



Improving livelihoods in fishing communities of West Sumatra: More than just boats and machines



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ABSTRACT

Despite a raft of livelihood programs designed to help Indonesian small-scale fishers there are concerns that the needs of the poor are still not being addressed. This study examines this concern through a two-pronged approach. Firstly, through a broad-scale series of interviews with fishers, community leaders and government employees in 25 fishing villages in the province of West Sumatra to identify which sectors of the fishing industry the poor operate in and the types of livelihood initiatives targeted at helping them. Secondly, by using three case studies of livelihood development projects and identifying the social, economic and institutional lessons learned that point both to best and worst practice. Three groups of poor fishers were identified; a large group of non-boat owning “labourers”, a group of “small-scale boat owners” and a small group of “processors and sellers”. Empowerment programs by the Department for Fisheries between 2005 and 2009 emphasised improving *physical capital* through providing fishing gear, motorisation and processing equipment. These initiatives could potentially help small-boat owners but would not benefit non-boat owning labourers. The new livelihood improvement programme GPEMP had non-fishing alternative livelihoods that could help labourers, but still demonstrated an ongoing bias towards *physical capital* interventions. The three case studies demonstrated that aspects of leadership, trust, advocacy, administration, accountability and ongoing institutional support are key elements of empowering coastal communities towards livelihood improvement. Human and social capital components need prioritisation in future poverty alleviation policy and programs in Indonesia, particularly for the large marginalised group of labourers.

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1. Introduction

1.1. Small scale fisheries and poverty; human and social capital in livelihood development

Historically, the emphasis of fishing development in both South-East Asia and globally has been on the physical capitalisation of the industry [1–3]. The logic was that bigger boats, more fishing gear and better infrastructure were keys to increased productivity which would lead to improved welfare through job creation, increased incomes, exports and improved food security [4]. Many of these goals proved mutually antagonistic. In Indonesia in the 1970s, US\$59 million of aid was used to develop the tuna fishing industry with a view to developing exports, although only 3400 jobs were created [5]. In south India, the effect of over-capitalisation

was even more drastic, with fleet modernisation reducing incomes of traditional fishers by 50% and reducing local food security [6].

Because the finite nature of the resource makes modernising the fleet a strategy susceptible to overfishing one response to “too many fishers chasing too few fish make too little income” [7] was to continue to emphasise fleet modernisation in order to maximise revenue which is then redistributed in a pro-poor way [8,9]. Besides the difficulty of collecting and redistributing the rent [10], particularly in a nation such as Indonesia where corruption is rife [11], this narrative reduces “poverty alleviation programmes in fisheries to an economic (rent capture) and fishing right issue and to a direct relationship between income and level of catch” [12] and fails to capture the social security elements that small-scale fisheries provide. For the landless poor or those facing structural poverty, small scale fisheries, as a common pool resource has the capacity to absorb labour [4] or act as a short-term safety net [13]. While the economic rent model has value in contexts of strong governance such as Norway, many developing nations need a welfare model for small scale fisheries that incorporates a broader understanding of poverty and its causes.

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While in the 1960s poverty was understood as a lack of income [14], it is now understood with reference to entitlement [15], empowerment [16,17], vulnerability [18], participation [19] and dignity and self-esteem [20,21].

For natural resource dependent communities the causes of poverty may extend much wider than biological overexploitation alone [22–24]. In Bangladesh, for example, entitlement failure restricted access to the resource by the poorest households [25,26] so that even when stocks were enhanced those benefits failed to accrue to the poorest families [14]. In order to capture a broader, multi-disciplinary understanding of poverty the Sustainable Livelihoods Approach was developed and has subsequently been applied to small-scale fisheries [27,28]. While the former small-scale fisheries development paradigm emphasised improving physical and financial assets through fleet modernisation and infrastructure projects, the SLA recognises that natural, human and social capital are important components of livelihoods too.

While the state of natural capital has long been recognised as crucial and underpins traditional fisheries stock assessment it is only relatively recently that there have been calls for a social-ecological systems approach [29–31] which incorporates the human and social components of livelihoods as well [32,33]. Social capital “lowers the transaction costs of working together, and facilitates cooperation” [34]. It reduces the costs of monitoring and enforcement through building confidence and trust in the belief that by working together all will mutually benefit. Social capital has been the basis for hundreds of thousands of resource management and micro-finance groups [34]. Women's self help groups (SHGs) in Andhra Pradesh, India, is one such example [35]. Since 1979 more than 4.8 million poor women have been mobilised into SHGs. These SHGs as well as providing financial credit, build human and social capital through leadership training and development, providing a voice to the voiceless and through the groups themselves building a political platform through which institutions can be influenced. In their review of 130 global case studies of fisheries collective management, Gutiérrez et al. [36] found that strong community leadership and social cohesion were critical components of success. Similarly, in both Marine Protected Area management [37] and fisheries cooperatives [38] good governance, social capital and conflict resolution are all needed to ensure sustainability. Whether originating from a poverty alleviation viewpoint [35] or from a more general resource management perspective [36], the same principles of social cohesion, trust and leadership are pertinent to both. Financial credit and physical capital are necessary parts of livelihood development, but without strong natural, human and social capital foundations, they are unlikely to lead to sustainable resource management and livelihood improvement.

