in a particular production network are inserted in the local economy and the manner in which their network participation complements or competes with other local economic activities.

The principal author of this chapter has studied lobster fishing in different countries in the Caribbean Basin,¹ notably Belize, Jamaica and Nicaragua. In all three countries lobster is destined for the US market (figure 9.1). This offered an interesting empirical setting to examine the extent to which functional embedding of lobster value chains is (dis)similar in the three countries concerned. It also provided scope for determining the extent to which differences in terms of position and positioning of Southern producers can be explained by country-level differences in societal and territorial embedding.

Figure 9.1 Location of Belize, Jamaica and Nicaragua and their capitals in the Caribbean Basin



The economic crisis which started in 2008 greatly affected the lobster chain in the three countries. Demand and prices fell drastically. This offered additional research opportunities: (i) to examine how the three lobster chains coped with the economic shocks, (ii) to determine the mechanisms through which the effects spread throughout the chains, (iii) to learn the extent to which differences in local embedding enabled actors, situated at different functional positions in the chain, to cope with the crisis, and (iv) to investigate the extent to which (what kind of) upgrading was a means to overcome the economic consequences of the crisis.

The chapter starts with a comparative analysis of the lobster chains and their functional embedding. Thereafter, it makes a (partial) analysis of societal and territorial embedding. This is followed by an analysis of the effects of the economic crisis on lobster chain dynamics and the position of particular chain actors in each country. The final section offers conclusions.

9.2 LOBSTER VALUE CHAINS ORIGINATING IN BELIZE, JAMAICA AND NICARAGUA

As Caribbean lobster (*Panulirus argus*) lack the famous claws of the American lobster (*Homarus Americanus*) only the lobsters' tails are sold to intermediaries or directly to processing plants. The plants process, weigh, pack and export frozen lobster to its final market. This is mainly the United States but also the European Union, Asia and Canada. The US Food and Drug Administration (FDA) checks the imported goods at intervals for food quality and safety. Once cleared, the product is stored in big freezer warehouses until it is sold in smaller quantities to retailers. Apart from retailers and restaurants, the principal chain actors are the US importers, processors/exporters located in the three countries, various types of intermediaries and fishers.

Importers

There are approximately 20 importers of Caribbean lobster tails in the United States. These frequently import other marine products as well, such as shrimp, fish and lobster from other regions. Quality and trust are of great importance to the importer. As lobster is a luxury product with high unit prices, a container of lobster might be worth US\$600,000–700,000. Poor quality might cause importers to lose large sums of money. Eventually one might get their money back, but this could take months, during which time the importer would be unable to buy new stocks. High and constant quality, besides price, is therefore very important. Processing to reach the proper quality standards demands high investments and advanced technical expertise. Trust between processor and importer is basic and their relationship can be long-lasting – sometimes more than 20 years.

Although all exporting processing plants follow Hazard Analysis and Critical Control Point (HACCP) regulations, quality is diverse. As one importer said 'it's all about time and temperature' (interview A12, 14 March 2008). 'Time' refers to the period a lobster is kept until it is frozen, and 'temperature' refers to the use of ice or freezers on board fishing vessels. The quality of Nicaraguan and Belizean lobster tails is believed to be much better than that of Jamaican tails. Jamaican processors have suffered from several salmonella cases in recent years, and their product receives a 20 per cent lower price (interview B13, 9 December 2009).

Quality controls are not always sufficient. There are many small ways for a producer to make extra profits; and importers cannot know until their clients complain months later. For example, processors might soak lobster in a salty solution for it to absorb extra water weight, tails might be excessively glazed to hold extra weight, and producers might pack 10-pound boxes with a few ounces less. Reputation and trust are therefore critical. If importers and processors have developed a trusting relationship, importers may provide processing plants with credit at the beginning of the season.

Even though importers say they consider the ecological and social sustainability of lobster fishing, there is little proof of this claim. For example, they deliberately close their eyes to the high accident ratio of Nicaraguan divers, there is considerable overexploitation of fishing grounds, and a number of importers have been (or are) involved in importing undersized lobster.

Processors

For the processing plants, laboratory testing, HACCP compliance and mandatory inspection at the export level are essential. These imply high capital and technological investments which create entry barriers to the processing industry. However, many problems can occur *before* the product reaches the processing plant, due to variation in the duration of fishing trips, storage temperatures during the trip and product handling.

The number of processors differs per country involved, depending on the volume and organization of the industry. In Belize there are two certified processors who export lobster. Fishers arriving in Belize City sell directly to these processors (which are fishing cooperatives). Belize fishers elsewhere sell to collection points for these co-ops.

In Jamaica there are officially only two processing plants. However, the fisheries department believes that as many as 20 smaller processors lacking official permits are in operation in the country. The smaller exporters process the lobster themselves and sell both to the national market and internationally. Fishers sell either directly to them or through an intermediary.

