

The impacts of donor interventions and cessation of conflict on brackishwater aquaculture in Aceh, Indonesia, following the 2004 Indian Ocean Tsunami

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Introduction

Brackishwater aquaculture is a major contributor to the economy of Aceh Province, Indonesia. The Indian Ocean Tsunami in 2004 (2004 IOT) severely affected the aquaculture industry, which was already facing challenges due to 30 years of social and political conflict between the Indonesian Government and the Free Aceh Movement (also known as Gerakan Aceh Merdeka or GAM) (World Bank, 2008). The 2004 IOT and the conflict brought national and international attention to Aceh, with the post-tsunami recovery effort (between 2005 and 2010) bringing the possibility of change through the assistance of various international and local organizations. However, very little is known about the impact of donor agency and government interventions, and the peace agreement that followed the tsunami (D. Currie, personal communication, December 8, 2011).

Padiyar et al. (2009) and Mills, Adhuri, Phillips, Ravikumar & Padiyar (2011) reported that the aquaculture capacity building programs during the reconstruction and rehabilitation phase in Aceh improved skills and created stable income for shrimp and fish farmers (herewith referred to as farmers). These studies were conducted whilst donor programs were active and did not examine longer-term, post-program outcomes and impacts. Garces et al. (2010) found that ponds in Aceh were no longer being used in some areas where aquaculture restoration projects once operated, and that the option of aquaculture as a preferred means of making a livelihood was lower than before the tsunami. A study in India found that the community had become dependent on aid in the post-tsunami period (Régnier, Neri, Scuteri & Miniati, 2008) and a similar scenario was possible for Aceh.

This study describes the impacts of redevelopment interventions and the cessation of socio-political conflict on the aquaculture industry in Aceh. The study argues that the 2004 IOT, donor interventions and the peace agreement triggered positive and negative changes in management at the farm and institutional levels. This study also describes how stakeholders perceived change in the aquaculture industry in the context of donor agency interventions and the peace agreement.

Research Methods

A case study design was used to describe the aquaculture industry before and after the 2004 IOT. It involved in-depth interviews, observation and document analysis. The multiple methods were well suited to this study as they captured data on the perceptions of respondents from different backgrounds (Denzin & Lincoln, 1998). Purposive sampling was used to select respondents from shrimp and fish farming groups, government, academia, donor agencies and NGOs/IGOs who were involved in the redevelopment of Aceh's aquaculture industry. NVivo 10 was used to organize, manage and interpret the qualitative information.

Brief description of the aquaculture industry and its management

The development of aquaculture in Aceh started in the 1940s in districts along the north east coast, largely taking the form of pond-based aquaculture. Most ponds (known as tambaks in Indonesia) are owned by farmers with small capital, and are cultivated using traditional, low-technology practices with low input and low labour requirements (Zainun, Budidarsono, Rinaldi & Cut Adek, 2007). Ponds

rely heavily on tides to supply water. The main commodities farmed include shrimp and milkfish. The quality of Aceh's farmed shrimp is considered good, but production can be severely impacted by acid sulfate soils and other environmental factors (Sammut, Tarunamulia, Mustafa & Rimmer, 2008). Furthermore, the lack of infrastructure, funds and staff resulted in local government's failure to develop and deliver services. Zainun et al. (2007) indicate that the number of families whose lives depend on aquaculture has continued to increase from year to year, especially since the conflict ended. Developing an aquaculture sector in Aceh, however, presents significant challenges.

The Provincial Dinas Perikanan (DKP Province) is the agency responsible for developing and managing fisheries and the aquaculture sectors at the provincial level. DKP District plays the most important role in developing aquaculture through the Development Service Unit (UPP) and technical extension officers (*penyuluh*). Farmers bring ideas on aquaculture development to the local government at an annual development-planning meeting (*Musrembang*), conducted at the district and provincial level. Law No. 11/2006 of the Government of Aceh (GoA) and Regional Regulation No. 7/2010 on Fisheries and Maritime Affairs regulates the development and management of fisheries and marine affairs.

Impact of the 2004 IOT and donor intervention

Prior to the 2004 IOT, prolonged conflict between the Central Government and GAM affected development in Aceh (Athukorala & Resosudarmo, 2008), resulting in infrastructure damage and minimal provision of technical and financial services to farmers from the government. Illegal tax (known locally as the *nanggroe* tax) was collected from farmers, resulting in decreased availability of funds to develop ponds (Interview results, 2013). Widespread insecurity and fear of being robbed and killed by GAM and the military during the conflict caused many farmers involved in aquaculture to abandon their ponds. Government officers were also in fear of being killed by GAM.

The aquaculture sector suffered the most damage from the tsunami compared to other industries, largely impacting the economy due to loss of jobs and livelihoods (Phillips & Budhiman, 2005). Additionally, many people involved in aquaculture, either as farmers or government officers managing the industry, lost their lives. Responses to the 2004 IOT were numerous and had potential to bring changes to the industry. Overall, based on data from the Provincial Planning and Development Bureau (Bappeda, 2011), 1004 international and national donor agencies, which included governments and NGOs, delivered 6700 programs to help rebuild Aceh. In aquaculture redevelopment, programs involved pond rehabilitation and construction of related infrastructure, technical supervision and service, provision of agro inputs, institutional and group strengthening, and training and environmental awareness (Interview results, 2011).