1.2. An Indonesian response

The Indonesian Government's approach to poverty has mirrored the evolution described above. Programs prior to the 1990s tended to ignore the complexity of poverty, which was the result of poor human resources, lack of social infrastructure and problems in natural resource management [39]. But contemporary approaches recognise the importance of social capital in the development process, with community empowerment being one of the three main clusters of poverty alleviation programs [40]. Translating these concepts from policy into implementation has not always been easy. In 1993 a new empowerment approach was introduced that was designed to tackle inequalities by improving human capacity through universal basic education, health care and social protection. A classic example of this approach was the programme IDT (*Inpres Desa Tertinggal*), which encouraged the formation of SHGs to manage grants to improve economic opportunities for the poor [39]. Sadly, it was undermined

by village leaders dominating the process and by the SHGs being formed only for the project and failing once the money dried up. Similarly, in a US\$50 million ADB project conducted from 1998 to 2006 designed to safeguard natural resources and alleviate poverty, the project exceeded their target of forming groups, but in the majority of cases these groups did not translate into poverty alleviation [41]. In 2006 the National Community Empowerment Program (*Program Nasional Pemberdayaan Masyarakat–PNPM*) was introduced [42]. This ongoing successful programme recognises the importance of social capital and aims to alleviate poverty through the mutually reinforcing goals of improved socio-economic conditions and improved community-level governance.

Despite encouraging signs including the Poverty Reduction Strategy Paper framework [39] and a reduction of households in poverty, there are still “a large group of vulnerable households” who, facing small shocks, are likely to fall into poverty again [43]. Also of concern are the ongoing challenges of regional autonomy, multiple programs and levels of governance, and a variety of government departments that have engendered a lack of coordination between poverty alleviation programs [42].

In response to these concerns, the Governor of West Sumatra, in January 2012, announced a new 4 years initiative; the “Economic and Welfare Movement of Coastal Communities” (GPMP: *Gerakan Pensejahteraan Ekonomi Masyarakat Pesisir*). GPMP is targeted at the poorest households regardless of their primary source of income. Fourteen government departments would work together at national, regional and local levels under the coordination of the lead agency, the Department for Fisheries and Oceans (DKP), to

- Strengthen existing technology and human capacity of coastal residents.
- Develop supplementary fisheries and aquaculture based livelihoods.
- Develop the processing and “down-stream” aspects of fisheries.
- Develop supplementary livelihoods outside of fisheries and aquaculture.

In light of this evolving understanding of poverty, the aim of this research was to evaluate whether current livelihood improvement programs are targeting the needs and constraints of the coastal poor in one province of Indonesia, West Sumatra. To assess this

- (1) Sectors of the fishing industry that poor households operate in were identified.
- (2) Government Interventions targeted at improving livelihoods and alleviating poverty were described and analysed.
- (3) Three case studies were used to illustrate the social and human capital factors that influence the success or failure of livelihood improvement initiatives in fishers groups.

2. Methods

2.1. Identifying the sectors of the fishing industry that the poor operate in

Areas of high fishing poverty were identified from 2008 poverty data [44]. Preliminary interviews with field extension officers and office-based staff in the Department of Fisheries and Oceans (DKP) identified key informants in the fishing villages. These initial contacts led to further interviewees through “snow-balling” [45]. Semi-structured interviews were conducted with these individuals and small groups of fishers and their wives in 25 fishing villages (Fig. 1) in the province of West Sumatra in order to explore; (1) the livelihood portfolios of poor fishing households, (2) the nature, history and causes of poverty and (3) perceived

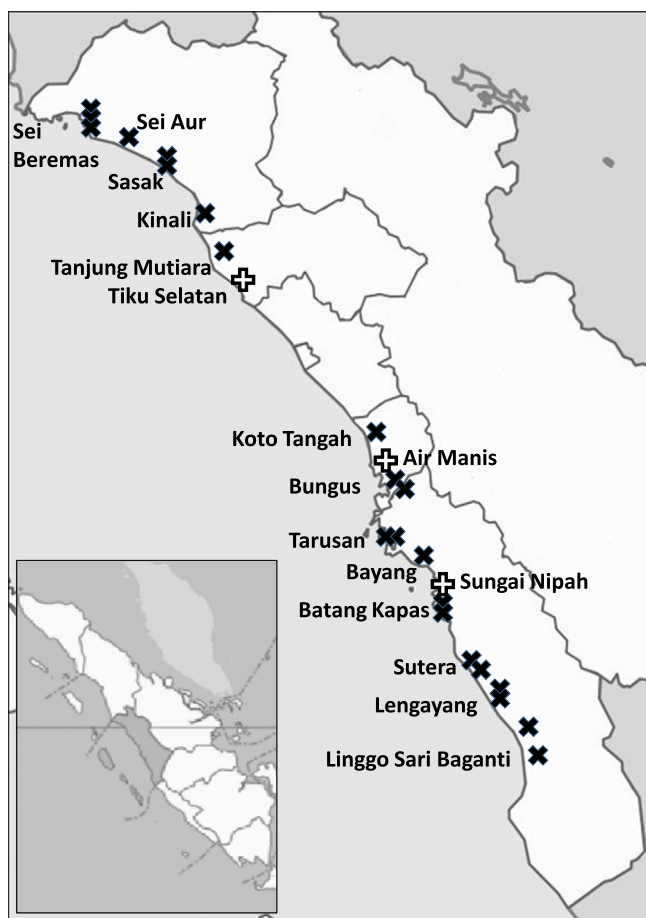


Fig. 1. Field research locations in West Sumatra indicated by x. White crosses are case study locations.

capital categories as explained in the SLA. For example, an intervention that gave out long-tail machines¹ scored 100% physical capital because there was no training or social capital components attached to it. Similarly, an intervention aimed at improving household livelihoods through training fishers' wives in fish processing and providing them with the equipment to do so would score 50% human capital and 50% physical capital. If this same project included a significant emphasis on group formation then a social capital component would need to be incorporated too. What is being measured is the presence or absence of an intended benefit in an asset category and not whether that benefit was realized. Intended benefits were compared with the fishing poverty sectors identified in Section 2.1 in order to assess the "fit" of livelihood interventions [48].