In Nicaragua, the number of processing plants fluctuates between eight and twelve. Due to the economic crisis three plants have gone out of business. Although processing plants are competitors on some occasions, the plants also collude and engage in price agreements (Monnereau 2004). In Nicaragua, fishers sell their catch to the processing plants either directly or indirectly through intermediaries.

Intermediaries

There are different types of intermediaries between fishers and processing plants. These range from small informal actors to more official intermediaries. 'Bucket ladies' in Nicaragua sell buckets filled with lobster at a small profit margin to the processing plants. Typically, these women have multiple occupations and sources of income. Entry barriers to this informal occupation are low and rotation is high.

There are also more advanced fully licensed intermediaries that make use of ice and trucks to ferry fishing equipment and fuel. They extend credit mostly in-kind to fishers, leading to higher entry barriers than those of the 'bucket ladies'. Fishers are often highly indebted to these intermediaries, and at times try to sell their catch to another intermediary or to 'bucket ladies' to momentarily escape their indebtedness.

Fishers who are members of a cooperative in Belize are not supposed to sell their catch to intermediaries, but fieldwork shows that a large percentage of fishers do so.

They might sell to other fishers or to independent intermediaries. From the independent intermediaries, fishers get a higher initial price but lose their so called ‘second payment’ (see section below). Interviewed intermediaries estimated that as many as 35–50 per cent of fishers sell occasionally to them (interview F9, 29 August 2009).

In Jamaica small-scale fishers are highly dependent on intermediaries who buy their catch and supply them with money, food and drinking water (at far-off atolls). Catch is mostly sold to beach vendors, intermediaries or packer boats. These process and store the lobster until it is sold. Buying up lobster in bulk requires large investments and, moreover, trusting relationships with local buyers (often hotel chains or exporters). The greater part of the catch is therefore sold via intermediaries, who supply to hotels and restaurants, with a smaller portion destined for export (Venema 2004).

Lobster fishing

Of the three countries Nicaragua is the largest producer (table 9.1). Jamaica has the largest number of fishers. Both Nicaragua and Jamaica host an industrial fishery but that of Nicaragua is much larger (54 boats) than Jamaica’s (4).

Table 9.1 Lobster fishing industry in Belize, Jamaica and Nicaragua

	Belize	Jamaica	Nicaragua
Lobster fishery volume export (lbs. of tails per year)	533,315(a)	700,000(b)	1,100,000
Number of fishers	2,026	20,000(c)	15,720(d)
Type of fishing (small-scale or industrial)	Small-scale	Small-scale and industrial	Small-scale and industrial
Per cent of total catch by fishing type	100% small-scale	60% small-scale 40% industrial(e)	50% small-scale 50% industrial

Source: (a) Average capture figure for 2003–5 (Belize Fisheries Department 2006). (b) FAO (2007). (c) This is an estimate by the Jamaican government. Only 14,000 fishers are registered officially as fishers (FAO 2007). (d) Adpesca (2003). (e) Data is very inaccurate as the Government of Jamaica has no precise figures on lobster landings

In both Belize and Jamaica the lobster fishery is part of a multi-species fishery whereby fishers also catch other marine products such as conch (*Strombus gigas*) and a variety of finfish (table 9.2). Nicaragua’s fishery sector is single-species, though during the closed season for lobster fishers actively fish a variety of finfish. In Belize and Jamaica, domestic demand for fish is high due to both local eating habits and the presence of a large-scale tourist market which supplies fishers with more outlets for their catch.

Fishing methods in these three countries range from small-scale to industrial diving (hookah, free-lung or by means of scuba equipment) and trapping (both wooden as well as industrial traps). From table 9.2 we see that the export capacity is highest in Nicaragua and lowest in Belize. Each country has day fishers and fishers who stay away for a longer period.

Table 9.2 Fishing technologies in Belize, Jamaica and Nicaragua

	Belize	Jamaica	Nicaragua
Gear type	Free-lung diving and wooden traps (small-scale only)	Wooden traps (industrial boats), chicken wire traps (small-scale fishers), and hookah divers	Scuba divers (industrial and small-scale) and wooden traps (industrial and small-scale)
Boats	652 (skiffs and sailboats)	3,874 small-scale boats (fibreglass and wood) and 4 industrial boats (30-meter steel vessels)	78 industrial fishing boats (51 trapping boats, 27 diving boats) and 4,155 small-scale boats (of which 1,892 operate in the Caribbean region)
Length of trip (absence from home)	Day fishers (trappers) and 8–12 day trips (divers)	Day fishers and trips of about 10 days	Day fishers and trips of 20 days (industrial divers) or 45 days (industrial trappers)
Single- or multi-species fishery	Multi-species	Multi-species	Single-species

Fishers work in a variety of conditions throughout the region. Divers in Belize work out of small dugout canoes from a large sailboat. They are independent operators who spend nine days at sea and two to three days at home before returning to sea. Trap fishers in Belize make day trips. They go out only once every two to three days to haul in their traps and often combine fishing with other economic activities.

