

## The economics of small-scale fishers supplying tuna to an industrial processing plant in Kiribati

*Kiribati Fish Ltd (KFL) is a public-private enterprise and is the only export standard tuna processor in Kiribati. KFL operates its own longline vessels and buys fish from small-scale fishers. Over 700 small motorised fishing vessels operate in the Betio and South Tarawa area, and supplying fish to KFL would give local fishers the opportunity to secure better prices for their tuna than they would receive through the local markets. It would also increase the local employment provided by KFL in processing and packing fish.*

In order to increase the amount of tuna supplied by local fishers, the Kiribati Ministry of Fisheries and Marine Resource Development (MFMRD) and SPC deployed a number of nearshore fish aggregating devices (FADs) around Tarawa, provided 89 local fishers with fish handling training in late 2013, and trained fishers in new fishing skills in 2014. Initially, this initiative was successful, with more than eight tonnes of tuna supplied by local fishers to KFL in December 2013. Since this initial positive impact, however, KFL data indicate that there has been a rapid and significant decline in the amount of tuna supplied to them — down to zero in late 2014 and 2015.

SPC's Economist (Fisheries) conducted an analysis of the market barriers that small-scale fishers face, and investigated how these barriers impact fishers' ability and willingness to supply KFL with high quality tuna. This article is a summary of the final report and highlights the report's key findings.

### Methodology

A market barrier analysis was conducted to: 1) understand why small-scale fishers on Tarawa were not supplying fish to KFL, and 2) what could be done to encourage them to do so (See Box 1). Twenty-five fishers from three fishers' groups and two independent fishers participated in a mix of group discussions and one-on-one questionnaires. While this sample clearly does not represent all fishers in and around South Tarawa, it does provide insight into the main issues regarding why fishers do not supply fish to KFL.

### Market barrier analysis

#### Finance

One of the barriers to fishers supplying KFL, is that the company requires fishers to follow good fish handling practices, and one of the conditions is that fishers must carry ice on their boats to keep fish fresh until the fishers return to port. Fishers with smaller boats, however, do not carry ice and, therefore, are unable to supply KFL with fish. Larger boat owners on the other hand do not have concerns about carrying ice.

A discussion with small boat owners identified money as a significant barrier to enlarging the size of their boat, which would enable them to carry ice and thus supply KFL with fish.

Fishers' perception was that banks required collateral to secure a loan, and a depreciating asset such as a boat was insufficient collateral. In most cases, the only accepted collateral was land. This is clearly a significant barrier to expanding fishing effort and increasing employment and revenues from the industry, and in the Kiribati economy in general.

The first recommendation is, therefore, that further work should be carried out to confirm the lending conditions within Kiribati's finance markets, and explore other financing possibilities.

#### Market barrier analysis

In economic jargon, a market barrier negatively affects an economy because it reduces the allocative efficiency of resources and, therefore, results in a societal welfare loss (the welfare of society is lower than it could otherwise be). Understanding market barriers, their root causes and market signalling allow interventions to be made. These interventions are designed to correct the identified barriers, but may introduce other market barriers or adverse incentives into the system, so a careful understanding of the situation is required.

In plain English, a market barrier stops an expected outcome or impact from being achieved. Market barriers may be attitudes, incentives, market functioning, market structures, prices or governance systems. An understanding of market barriers is critical to ensuring project success.



*Selling fish at a roadside stall on Tarawa (image: Michel Blanc).*

### *Regulations and documentation*

There is no regulation in Kiribati for fishers to carry ice, and fishers are able to sell un-iced fish at local markets because of local demand. As with much of the rest of the Pacific Islands region, there are no ‘pull’ factors, such as price premiums in local markets for iced fish, or local demand requirements, and no ‘push’ factors, such as regulations. This weakens the incentive to use ice and good fish handling practices, and decreases the chance of supplying fish to KFL.

The requirement to register with KFL was not seen as a problem and was considered a straightforward process. This indicates that paperwork is not a barrier to fishers supplying KFL with fish.

### *Off-loading fish catches*

The fact that fishers can offload their fish and get cash very quickly when selling to KFL was seen as a significant advantage by fishers. It means that they (or their family) would not have to spend time sitting at the market selling fish and, as a result, could undertake more productive activities. However, KFL’s supply conditions decrease the strength of these incentives.

In addition, KFL only accepts bigeye and yellowfin tunas. Previously, KFL accepted reef fish, bottomfish and other types of pelagic fish. From December 2013 to February 2014, three tons of reef fish and bottomfish, and ten tons of tuna were supplied to KFL. This meant that fishers did not incur additional costs and time in visiting both KFL and the local markets in order to offload their fish. KFL has, however, since stopped accepting fish other than bigeye and yellowfin tunas, and also has a 10 kg minimum size per fish. Fishers reported that only 40–50% of their catch had the potential to meet these requirements. The result is that fishers cannot gain benefits from supplying only KFL, but instead face additional financial and time costs when they visit both KFL and the local markets to offload their catch.