For a contemporary perspective, the first year of the programme GPEMP was analysed using the same methodology.

2.3. Case studies

Because government policy is to give funding and support through groups rather than individuals, three fishers groups were selected to explore the mechanisms that facilitate successful or unsuccessful implementation of these interventions. Eight fishing groups had been visited as part of the 25 fishing villages of Section 2.1. Three of these were chosen for a case study analysis on the basis that they were (a) willing to be interviewed, (b) had been in existence more than 3 years and (c) represented both successful and failing groups. Group leaders, members of the group and local DKP officials were interviewed to ascertain the factors contributing to success and failure of the group. Interviews were analysed using the same methodology as Section 2.1.

3. Results and discussion

3.1. Who are the fishing poor?

The largest group (53%)² of poor fisher households in West Sumatra comprised "labourers". These were non-boat owning households where the main employment is as a crew member on larger vessels such as purse seines (*pukat cincin*) or lift nets (*bagan*). Labourers can also mean members of beach seines (*pukat tepi*) or crew who fish with handlines on a boat they do not own. In many of the larger fishing ports, crew members have migrated from the surrounding areas seeking employment. They may move as a family or just the husband lives in the fishing port and sends remittances back. Either way, migrant crew are frequently viewed as "outsiders" by local fishers and their families, making it difficult for crew members to be accepted by a local fisher group. Crew members on larger boats are typically at sea all night and may have limited time for occupational multiplicity. Many crew members complained that their share of the catch was barely sufficient to meet daily needs. On the other hand, a number of fishing boat owners reported that they started life as crew but worked hard to become a captain and eventually owned their own boat. One of these owners argued that "if the desire is there, crew members could still work hard, save and move towards a better future". In many of the smaller fishing villages where labourers work as part of a seine

¹ Long-tail machines are low powered (5–7 horse power) outboard engines with the propeller attached to the base of a long metal pole. They are the first stage of mechanisation and enable fishers to travel further than paddle or sail powered vessels.

² Note that in 262 cases (21%) the head of the poor household had died, moved or changed profession between the collection of 2008 data and the field visits in 2012.

needs for a prosperous future. Community leaders of 16 fishing villages, representing 20% ($n=1231$) of total poor fisher households in West Sumatra based on 2008 "by name and by address" poverty data [44], were interviewed and asked to identify the current occupation and fishing sector of each poor fishing household in their village. Interviews were recorded, translated and typed up. Iterative analyses were used to display the data and draw conclusions [46]. Key points and recurring themes were identified through structuring responses under multiple headings [47] and these were triangulated, compared and contrasted with other interviewees. Where further clarification was needed informants were subsequently contacted by telephone. The distribution of poor fishers in specific sectors of the fishing industry were analysed using descriptive statistics.

2.2. Identifying existing livelihood improvement interventions

Historical livelihood improvement projects, conducted by the provincial DKP between 2005 and 2009, were identified by compiling government reports and interviewing staff members. Government interventions were included if they were intended to directly improve livelihoods. A government intervention was defined as an activity conducted in a calendar year. The same activity conducted in multiple locations only constituted a single intervention for each calendar year. Where available, the cost of each intervention was recorded. Each intervention was classified as described below. An asset analysis methodology was developed based on the principles outlined in Ashley and Hussein [48]. Each intervention was scored on whether it targeted each of the five

net team they complement income from fishing by working as a labourer in rice fields. These “fisher-farmers” spend less time at sea and have greater potential for land-based supplementary livelihoods. In West Sumatra the majority of land is owned by the wider clan rather than by the individual and is passed down through generations to the oldest female. The rice harvested by “fisher-farmers” will be shared between the clan representative and the “fisher-farmers” that cultivated it. In many contexts clan land is no longer large enough to support all family members. Many fishers who had migrated to larger fishing ports in search of work reported that their family land was insufficient and they had few employment alternatives in their home village. These migrant workers rent or build wooden shelters on the beach with no sanitation. All labourers share a common poverty of physical and financial assets, and typically demonstrate a poverty of human assets, namely lacking the ability, experience and initiative to move towards a more secure future. Labourers living in their home context have access to social support from the community that migrant labourers miss out on.

The second largest group of poor fishers (19%) consisted of traditional fishers who own their own outriggers powered by paddle or long-tail machine. Typically these vessels used gillnets or handlines and went to sea morning and/or evening. Many of these fishers had formerly worked as crew on larger boats and were glad that they now worked independently. One summarised it as, “we are happy owning our boats now, we are free, there is no boss. We were crew in the past, we have gone out into the open sea and we are bored with that.” While in most smaller fishing villages the traditional fishers were born and raised there or married someone from the village, in the larger fishing ports such as Air Bangis there are small boat owning fishers who are economic migrants from the surrounding area. Interviews with these revealed they were forming groups and seeking government funding. This hints that boat ownership conveys stability and helps enable group formation, even for economic migrants, in a way that is lacking for labourers. In one village, a group of small boat owners argued “if you own your own boat, machine and gear you cannot be classed as poor anymore”. Through the course of the interviews no boat owner expressed a desire to become a labourer on a larger vessel, perceiving it as a step backwards. Conversely, many labourers desired to own their own boat; however some were not confident that the returns from a small boat would be much better than what they currently receive.