While Belizean divers are free-lung divers, a Jamaican diver uses hookah equipment which connects the diver to an air compressor on board a small boat. Compressed air diving is dangerous and injuries and deaths occasionally occur. In Jamaica, trap fishers make day trips to pull in their large chicken wire pots, catching both fish and lobster.

Nicaraguan small-scale divers use scuba tanks and make day trips, competing with industrial boats that have up to 25 divers and spend 20 days at sea. These smaller operators frequently suffer diving accidents due to problems of decompression. In Nicaragua, small-scale trap fishers are day fishers while industrial trappers fish for 45 consecutive days at sea.

Based on the above, we can conclude that lobster chains in the three countries are broadly similar in their functional features and type of chain actors. Conditions for exporters are similar and defined, above all, by US public food safety standards. Relationships between US importers and processors and between processors and fishers are based on trust. Supplier failure (quantitative and qualitative) is controlled by extending credit. Though the export market is mainly North America, in Jamaica a larger portion of the catch is designated for the local tourist market.

There is also a degree of informality, such as the ‘bucket ladies’ in Nicaragua, unofficial intermediaries in Belize and unlicensed exporters in Jamaica.

Important differences exist upstream in the chains. Although technologies are broadly similar (trapping and diving), only in Nicaragua and Jamaica is there an

industrial fishing fleet alongside small-scale fishers. The institutional set-up of the fishing industry in Belize is substantially different from that in the other countries. Moreover, fishers in Belize and Jamaica are part of a multi-species fishery that supplies them with more options. Trap fishers in Belize often combine fishing with other economic activities.

In the section below we examine the extent to which the differences observed can be explained by the local embedding of the lobster chains in the three countries. We first provide a brief overview of the different historical trajectories of the industry, followed by a comparative analysis of particular aspects of societal and territorial embedding.

9.3 LOCAL EMBEDDING OF LOBSTER CHAINS: A COMPARISON

Between 1920 and 1960 the Belize fishery industry changed from being small scale and domestically oriented towards the wholesale marketing of lobster, conch and a variety of finfish for the more lucrative US and Caribbean markets (Gillet 2003). During the 1960s, the commercial fishery evolved from one in which foreign companies dominated purchasing and marketing to one in which locally owned cooperative organizations had gained prominence (*ibid.*). From 1965 the Government of Belize gave the fishing cooperatives exclusive rights over exports of fisheries products. Now Belize has only two fishing cooperatives with processing and distribution facilities for the export market.

These fishing cooperatives have been central to the fishery system, and currently 60 per cent of the fishers are a member of one of the cooperatives. These have been the most successful of the 28 active agricultural and marketing cooperatives in Belize (McConney et al. 2003). By removing the foreign exporters and installing the cooperative system, Belizean fishers have been able to get some of the world's best prices for their lobster (Huitric 2005). High export earnings have strengthened the cooperatives economically, translating into political strength and a determination to protect their privileged export monopoly (Brown and Pomeroy 1999).

Cooperative membership gives fishers an advantage in the form of a Christmas bonus and a so-called 'second payment'. Initially when the fishers bring their product to the cooperative they receive a 'first' payment; the 'second payment' is a bonus paid out at the end of the fiscal year, often at the beginning of the closed season of lobster.

Jamaica's fishing industry contributes to employment and exports, as well as to food security. It accounts for 7.5 per cent of the national GDP (FAO 2005). Lobster catches represent the second most important component of the total landings of the Jamaican commercial fishery (FAO 2007). Lobster landings are mostly designated for the tourist market. However, as data on lobster sales for the domestic and export markets is insufficient, no precise breakdown can be given (interview C7, 14 June 2009; FAO 2007). An estimated 15 per cent of the lobster landed is likely destined for the international export market (Venema 2004). This could be significantly higher, however, as a few industrial boats do not unload in Jamaica but bring their catch straight to the United States.

Jamaica's industrial fishery started in the 1970s with diving boats employed by a processing plant in Kingston. In the 1980s, this processor switched to trapping. Though early in the decade eleven boats were employed, by 1990 only six were still in operation due to declining catches. Currently four industrial boats are in operation (interview C7, 14 June 2009).

The lobster fishery in Nicaragua has a large industrial fleet and powerful processing plants. In the 1950s US companies obtained contracts to fish for shellfish, and in the 1960s industrial trapping started (Vilas 1989). By 1978, 100 industrial boats were in operation with production mainly destined for the United States (FAO 2001: 238). During the civil war the fleet was nationalized and the lobster fishery was halted (World Bank 1999: 8). With the end of the civil war in 1989, the fishery picked up again, leading to boom sales of foreign fishing licences and the opening of the vast US market for frozen lobster tails (Meltzoff and Schull 1999: 12). Since the 1990s, lobster exports have increased significantly (AdPESCA 2003).