Fishers also tend to target smaller fish because they know that they will be able to sell these at the local markets, whereas larger sized tuna are much harder to sell. This means that when larger fish are rejected by KFL, fishers have nowhere else to sell them, This significantly increases their financial risk.

It is, therefore, suggested that KFL conduct a trial whereby it accepts all fish, at market prices, from fishers who supply them with export-grade tuna and sell these

at cost where they currently sell tuna byproducts. This should be cost neutral for KFL, which already sells fish byproducts to local buyers.

### *Fish handling*

The need for careful handling and cleaning of fish for KFL was highlighted as a barrier to supplying KFL. While this takes minimal additional time (fishers estimated two to three minutes per fish), all fishers felt that it was too much work for so little gain. Careful handling and cleaning of fish is an important requirement for export quality fish and is a non-negotiable requirement of KFL. Retraining selected fishers may help improve their understanding and practice of techniques. Equally, price differences between KFL and the main market will need to be stronger in order for fishers to invest the time to clean their fish.

### *Travel distance*

Due to KFL's position at the western end of Betio, Bairiki fishers must travel longer distances to offload their catch, which means they incur higher costs in terms of fuel and time. (Bairiki is 3 nm round trip from KFL.) This, therefore, negatively impacts the willingness of fishers to supply KFL, as was discovered from interviews with Bairiki fishers, and fishers from the east side of Betio were less willing to supply KFL.

Setting up collection facilities at other points around South Tarawa could be considered in order to reduce distances travelled by smaller fishers and take advantage of economies of scale of transporting large amounts of fish in one go.

KFL could also consider using the industrial transhipping model on a smaller scale at certain locations (such as near FADs), so the smaller boats can fish and transfer their catch at sea to larger boats better equipped to carry the necessary gear to treat the fish well (e.g. ice). This would reduce fishers' costs, ensure that their boats are within their safety limits, allow fishers to be out fishing for longer, allow them to reload with ice, and reduce handling requirements. All of which better align with fishers incentives, attitudes and current conditions. The exact model used would require further investigation.

### *Fishing businesses*

Fishers indicated that they needed to think of fishing as a business and to manage it as such, but lacked the skills. This lack of knowledge about business management, record keeping and finance means that incentives designed to change fishers' behaviour must be very strong. Essentially, these incentives need to be too attractive to ignore. Current price differentials between KFL and local markets are too narrow to impact fisher behaviour, and the additional requirements that KFL places on fishers further weaken and distort the impact of these price differentials.

It is, therefore, recommended that fishers are provided with assistance to increase their understanding of business management, record keeping and finance.

### *Cost analysis*

A cost analysis was carried out using information supplied by KFL and local fishers. The data used, and therefore the outputs, are confidential and so details cannot



*Inside the Kiribati Fish Ltd fish processing facility (image: Michel Blanc).*

be published. The analysis, however, demonstrates that the price-based incentive to supply KFL must be sufficient enough to outweigh the extra earnings for being at sea longer and the additional costs incurred by fishers when supplying KFL. The analysis suggests that this was not currently the situation and prices needed to be increased to ensure that the market signals were sufficiently strong. It would be worth undertaking a study to identify exactly what price model would lead to an efficient outcome and increase the supply of tuna and smaller fish to KFL.

### Conclusions and recommendations

The data collected for the analysis suggest that the deployment of FADs has increased fishers' access to tuna, and they are achieving good catches of large tuna from them. This analysis used a market barrier approach to investigate the possible reasons why local fishers were not supplying KFL with tuna. Assuming that achieving a supply of tuna from local fishers remains a strategic aim of KFL, a number of recommendations are suggested to improve the supply from local fishers.

#### *Recommendation 1:*

KFL should consider accepting other fish from fishers and selling these with the tuna byproducts that they currently sell.

#### *Recommendation 2:*

Work with fishers to professionalise their businesses by increasing their understanding of business management, record keeping and finance.

#### *Recommendation 3:*

Increase the price differential between the local markets and KFL by increasing the price paid by KFL.

#### *Recommendation 4:*

Consider the feasibility of reducing fishers' costs of supplying KFL by using transshipping models.

#### *Recommendation 5:*

Identify options for sustainable financing mechanisms (through government, private institutions, or donors) to increase the size of fishers' boats and enable them to carry ice.



*Small boat fishers heading out to fishing grounds  
(image: Michel Blanc).*

### Acknowledgements

The author would like to thank Kintoba Tearo of KFL for his kind assistance and acknowledge the time given up by members of Betio Fisherman's Association, Betio Fisherman's Cooperative and the Kiriwaru Maritime Cooperative Society Ltd and two independent fishers for taking part in these interviews. The views expressed in this document remain those of the author and not of any organisation associated with this work.

#### *Note*

This article will also be published as part of the SPC economic brief series.

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