The third group of poor households employed in the fishing industry were the processors (4%) and fish sellers (3%). Processing in West Sumatra typically means sun-drying and salting of fish. Poor fish sellers bought small quantities of fish from boats and typically sold these direct to households. They were frequently former crew members who were tired of going to sea and had moved into a land-based profession connected with what they knew.

3.2. What livelihood interventions have been carried out?

3.2.1. Interventions between 2005 and 2009

In this period 83 livelihood interventions were conducted by the provincial DKP, costing nearly 10 billion rupiah (Table 1). Over half of these aimed to increase fish production through marine capture fishers (35%) or aquaculture (21%). A further 20% of interventions were split evenly between maintaining catch quality and adding value through processing. Financial analysis demonstrated that the focus of the DKP was on catching/farming more fish (73% of spend) and improving processing (13% of spend).

Asset analysis highlighted that livelihood improvement interventions conducted by the DKP typically emphasised the *physical assets* of small-scale fishers (58%), rather than the human (27%), social (13%) and natural (1%). Because government policy dictates

that money should not be given directly, the financial asset component is small (1%). DKP staff and fishers confirmed that the educational and capacity building aspects of interventions were often inadequate.

For small boat owners, all of these initiatives could be a good fit depending on individual circumstances. More fishing equipment and the ability to reach further offshore should increase incomes if the natural resource permits. Likewise, improving revenue through higher catch quality and processing the product has the potential to improve economic returns for the small boat owner. For labourers, alternative livelihoods, such as aquaculture, live-stock and employment of the wider family outside of fishing could be an appropriate route towards poverty alleviation. But the major historical interventions would not be appropriate for the largest group of poor fishers; labourers. Labourers would not be helped by being given nets or machines because they do not own a boat of their own. Similarly because they do not own the catch, fish boxes and processing equipment would not be useful to them. Government respondents agreed that it was easier to help boat owners rather than labourers. Many existing programs targeted groups (hence by default excluding labourers not in groups) and provided small sums of money sufficient to repair or replace boats, machines or nets for those that already had them. To provide a boat, machine and fishing gear so that a labourer could become a boat owner was prohibitively expensive (about US\$1000) and carried the risk that a migrant worker might sell the equipment and move elsewhere.

3.2.2. The contemporary paradigm—GPMP.

GPMP interventions are broader in scope (Table 2). The skills and experience of non-fisheries staff are being used to make the most of non-fisheries opportunities for the coastal poor and so the balance of interventions has shifted away from the historical emphasis of increasing fish production. DKP staff spoke in glowing terms about GPMP because in contrast to previous projects, they interacted more with the coastal poor, the poor were helped on a “case-by-case” basis and they witnessed examples of people having their livelihood portfolio improved. Specifically, staff members referred to the sewing projects and supplies for cafés interventions. Orders were coming in for small sewing businesses and the initial café supplies issued by GPMP had been further improved through recipients own revenues.

Despite encouraging signs for households where a non-fishing livelihood has been developed, DKP data demonstrated that most poor households received fish boxes (64%), fishing gear/machines (12%) or tilapia fish farming packets (9%) along with fruit trees (Table 2). Government employees spoke positively about the sewing machines and cafes, but these comprised only 3.5% of households that were helped.

Asset analysis highlights again an emphasis on interventions giving physical assets (81%) rather than human (16%) and social (3%). The evolving understanding of poverty described above suggests that the other neglected asset categories also need consideration. The fruit trees provide a useful example. Twenty one thousand of these were given to fishers with the two-fold aim of increasing the nutrition of poor families and developing agribusinesses. The first aim is realistic but agricultural staff maintain that for these fruit trees to become a successful agribusiness will require land (natural capital) and the coastal poor working together (social capital), neither of which were provided as part of GPMP. Moreover there is an underlying human capital aspect that has not been considered. A significant difference between fruit trees and sewing machines is that sewing machines have instant earning potential, whereas the trees need 3 years before they fruit. Repeatedly interviewees maintained that some

Table 1
Livelihood interventions conducted by the Provincial DKP between 2005 and 2009.

Categorisation	Types of activity	Number of interventions (%)		Budget (billion Indonesian Rupiah)	Percentage of total budget (number of samples)		Asset categories (frequency)	
Increasing fish production	Provision of fishing gear, long tail machines, modifications to boats, fish aggregating devices	29	(35)	4.62	46.9	(12)	Physical Human Social	(29) (2) (1)
Alternatives: aquaculture	Grouper, shrimp and seaweed farming kits, freshwater and estuarine aquaculture	17	(20)	2.60	26.4	(13)	Physical Human Social	(17) (15) (10)
Adding value/processing	Giving processing equipment/drying racks	8	(10)	1.25	12.7	(7)	Physical Human Social	(8) (3) (6)
Catch quality	Fish boxes	8	(10)	0.29	3.0	(6)	Physical Social	(7) (1)
Alternatives: non-aquaculture	Trial of salt making	1	(1)	0.02	0.2	(1)	Human	(1)
Capacity building/training	Trialling/training in new fishing techniques, aquaculture or processing	7	(8)	0.45	4.6	(3)	Human	(5)
Credit	Provision of financial credit	1	(6)	0.09	0.9	(1)	Finance	(1)
Fishers wives	Interventions specifically targeted at fishers wives included seaweed farming and processing of the catch	5	(6)	0.28	2.8	(4)	Physical Human	(4) (5)
Resource rehabilitation	Mangrove planted	1	(7)	0.00	0	(0)	Natural	(1)
Strengthening institutions	Formation and management of small groups of fishers	6	(7)	0.25	2.6	(6)	Human Social	(6) (6)
Totals		83	(100)	9.82	100	(53)	Physical Human Social Natural Financial	(65) (39) (24) (1) (1)

Table 2
Livelihood interventions conducted by the programme GPEMP in 2012.