Societal embedding: general context of the state and economy of Belize, Jamaica and Nicaragua

Table 9.3 presents some general economic features of the countries, showing considerable differences as well as important commonalities. Belize and Jamaica were shaped by their shared history of slavery, the plantation system and colonialism. Both countries are now English speaking, and their political systems mirror that of the United Kingdom. Since independence the government of Belize has attempted to overcome the colonial legacy of having only a few export products by setting up a cooperative organizational structure (Moberg 2003: 145 in Pisani 2007: 48).

Table 9.3 General and state features of local embedding in Belize, Jamaica and Nicaragua

	Belize	Jamaica	Nicaragua
General features			
GDP (billion US\$) (a)	1.37	15.07	6.59
GNI per capita US\$ (PPP) (a)	6,040	7,360	2,620
Human Development Index (b)	0.772 (93 rd place)	0.766 (100 th place)	0.699 (124 th place)
State features			
State autonomy with regard to economic policy	Limited autonomy, strong presence of FDI but low donor presence	Limited autonomy, strong FDI presence, low donor presence	Predatory state with strong donor presence
Developmental orientation of the state	Social democratic, emphasis on role of cooperativism	Neo-liberal, agreement with IMF to restructure economy and debt	Neo-liberal
State's orientation towards the fishing industry	Protecting interests of small-scale fishing	Ad hoc social support in times of crisis and natural disaster	Neo-liberal/hands off
Structure of the fishing industry	Small-scale fishing organized in cooperatives; cooperatives process and export fish	Partially integrated industrial fishing; unorganized artisanal fishing	Vertically integrated processors/industrial fishing and unorganized artisanal fishing
Ease of Doing Business Index (c)	80	75	117

Source: (a) World Development Indicators database. (b) UNDP ranking. (c) World Bank ranking

Jamaica's political system is dominated by two political parties, both of which rely heavily on political clientelism. Jamaica mainly exports primary products, but the tourist industry is important and has grown enormously since the 1960s. Tourism has also increased domestic demand for marine products, lobster in particular.

Although Nicaragua's independence (1821) came nearly a century and a half before that of Belize (1981) and Jamaica (1962) its political history has by no means been more stable. Whereas the latter have had relatively stable governments for the last decades, Nicaragua has suffered from a variety of dictatorships, though it currently has a democratically chosen president. The country has been run by a few elite families for decades (World Bank 2009). Nicaragua has been categorized as an 'unconsolidated' democracy in which elite factions continue to exploit opportunities to attack one another.

Lobster is the country's third most important export product. Although Nicaragua's economy was fast growing in the 1950s and 1960s, by the mid-1990s it had the region's poorest growth record. Since 2000, some signs of recovery have been observed. Nevertheless, 80 per cent of the population lives on less than two US dollars a day.

The Ease of Doing Business Index ranks Belize and Jamaica closely, respectively, at the 80th and 75th places, whereas Nicaragua is ranked much lower, at the 117th place, indicating greater difficulties in doing business there.² All three countries have a lopsided economic structure with important controls exercised by domestic elites, which in Belize and Jamaica are joined by foreign investors. In Nicaragua not more than eight families control the key sectors of the economy. Their influence on the state is strong and state leverage can be used in competitive struggles.

Societal embedding of the lobster fishing industry: business systems features

In each of the three countries a department or ministry has been instituted to manage marine resources. In all three a fisheries act has been established regarding capture fisheries and aquaculture and, if applicable, management of marine protected areas (MPAs) (table 9.4). These provide a regulatory framework for management of the national fisheries, but often fall short of offering the safeguards necessary for ensuring a sustainable fishing industry. The staffing of fisheries departments is frequently minimal, and coverage of expertise is mainly limited to fishery biologists. The departments are often poorly funded and budgetary constraints severely impair their abilities to strengthen technical expertise, to conduct research and monitoring and to enforce management measures.

Table 9.4 Selected features of local embedding: state-business relations and participation in other networks in Belize, Jamaica and Nicaragua

	Belize	Jamaica	Nicaragua
Economic governance in fishing industry	Cooperatives are represented in Fishing Advisory Board via national cooperative association	Industry not represented in Fishing Advisory Board (neither small-scale nor industrial)	No fishing advisory board; processor interests represented via CAPENIC
Management of fishing resources	Exclusive rights for domestic small-scale fishers	Open access; conflicts between conservation and exploitation of fishing grounds	Open access; conflicts between conservation and exploitation of fishing grounds
Environmental protection (marine protected areas)	State-NGO cooperation exists; NGOs own and manage marine protected areas (MPAs)	NGOs and tourist industry active in MPA management; state-NGO cooperation incipient	State-NGO cooperation does not exist; no MPAs
Participation in other networks (survival at the bottom of the lobster chain)	Fishing rotated with subsistence activities and other employment in services (tourism); multi-species fishing	Fishing rotated with subsistence activities and other employment in services (tourism); multi-species fishing	Mainly lobster fishing; limited rotation with rural subsistence; single-species fishing