Categorisation	Types of activity	Number of interventions (%)		Number of households helped (%)		Asset categories (frequency)	
Adding value/processing	Processing equipment	5	(22)	46	(2.6)	Physical (7)	
	Supplies to open a small café	1	(4)	42	(2.4)		
	Motorbike and cart to sell fish	1	(4)	7	(0.4)		
Alternatives: aquaculture	Tilapia farming	1	(4)	163	(9.1)	Physical (1) Human (1)	
Alternatives: non-aquaculture	Cows and barn in nine groups	1	(4)	99	(5.5)	Physical (5)	
	Tools and training for mechanics	1	(4)	16	(0.9)	Human (5)	
	Fruit trees distributed (soursop (15,000), guava (5000) and dragon fruit (1000))	3	(13)	No data		Social (1)	
Catch quality	Fish box/cool box	2	(9)	1148	(64.3)	Physical (4)	
	Ice plant	1	(4)	6	(0.3)		
	Freezer	1	(4)	8	(0.4)		
Fishers wives	Sewing machines and training	1	(4)	16	(0.9)	Physical (2)	
	Processing equipment	1	(4)	20	(1.1)	Human (2) Social (2)	
Increasing fish production	Fishing gear and long tail machines	4	(17)	213	(11.9)	Physical (4)	
Totals		22	(100)	1784	(100)	Physical (23) Human (8) Social (2) Natural (0) Financial (0)	

fishers have difficulty planning long-term. In this human capital context fruit trees do not seem the most prudent choice for livelihood improvement without ongoing support, extension and education.

All GPEMP interventions have the potential to help improve livelihoods of boat-owning poor households. Positively, each of the “new” non-fishing initiatives originating from government departments besides the DKP such as livestock raising, employment for

fishers wives and fixing machines has the potential to help labourers too. Likewise fish farming is something that could develop the livelihood portfolio of labourers. While these initiatives are to be commended there are still concerns that the majority of interventions continue to give fish boxes, fishing gear and long-tail machines which do not benefit non-boat owning labourers. Furthermore, the group formation and social capital component of GPEMP is limited and as the following case studies demonstrate, this is a key component for improving welfare in the long term.

3.3. Case studies:

3.3.1. Sungai Nipah, Pesisir Selatan

From this fishing village of 120 households self-employed gillnet fishermen go to sea, early in the morning and again in the evening. Between 2008/09 a fisher group was started to enable these fishers to access credit. Because of disagreements between members and the leader, the group folded. In 2010 with the support of the local fisheries extension officer the group started afresh with a new leader. Since then all group members, some 45 fishers, have borrowed credit to buy new boats, machines and fishing gear. The group reports a 100% repayment record of these loans with many fishers borrowing multiple times since 2011. Some fishers who previously found saving at home impossible, because there were always other needs to be taken care of, have taken out loans and opened personal bank accounts enabling them to save for the future in a secure way because their daily needs are being sustained by fishing. A number of factors contribute to the success of this group.

3.3.2. External factors

3.3.2.1. A rich natural environment. Sungai Nipah is a protected bay with deep clear water. Fishers in the adjacent fishing grounds use different fishing gears so Sungai Nipah fishers have been able to buy more gillnets and spread out, increasing catches without conflict. Better boats, machines and fishing gear have been rewarded with higher catches making it easy for fishers to pay off loans without eroding the natural resource base. Furthermore, the geography of the bay makes it suitable for grouper farming and with the help of the DKP 80% of the group have been able to start this lucrative side job. Further occupational multiplicity includes hillside spice plantations that give the fishers of Sungai Nipah considerable natural resource options.

3.3.2.2. A supportive DKP. Sungai Nipah is close to both the regional DKP office and a fish-farming facility that can provide ongoing support and assistance with grouper farming. There are healthy, supportive relationships between the DKP and the fishing group, notably through the support given by the DKP through the transition to the new group leader. While DKP staff speak with frustration about the repeated failures of fisher groups in West Sumatra, they feel pride and a sense of responsibility towards the future success of Sungai Nipah.

3.3.3. Internal factors

3.3.3.1. Leadership. While the group members remained the same, the key change between the first and second iterations of the group was the leadership. Group members reported “*now the leader is one of us, he goes to sea too and he understands us. It's his leadership that encourages the group and keeps it together.*” Each day the leader is available at the beach and he leads through a hands-on approach of setting a good example and gaining consensus from the rest of the group.

3.3.3.2. The method of repayment. A recurrent problem with micro-finance initiatives for small-scale fishers is the fluctuating nature of their income. Fixing an absolute amount that needs to be repaid creates difficulties for fishers if there are frequent storms, illness or religious holidays. In Sungai Nipah as fishers land their catch their wives take over, deciding whether to accept the price on the beach or to take the fish to market directly. Either way at least 10% of the day's catch value will be given to the group leader to pay off the debt. The secret of the success of this method is that it is a relative and not absolute repayment amount. Fishers reported that this method of repayment was “*light*”, “*we do not feel it*” and, crucially, “*when it is stormy and we do not go to sea we do not need to pay*”. As well as reducing the burden on fishers in difficult times, during periods when catches are high, repayments on a percentage basis will also be high, ensuring swift repayment of loans.

3.3.3.3. Administration. The group demonstrates a high degree of accountability. Besides daily “on the beach” interactions, there are monthly meetings where all group members participate and are held accountable. By consensus they decide how much to loan each member on the basis of how well they have made previous repayments. There are monthly reports to the DKP and clear, transparent dealings with money. The rules and responsibilities of members and the leader were clearly defined, by consensus, from the beginning. Crucially, the agreed sanctions were enforced for those who broke the rules. In 2010 during the second iteration of the group they had an existing credit scheme where small amounts up to US\$50 could be borrowed. This money had originated from the savings of the group themselves rather than from government funds. At this stage eight group members refused to pay the routine amount for group membership and were expelled from the group. This expulsion set the tone of the group and the leader reports that since then all group members have been compliant. Having seen the success of the group, some of the eight errant members have decided they want to submit to the rules and have rejoined the group.

3.3.3.4. Trust. Fishers report that there was existing social cooperation in Sungai Nipah before the formation of the group, for example by helping pull boats on to the beach. However, the first failure of the group demonstrates that this social capital needed to be harnessed and directed. The second formation of the group did precisely this and through saving weekly “social funds” prior to receiving financial aid from the government the group demonstrated to themselves and to the government that the group trusted one another. Repeatedly interviewees commented “*we are one, we are working together for a better future*” and “*previously I was not able to access credit from a bank but being part of the group enables me to do this, I am much stronger as a group member and we must not let the group die*”.

This issue of trust and social cohesion is of acute importance in West Sumatra where many smaller coastal communities are tightly woven together through inter-marriage. This creates opportunities but also threats to the survival of fishing groups. One of the conditions of borrowing credit from any fishing group in West Sumatra is that if for three months loan repayments are not made the equipment that was bought with the loan will be seized as collateral. The problem with this rule is that it would be the responsibility of the group leader to seize the equipment. Typically the group leader is a member of the community and he would then have the unpleasant job of seizing his neighbour's boat or fishing net. This would cause social strife and would be culturally unacceptable. Yet in Sungai Nipah the strength of the leader to expel those members of the group demonstrated that the survival of the group was more important than guarding social harmony. This decisive moment brought about a group mentality and a shared identity for the remaining members. They now see that

their future is a collective future and are working together to build a pre-school to help their children's education. As further evidence that the group is catalysing a brighter future, young people who moved overseas to work as labourers are now returning to work as fishers and fish farmers, and new supplementary livelihoods such as seaweed farming are being trialled.

3.3.4. Tiku Selatan, Agam

Tiku Selatan is a fishing port, hosting small and large fishing vessels, with approximately 1000 full and part-time fishers. Higher catches from larger vessels have created an associated salting and drying industry. A fish auction and a sheltered harbour generate net inward migration to Tiku Selatan by fishers from exposed neighbouring coastlines. A group was initially formed in Tiku Selatan in 2002 and fishers could borrow money if they had an asset to secure the loan. After the first round of repayments the group ceased. In 2006 a group was reformed with 70 members. Political issues meant that within a year this larger group had split into several smaller groups. The current group was formed in 2009 and has had membership fluctuating around 20 fishers. One of the unique components of this group is the presence of a leader who originates from Tiku Selatan but for many years worked in the financial industry on Java. He returned "home" and wanted to help local fishers. Small-scale fishers in West Sumatra find it difficult to access credit through formal financial institutions because they lack the collateral needed to borrow. Through the group leader's background and networking the group has been able to secure a loan from a local bank. The fishing group in Tiku Selatan contains members with different fishing gears, although each group member owns their own vessel. Despite members of the group employing crew, those crew are not members of the fishing group. The group is well organised and proud of what they have achieved. According to the interview analysis, these are the key components of their success.

3.3.5. External

3.3.5.1. Bank pressure. Group members feel a positive pressure to repay the bank loan from *social* and *institutional* sources. Socially, fishers recognised that others in the group were waiting for them to finish repayments so that they could take their turn to borrow. Institutionally, because the group had borrowed from a local bank they understood the loan must be repaid and was different to "free" government money. This is an important consideration that is often overlooked in the design and implementation of fisher groups. Government funding also comes with a condition of repayment but the repayments will be owned by the group and available for others to borrow. Enforcement of loan repayments becomes the responsibility of the group leader and as he is typically a member of the local community he is unwilling to enforce the rules and damage social harmony even if it means groups failure and everyone losing out. An independent agent from outside the community is not affected by the same social constraints and is able to seize assets. The group members understand this and prioritise repayments.

3.3.5.2. Supportive Institutions. The leader recognises the positive role that the DKP has played. This role is cemented by having a senior official of the DKP also living in Tiku Selatan. However, there are political issues emerging. The leader's ability to speak straight to friends in central government has not always been well received by local bureaucrats.

3.3.6. Internal

3.3.6.1. Advocacy and access. Interviewees reported that it was the leader who catalysed the group, guided them to establish rules

and structures and advocated on their behalf to various institutions. One member said "*he is the bridge between the government and us and he gives us a wider perspective.*" Through a network of senior contacts in government departments he has accessed information, funding and publicity that would be out of reach for most small-scale fishers in West Sumatra.

3.3.6.2. Cooperation. Although fishers in West Sumatra may work together to pull boats up on the beach or to search for someone lost at sea, there is an inherent competitiveness between different boat owners which can be a barrier towards working together. For this reason, interview respondents in the 25 fishing villages frequently complained that they wanted government assistance to be given to the individual rather than to the group. Yet as with Sungai Nipah, the Tiku Selatan group demonstrated a solidarity and common vision for a better future together. One member summarised, "*our future and our children's future is tied up with this group, with these repayments. We are much stronger in the group than outside of it.*" Another drew a strong link between cooperation and access to funding. "*Being a united group was the key to getting the funds. The bank trusts the group when it did not trust the individual. The key thing is the reputation, the name of the group going forward. It's not just about this first round of help, it is the future, it is others too.*" Guarding the group's reputation was the reason why one of the members was expelled for not making repayments. The expulsion happened by consensus, and the leader was careful to communicate to the bank what was happening and that the group would ensure the expelled member continued to pay off the debt.