In Belize and Jamaica, fishery advisory boards (FABs) have been established with the aim of advising the minister in charge of fisheries on matters of policy. In Jamaica the majority of FAB members are people with an interest in fishing but not necessarily with in-depth knowledge of the sector (interview D3, 12 September 2009; interview C7, 14 June 2009). The FAB faces problems of discontinuity of members and lack of competence (interview D2, 14 June 2009). Entrepreneurs with financial means, power and connections have easier access to those in charge, given the importance of ‘old boys networks’ in Jamaican politics in general, with the fishery sector being no exception to this (interview D3, 12 September 2009).

Jamaica’s fishing cooperatives often function more as cheap stores than as entities through which fishers engage in collective action and lobbying. Many of the cooperatives have failed due to lack of cooperation, failures which have made fishers sceptical of any new cooperative initiatives (interview D1, 13 December 2009). Although cooperative representatives are invited by the government to attend meetings on fisheries management they have little influence.

In Belize, in contrast, the fishing cooperatives have been central to the fishery system since the 1960s. The cooperatives have been very successful due to the high export earnings of fishers. Moreover, their exclusive export rights make the cooperatives economically important, which translates into political strength as well (Brown and Pomeroy 1999). In recent years however, the cooperatives have faced severe difficulties, as fishers have been unable to pay their debts and prices have fallen (interview E3, 26 October 2006; Huitric 2005).

The FAB in Belize is well represented, with members including the exporting cooperatives, fisheries officials, NGOs and sport fishing organizations. The industry owes its success to the organizational strength of the cooperatives.

Nicaragua has no FAB. The industrial fishing fleet owners (often the processing plants) are organized in an organization called CAPENIC. This organization advises the government on issues related to fisheries management. The fleet owners-cum-processors are by implication more influential than small-scale fishers. Very few small-scale fishers are members of fishing cooperatives. The cooperatives' leaders are occasionally invited to meetings organized by the government concerning lobster fisheries management. But, according to interviewees, they have no power to actually change anything in the fishery. Furthermore, government officials are known to be prone to corruption. In 2009, a donor organization accused the head of the fisheries administration of corruption and misappropriation of funds, eventually leading to a complete withdrawal of the donor's money.

Management of marine resources

Belize, Jamaica and Nicaragua have established restrictions and regulations regarding the lobster fishery such as a minimum size of caught lobsters, a closed season and prohibition of catching berried females and moulting lobsters. Belize has prohibited an industrial fleet, as well as the use of scuba equipment in commercial fishing. In contrast, Jamaica and Nicaragua have an open access regime.

Illegal harvesting of lobster and fish products is pervasive in all three countries, but especially in Jamaica and Nicaragua. In Belize the catch of undersized lobsters is believed to be around 10 per cent (FAO 2007). In Jamaica 30 per cent of the lobster was under the minimum size (*ibid.*). In this country the lobster and conch fisheries are believed to be exploited at or near the maximum sustainable yields (*ibid.*). The Nicaraguan lobster fishery is highly overexploited, and there is large-scale illegal fishing by national and foreign fleets (Ehrhardt 2006).

Lobster trappers in some areas of Belize have developed a territorial system, and a fisher's 'own' fishing grounds and sea rights are tradable (King 1997). Young fishers commonly inherit fishing grounds from their father or another family member. In other areas of Belize and in the lobster fisheries of Nicaragua and Jamaica the fishery is of an open access nature.

In Belize and Jamaica, NGOs and the private sector play a crucial role in management of fishing resources. These states lack the capacity to autonomously and effectively implement their own regulatory policies. They have allowed, and cooperate with, NGOs and the private sector to establish and manage MPAs. In Nicaragua there are currently no NGOs or private sector entities involved in formulating or implementing fishing resource policies although a few minor MPAs are being set up.

Territorial embedding

Regarding territorial embedding, three aspects play a role and work out differently in each of the three countries. These concern (i) the geography of the lobster chain in the countries concerned and especially the location of the marine resources; (ii) the presence of the tourism industry as a source of demand for fish and as a source of (self-) employment for people engaged in fishing; and (iii) the role of the tourism industry as a stakeholder in sustainable marine resource management.

The geography of marine resources plays a role in the positioning of small-scale fishing. Small-scale fishing can be competitive if the marine resources are located near the fishers' domicile. Fishing at greater distances is possible but requires longer fishing trips or fishers must relocate. Jamaican fishers either make long fishing trips (some 10 days) or spend the majority of the year on small atolls within the productive fishing grounds, 15 hours by boat from shore. As only blocks of ice are used and no freezers are available, their product quality tends to be low. In Nicaragua, some fishers live in keys or on small atolls or mangrove patches where they build houses on stilts. Others are day fishers. As chipped ice is used and intermediaries pass more often, the quality of their product is better. In Belize divers work near the atolls and reefs, often at 10 hours sailing distance from the coast. Although their trips often last 9 days they use chipped ice and soak the lobsters in sodium sulphate to maintain their quality.

The tourism industry is of great importance for the position of lobster fishers. In Belize and Jamaica there is considerable rotation in and out of fishing. In Belize, tourism and related personal services are especially important to trap fishers in the north (Huitric 2005; King 1997). Because of a substantial local demand for sea products, both lobster and other species, stimulated by the tourism industry as well as resource availability, fishing is predominantly multi-species in Belize and Jamaica. Here, fishers can continue fishing for conch or finfish during the closed season for lobster. Nicaragua, however, has no concentrated tourism industry demanding large amounts of lobster or fish or providing complementary (self-)employment opportunities. In the absence of urban livelihoods and tourism, fishing rotates with rural subsistence activities making fishers' livelihoods rather narrow and precarious.

Lastly, in Jamaica large private sector parties are becoming involved in establishing marine protected areas in cooperation with the government. These parties, however, do not originate from the fisheries industry but from international tourism organizations which recognize the importance of sustainable resource management for their own competitive positioning and long-term survival.

We can conclude that though all three states may be weak in terms of their own embedding and autonomy (Evans 1995), the state in Belize has been pro-developmental, organizing small-scale fishers into cooperatives and thus enabling them to participate in lobster export chains. In Nicaragua, by contrast, the state has played (de facto) an anti-developmental role, marginalizing small-scale fishers. In Belize and Jamaica, the state offers assistance to fishers in times of crises.

State-business relations are also quite different. In Belize and Jamaica, partnerships have developed to bring the industry to a more sustainable level of resource management, but the civic and business partners do not originate in the lobster chain. The territorial embedding in Nicaragua of the lobster chain approximates a resource exploitation enclave, while in Belize and Jamaica local fishers participate in multiple networks, working as multi-species fishers supplying partly for the local market while also engaging in tourism-related economic activities.

9.4 ECONOMIC CRISIS AND ITS CONSEQUENCES

Having examined the chains and their local embedding we now make an initial analysis of the effects of the economic crisis on the lobster value chains. The rapid decline in prices per lobster, as well as the drop in international demand, has affected relationships within the chain, both between processors and importers in the United States as well as

between fishers and domestic processors. However, the extent of these changes is quite different in Belize, Nicaragua and Jamaica.

The economic crisis has severely affected the lobster fishery in the Caribbean Basin. Demand dropped as consumers opted for cheaper marine products or reduced their consumption of seafood. According to Uner Barry's *Seafood Price-Current* (19 November 2009), prices dropped from US\$21–22 per pound in 2007 to \$13.50 in December 2008. The same happened with US lobster prices, which fell to an all-time low of \$3.50 per pound (down 21 per cent from 2007).

US restaurants reacted differently to the changing prices. Some had already taken lobsters off their menu due to high prices and waited before reintroducing the item. In other cases restaurant menu prices remained high, as the price per plate dropped only by about US\$3.00. A few restaurant chains followed yet another strategy, promoting inexpensive lobster during the summer of 2009, some introducing the item to their menu for the first time (*Seafood News*, 14 August 2009).

Before the crisis, producers in the Caribbean Basin were in a strong position vis-à-vis US importers, as high demand for lobster strengthened their negotiation power. Previously importers needed 'to tie' suppliers otherwise they might turn to another importer. Importers therefore provided substantial credit in advance of a shipment at the beginning of the lobster season and at face-to-face meetings. This dependence, however, reduced producers' ability to switch to other importers.

After prices dropped, importers stopped giving cash advances and only paid *after* the product had been cleared by US customs. Processors that had a more arm's length relationship with importers were no longer able to obtain advances to buy equipment at the start of the season. Both processors and importers suffered cash flow problems as freezer warehouses in the US remained full. Having three to five containers of lobster tails 'parked' in a freezer warehouse means having US\$4 million tied up which cannot be used to fish or to trade lobster. In some instances producers had to stop buying lobster or dock their industrial fleet. Whereas the closed season had been used by importers to empty the inventory in order to start buying 'fresh' product when the next season opened, in 2009 one importer commented, 'Just waiting for the season to open there is still last season's inventory for sale from just about every Caribbean country' (e-mail A5, 11 May 2009).

Producers became desperate to sell their product, even at the lowest of prices. Their dominant position quickly evaporated and smaller importers who had previously been unable to buy lobster directly because producers were tied by 'advances' could now more easily buy from a variety of producers.