3.3.6.3. Administration. The group leader's background means administration in this group is very strong. Applications for funding, reporting to government departments and managing group finances are efficient and transparent. The group leader is retired and has time to invest in the group and in helping the group to grow. He prioritises record keeping and the group's careful collation of data provides a model of data collection that would improve upon the sporadic data collection conducted by the DKP.

3.3.6.4. Leadership. At one level his former career and status set the leader apart from the group, he is not "*one of us*" or as Jentoft [38] writes he is an "external change agent". Yet he is highly committed to collecting repayments on a daily basis if necessary, working through problems and supporting fishing families. Group members respect and trust him and doubt whether the group could continue without him. According to group members his leadership style is not authoritarian, he tends to guide and decisions are made by consensus.

As with Sungai Nipah, strong leadership coupled with a shared vision for a brighter future together are a key part of the success that this group is experiencing. The leader has succeeded in bringing individual fishers together and convincing them that they are better off working together than independently. The drawback to this model is that it is not highly reproducible. The high human capacity coupled with a commitment to serve the fishermen that the leader of Tiku Selatan brings is unusual. In many cases those who emigrate (*merantau*) away from fishing villages do not return to help. The poorest, most left behind fishing communities would profit greatly from someone like the group leader at Tiku Selatan.

3.3.7. Air Manis, Padang

Most fishing groups in West Sumatra struggle to maintain trust and limp along, only springing into life when more financial help is available. A classic example of a group like this is Air Manis, Padang. This is a tourist hotspot with visitors coming to surf, sit in

cafes and enjoy rides on a banana boat. Although groups had existed in the 1980s, the current Air Manis group was formed, with 52 members, in 2003 on the promise of government funding. During 2003–2004 the group grew quickly to 96 members through a revolving fund that enabled members, both fishers and fish traders, to borrow money. Within a year the group had folded with new group members being negatively influenced by fishers from other areas. In 2008 there was further help in the form of gillnets but repayments for these only lasted 3 months. In 2011 the group again received financial aid. On this occasion some group members did not make a single repayment. Part of the 2011 aid was used to purchase a banana boat to be owned collectively and used with a group-owned speedboat. Although the intention was for fishermen to use the banana boat to supplement their income with tourism, many group members were not wholly onboard with the decision. As a result, the group-owned assets became partially privatised by the leader and a few members adding to existing disharmony. Members of the group could be classified into (a) those who were angry towards their leader and his alleged misappropriation of funds, (b) a few who defended the leader (including the leader himself) and placed more of the blame at the feet of the group members and (c) those who were unwilling to discuss the details for fear of reprisals. This third group included the lower status, poorer families who did not want to rock the boat. Despite differences of opinion, all interviewees, including the group leader, acknowledged that the group was dead and needed to be resurrected. The following factors contributed to its failure.

3.3.8. External factors

3.3.8.1. Negative influence of outside fishers. Several respondents identified the negative influence of fishers from other areas as a key reason for group failure. These external fishers argued, incorrectly, that government loans did not need to be repaid and corrupted the group both in 2003/04 and 2011. When one or two group members stopped making repayments without any repercussions either from the group leader or the government, the integrity of the group was undermined and the incentive for others members to make the repayments was removed.

3.3.9. Internal factors

3.3.9.1. Breakdown of trust. Group members in Air Manis reported a breakdown of trust precipitated by poor leadership, misuse of funds, lack of accountability and transparency, poor administration and the group growing too big too quickly. The same kind of social kinship that built “togetherness” in Sungai Nipah has conversely created division, disharmony and left a strata of society voiceless, scared to speak out for fear of repercussions. This is the “dark side” of social capital [34]. One fisher commented, *“We cannot talk about the banana boat and the group situation. The problem is that there are people of influence here. We are afraid to say everything because later on they will be angry with us”*.

3.3.9.2. Leadership. One of the main differences between the leader at Air Manis and Sungai Nipah is that at Air Manis *“he is not one of us, he is not a fisher”*. However as the group at Tikus Selatan demonstrates the leader does not have to have been a fisher all his life in order to make a significant contribution. When group members were willing to share more deeply, the core issue was not so much whether the leader was a fisher or not but that the leader’s behaviour had changed from helping the poor to helping himself. When interviewed, the leader admitted that he had initially taken this position in order to help the fishers who were, according to him, *“like chicks without a hen”*. Some group members agreed stating that *“We chose the current leader in 2003*

and at the start he did a good job. He cared about the community, but not anymore.” Since group members have lost faith in the leadership they do not believe that the group has a future. One respondent summarised it neatly, *“there isn’t a group anymore if the members don’t trust the leader”*.

3.3.9.3. Weak administration. The foundations of informal daily interactions on the beach, coupled with formal monthly meetings between group members and the leader and a close relationship with the DKP that were evident *“We only have meetings if there is government money coming! There are no monthly or even annual meetings. It simply depends on if money is coming or not. No money = no meeting”*. Ironically, the lack of routine meetings or of any administrative structure makes it difficult for group members to change the leadership. Moreover the disciplinary rules which do exist are not applied. Group members understand that although they sign an agreement stating their assets will be seized if they fail to make three consecutive repayments no one is bold enough to enforce those regulations. In such a close knit community, the fear of disrupting social harmony is a powerful disincentive to enforcing sanctions and the group is not worth enough to do so.