As the US market collapsed some processors tried to diversify to European or Asian countries. Entry barriers to EU markets are considerable, however, and access is difficult to achieve. The high investments necessary to meet the strict EU standards proved onerous for processing plants suffering cash flow problems. Moreover, the long distance and costly transportation to Europe placed them at a disadvantage. The Asian market, which may be more accessible, is mainly interested in live lobster, which requires high investments and technological expertise. Opportunities for market and product upgrading therefore remained rather restricted to increasing quality and improving packaging.

In Nicaragua the crisis put three processors out of business, giving the remaining ones some breathing space. They have been able to process more lobster but even they

have had to dock a large part of their industrial fleet and sometimes had to close their plants for a few months.

Fishers in Belize, Nicaragua and Jamaica all suffered from declining prices due to the economic crisis, as fishers received US\$3–\$5 less per pound. As prices dropped while those for fuel increased, fishing became non-remunerative at times.

The economic crisis has tightened the availability of credit for fishers, as everyone's margin diminished. Furthermore, while small-scale fishers increasingly turn to intermediaries to get credit, they often sell their catch to other vendors in order not to have to pay their outstanding debts. Intermediaries therefore have raised their margins, paying lower prices to the fishers. In Nicaragua, low prices have caused strikes among the fishers, though they were unsuccessful in negotiating better prices. On the contrary, at times processors were financially unable to buy lobster at all.

The Nicaraguan government provided no support in the form of concessionary finance for processors or income support to small-scale fishers. Neither has the Belize government come to the rescue of fishers or cooperatives, despite the decline in prices. The 'second payment' which the cooperatives pay to the fishers was much lower than in previous years due to the crisis, resulting in lower reserves for fishers. One cooperative had a long-term contractual relationship with a US importer whose prices were linked to Urner Barry's index. That cooperative suffered less from the price collapse, and its second payment was accordingly higher. The other cooperative's second payment, however, was very low as it had 'looser' relationships with several importers. That cooperative was unable to sell a large part of its inventory, with the rest sold only at very low prices. Fishers therefore moved en masse from the latter cooperative to the former, which has been able to weather the crisis.

However, contrary to what might be expected *more* people turned to fishing in Belize rather than fewer. The number of fishers increased by 20 per cent between 2008 and 2009. Fishing is an 'escape valve' for people who lose jobs in other economic sectors, and multi-species fishing still offers opportunities to generate a small income.

In Jamaica, prices dropped even more than in Belize and Nicaragua. Prices received by processing plants are around US\$2.50–2.75 lower there than in Nicaragua and Belize. In Jamaica, too, more people have entered the fishery to escape declining economic opportunities in other sectors. The industrial fishery has dwindled since 2008, and exports have diminished, but no processing plants have had to dock their boats (interview C15, 13 December 2009).

New regulations in Jamaica prohibited intermediaries from storing lobster in freezers during the closed season, affecting demand, and as prices declined fishers had access to even smaller amounts of credit for fuel and equipment. While in the past the Government of Jamaica awarded fishers and processors an exemption from the general consumption tax on fishing equipment and a small subsidy on marine outboard fuel, these fiscal privileges were withdrawn as of 1 December 2009 (interview C15, 13 December 2009).

It can be concluded that the crisis resulted in significant changes between the producers and importers in all countries. Producers without close ties with importers had a harder time surviving than those who had strong and stable ties with buyers. It should be stressed, however, that only suppliers of top-quality lobster qualify for such close ties with buyers. For suppliers of low-quality products, it is much more difficult to enter such 'quality based' social relationships.

The Nicaraguan producers appear to be hit hardest, as three went out of business. In Belize and Jamaica no processors ceased operations. In Belize this might be due to the fact that it is a multi-species fishery, whereby both processing plants also process fish and conch. In Jamaica the producers are still in operation but to a lesser extent and they can still sell to fulfil local demand. However, fewer industrial licenses were issued in 2009.

Fishers have suffered from declining prices and opportunities for credit in all three countries. In no country has the state come to the rescue of the fishing sector, and in Jamaica customary support was actually withdrawn. States were either unwilling or unable to help the fishing sector, as their entire economy was affected by the crisis.

Upstream it has been difficult for processors to find new market outlets for their products and opportunities for process or product upgrading have proved to be limited. Downstream there were more dynamic responses. Restaurant chains in the United States which had never before sold lobster made lobster products part of their 2009 summer menu.

It should be noted that the crisis facing fishers and processors was not only a crisis of demand, it was also a crisis of supply. In all three countries the national governments were increasingly preoccupied with increasing the sustainability of the resource by bolstering restrictive regulations and the enforcement thereof.