3.3.9.4. Repayments. The treasurer of the group maintained that they had tried a variety of methods to collect repayments including going door-to-door on a weekly basis but that after three of four times repayments dried up as fishers complained they did not have the money. Some fishers in Air Manis sell their catch on the beach, others travel the short distance by boat to neighbouring fish markets to achieve a higher price. The treasurer argued that it would be easier to cut 10% from the sale of fish per day if the catch was all sold in the same place or purchased by a single agent. He said that *“once the money had entered their pockets it is difficult to retrieve it again”*. Several group members argued that fishers’ complaining they could not pay the instalments was just a smokescreen. According to them the issue is not the ability to pay, but the lack of desire to pay. One of the poorer group members said *“I am willing to pay this credit off completely if the leader is changed”*. More than anything the non-repayment of the loans by all group members is an act of protest.

The failure of Air Manis demonstrates that these groups need ongoing nurturing in order to thrive. Simply springing into life when funding is available does not build the trust and social cohesion needed to sustain the group for the long term. In Tikus Selatan that ongoing nurturing and encouragement is being provided by the leader. In Sungai Nipah the leader in collaboration with the DKP is helping that group to thrive. But in Air Manis where that direction and leadership is lacking the DKP have been ineffective as they wait for the group to sort this issue out for themselves. On the one hand the DKP wants to see the communities themselves form these groups and then they will step into assist with funding. On the other hand, fishers in locations where these groups are failing or where they do not yet exist are unable to get groups running well without external capacity. Filling this gap with change agents such as the leader of Tikus Selatan needs to be a priority for government policy going forward.

Despite the current negative situation of the group in Air Manis all respondents their still believed fisher groups was the way forward, arguing for the creation of smaller sub-groups with perhaps 10 people who lived and worked in close proximity. They wanted to form groups with people they could trust. This is an encouraging sign that, like Sungai Nipah, the Air Manis group should be given another chance. But in order for this to happen there are several challenges that need to be overcome. Firstly, group members are struggling with the issue of how to remove a leader who refuses to step down. Secondly, there has been ten years of a group in Air Manis that viewed group formation as a

means to access government funding individually. The vision for the group has been too small up until this point and they, as Tiku Selatan and Sungai Nipah have demonstrated, need to believe that they have a stronger more resilient future together and that by investing in the group that will all reap the benefits.

4. Conclusions and recommendations

Healthy groups have a tremendous role to play in improving the welfare of fishers. Groups that work well make life easier. Fishers in Sungai Nipah and Tiku Selatan do not worry about how they are going to buy fuel to go to sea or repair gear. Community spirit is harnessed and the empowered group becomes resilient in the face of vulnerability. Sungai Nipah and Tiku Selatan demonstrates that the human and social capital aspects of cooperation, trust, honesty, transparency, leadership, administration, advocacy along with institutional support need to be the foundation on which the financial and physical assets are built. When this happens, adherence to the rules is not an issue because members actively want to stay part of a group that is going places.

When those human and social capital foundations of the group are weak, as in Air Manis, any physical and financial assets that are given have an extremely limited effect. This is demoralising for government institutions and the fishers themselves. Although social assistance programs for the poorest households are given individually, livelihood development initiatives are always given to groups. Yet surprisingly the emphasis that is placed on building, maintaining and developing those groups is slight. The interface between poor fishers and the institutions tasked with helping them is weak and extension officers are not well paid despite bearing the key responsibility of realizing government policy in the field. The additional human capacity that the leader in Tiku Selatan brings helps to form a bridge between the fishers and government institutions. However this “bridge” needs to be formally instituted throughout Indonesia either through strengthening existing extension or through actively targeting advocates like the leader of Tiku Selatan. Furthermore, an assessment of the strength of the human and social capital foundations in a group needs to be developed to evaluate whether a group is ready to receive financial and physical aid or not. This assessment could include evidence of routine meetings, whether a social fund paid for by group members exists, whether a shared vision exists, what benefits members already receive and how many group members attend training events. With this model a group would need to prove its worthiness to receive government help rather than simply being the next village on the list.

There is a further fundamental issue for coastal poverty alleviation in West Sumatra. Most fishing groups can be divided into small boat owners and traders/processors. There is no fisher group aimed at helping labourers, despite labourers forming the majority of the poorest households. As a result labourers are overlooked by almost all government funding which is targeted at groups. In Air Manis even though some of these labourers were on the list of who should be helped by GPMP they still had not received anything. Moreover, there were a number of poor households interviewed who for whatever reason were not recorded in the 2008 poverty data, the standard used to decide who should receive help. Some of the poorest fishers in West Sumatra seem to sit below the radar. Several DKP employees, group leaders and fishers when asked about the problem of how to help crew responded “*it is very difficult to help them if they do not have a boat already*”. These poorest households may have very few physical or financial assets. Because many of them are immigrants or are in the situation of the husband working in a larger port away from the family, they also frequently lack the social cohesion

of a place like Sungai Nipah. While the cross departmental focus of GPMP and its intention to target the very poorest is a positive step, it needs to more adequately target labourers and to ensure that labourers are formed into self help groups. These groups will need human capacity to be built in areas of financial management, saving schemes and good administration. They may need more flexibility to account for the migration of some crew. Empowering the poorest coastal households in West Sumatra will take time and energy. It will mean building people and social resources in poor communities before giving out boats, nets and machines.

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