9.5 FINAL CONSIDERATIONS

This section draws conclusions on the organization of the lobster chains in the three countries, on the local embedding and context of these chains in each of the countries, and on the consequences of the economic crisis on chain organization and on chain actors. First, we conclude that the three countries' lobster chains show a number of common downstream features. Their export destination is generally the US market, and there is overlap in process technology as well as fishing gears. Processors exporting to the United States all have to meet the same food safety standards. As quality is not easily observable, trust plays an important role in producers' relationships with importers, reinforced by credit advances. Despite these downstream commonalities, upstream differences emerge and societal and territorial embedding helps to explain these.

The three countries show considerable differences in the societal embedding of the lobster chain, even though they share, for example, partly overlapping colonial histories, high dependence on primary exports and relatively weak states with limited autonomy. Nevertheless, Belize has sought to counterbalance inherited economic inequalities with a pro-developmental effort to stimulate cooperative organization in agriculture, trade and fishing. In contrast, in Nicaragua the fragmented political elite continues to be self-occupied and shows little concern to deploy its marine resources to tackle its widespread poverty. Jamaica finds itself between the two. There, the capacity of the state to provide assistance to the fishing industry to overcome economic shocks and natural disaster has eroded over time.

At a more concrete level, fishing-related institutions differ substantially across the three countries. Belize has adopted a restrictive resource access regime protecting small-scale fishing. Both Jamaica and Nicaragua have an open resource access regime permitting an industrial fishing fleet. The establishment of MPAs has taken off in Belize and started in Jamaica with the support of both NGOs and the private sector, while little is being done to protect the resource in Nicaragua.

In Belize, the fishing cooperatives are represented on the FAB and although Jamaica has installed an FAB as well, full stakeholder representation has failed up to now. In Nicaragua only the industrial processors and fleet owners are institutionally represented.

Territorial embedding also differs. Belize and Jamaica have a relatively important tourism industry which constitutes a key source of demand for fish, including lobster. Fishing in Jamaica and Belize is a multi-species activity reducing livelihood risks for fishers and the scope for chain level interlocking dependencies. In addition, fishers in Belize have employment alternatives in tourism-related activities, while in Nicaragua fishers depend nearly exclusively on lobster fishing.

Looking at the effects of the crisis, we draw some preliminary conclusions from the limited available evidence. Four kinds of effects can be identified: (i) management of cash flow problems; (ii) opportunities for market upgrading; (iii) opportunities for adding value to compensate for declining volumes and prices; and, lastly, (iv) opportunities for functional upgrading and for switching to different chains.

The market changed from a seller's into a buyer's market as importers drastically reduced the amount of credit they provided to processors. Processors, in turn, limited their credit to only their most reliable suppliers. Fishers found themselves at the end of this downward cascade of cash flow problems. Secondly, opportunities to develop new markets were unevenly distributed across the lobster chain. Whereas retailers and restaurants tapped other market segments as lobster prices dropped, processors had difficulty engaging in market upgrading. Thirdly, product upgrading opportunities for adding value to compensate for the declining volumes and prices through product development and process upgrading were also unevenly distributed. A number of US restaurants removed lobster from their menu, thereby leaving the lobster value chain, while others entered the lobster value chain for the first time. Still other retailers and restaurants developed new lobster products and markets. Importers have stayed in business but profit margins are generally now much lower. Few opportunities for product and process upgrading existed upstream. Functional upgrading and switching to different chains was equally difficult. Processors in Belize and Jamaica process more other sea products, which lessens the effects of the lobster crisis on them compared to the more seriously affected processors in Nicaragua.

As importers' prices collapsed in 2009, fishers in all countries faced declining earnings. The most severe price reductions in Nicaragua led to violence and strikes. In Jamaica and Belize, price reductions have been less, but the number of people entering the fisheries increased, resulting in greater poverty sharing.

We conclude that there are limited local upstream opportunities for upgrading within the chains. But at the same time, differences in societal and territorial embedding have had important bearing on the position and positioning of Southern producers in lobster chains. Although weak and with limited autonomy, the state in Belize was pro-developmental in organizing small-scale fishers and enabling their cooperatives to participate in lobster export chains, engaging in proactive state-business relations, protecting cooperatives' access to fishing resources, and engaging in partnerships to achieve more sustainable fishing. In contrast, the state in Nicaragua has been anti-developmental, denying small-scale fishers an opportunity to represent their interests or to protect their access to fishing resources. Jamaica finds itself between these strong contrasts. Territorial embedding there is important to the extent that Southern producers may have other income or livelihood opportunities, in fishing or in tourism, that help to

reduce their dependence on one particular network. In this regard fishers in Belize and Jamaica are better off than those in Nicaragua.

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NOTES

- ¹ This chapter uses the term 'Caribbean Basin' rather than 'Caribbean' so as to refer to the entire area running from Florida westward along the Gulf coast, then south along the Mexican coast through Central America and then eastward across the northern coast of South America. This region therefore also includes the Central American states bordering the Caribbean Sea.
- ² <http://www.doingbusiness.org/ExploreEconomies/?economyid=21>