Perceived positive changes

The 2004 IOT was a trigger for a Memorandum of Understanding (MoU) between the Government of Indonesia and GAM. The peace agreement created an environment conducive for donors and government to deliver services, and farmers to resume their livelihoods (Interview results, 2013). Former combatants, who had abandoned farming and were hiding during the conflict period, returned to their villages. Nevertheless, conflict was still perceived as a threat in the early recovery period. Government and donor staff felt their safety was still threatened even though the conflict had ended, and workers of international agencies felt safe only when they travelled in UN vehicles (Interview result, 2011). This level of fear subsided within a year of the redevelopment programs.

Following the peace agreement, Law No 11/2006 on Government of Aceh (GoA), Law No 7/2010 on Fisheries, and Law No 8/2012 on *Wali Nanggroe* (The Guardian of the nation law) were enacted. Their enactment and the commitment of the government to creating a peaceful and democratic Aceh produced a positive environment for development (Interview results, 2013). The GoA Law and *Qanun Wali Nanggroe* were an outcome of the peace agreement in which only Aceh Province, out of thirty-three Indonesian provinces, had its own law and also a traditional leader council. Law No. 11/2006 on GoA is seen as the starting point for a prosperous Aceh. The law, along with *Qanun Wali Nanggroe*, not only provided the foundation for development, but also reflected Aceh's history, culture and

religion. The law was seen to supersede former broken promises by the central government such as implementation of Islamic law (shari'a law) and direct local elections (Miller & Bunnell, 2010). The Law on Fisheries (11 July 2006), a derivative of the GoA Law, provides the legal basis to increase revenue from the aquaculture industry.

Resources available during the rehabilitation and reconstruction increased the capacity of farmers and government staff (Interview results, 2012). Training and information were delivered to farmers so they were more equipped to apply better management practices. Technical support agencies intended to improve the technical ability of government staff to more effectively support farmers (Interview results, 2011). The peace agreement also yielded a significant budget allocation for development, which included funding the fishery and aquaculture industries (Interview result, 2011). According to Law No 11/ 2006, 20 percent of the tax collected from fisheries should go to the central government and 80 percent should be disbursed to the provincial government; prior to this law, tax was not collected. Aceh's regional government is now preparing its own regulation, known as *qanun*, -a term only used in Aceh- for fisheries and aquaculture development.

Donors also engaged ex-combatants during rehabilitation and reconstruction by involving them in activities (Interview results, 2011). Additionally, the peace agreement allowed ex-combatants to take part in political processes. They were elected into the highest positions in the legislative and executive bodies in the province including Governor and Vice Governor of Aceh. Conversely, low-level members of the combatant groups had less opportunity to increase their aquaculture livelihoods and this could possibly recreate unrest (Interview results, 2011).

Perceived negative impacts

The impact of 30 years of exposure to conflict caused significant economic hardship to farmers (Mills et al., 2011). The arrival of donors with large amounts of funding (more than USD 7.77 billion, Masyrafah & McKeon, 2008) was as an opportunity which farmers took advantage of to improve their livelihoods (Interview results, 2013). Conversely, findings suggest that dependency occurred after the tsunami, and this was the reoccurring theme mentioned most by respondents. Aid dependency is a term used to describe the reliance of a community on external sources of funding and support. The community wanted continuing assistance from the government after the international and local organizations withdrew, but a lack of government funds caused fewer development programs to be delivered to the aquaculture sector; the government was considered to be paying less attention to farmers (Interview results, 2013). Some farmers and government staff believed it was a lack of capital that brought about dependency in the aquaculture sector (Interview results, 2013). Dependency was not formerly part of Aceh's community culture, and it changed the culture of Acehnese (Interview results, 2011).

Furthermore, tensions related to aid distribution was witnessed during the recovery. The conflict undermined community cohesion that existed within the traditional culture of villages (Interview results, 2011). Conflict arose because of uneven aid distribution. Some farmers did not receive aid even though they were victims of the 2004 IOT. Disagreement over access to aid was more frequent in districts affected by the 30-year conflict. Farmers and the head of the meunasah usually resolved tension due to aid distribution; the meunasah is a religious place for prayer and community gatherings. For farmers, conflict resolution amongst themselves was important in order to attract donors to their village during the recovery process (Interview results, 2011). They reported that disharmony could 'scare off possible donors'.

Donors had also driven a livelihood shift from brackishwater to freshwater aquaculture and from farming to fishing and vice versa. Aquaculture became a secondary activity as farmers drifted to fishing due to the availability of 'free' boats and fishing gear. Interestingly, investment in capture fisheries was undertaken without any fish stock assessment or understanding of fishing pressure. This shift seems likely to continue as there are large areas of ponds that are yet to be rehabilitated (Interview results, 2011). Regular outbreaks of shrimp diseases, since the 1990s, have also contributed to a move from brackishwater to freshwater aquaculture and from farmer to fisher. Respondents also

noted that NGOs intentionally reclassified fishers as farmers in order to provide planned assistance (Interview results, 2013). According to one respondent, an international NGO intentionally targeted fishers as beneficiaries of an aquaculture project to ensure project goals were met but that this approach resulted in the project's failure.

Despite donor interventions and the peace agreement, brackishwater aquaculture production has not increased in Aceh but freshwater aquaculture production has (Interview results, 2011) despite interventions focusing on brackishwater aquaculture. Freshwater aquaculture largely occurs in areas above the tsunami impact zone but was also adopted in the lowlands after repeated shrimp crop failures. Post-conflict and post-tsunami, the local government recommended freshwater aquaculture systems in some districts in Aceh because of shrimp disease outbreaks (Interview results, 2011). The outbreak of shrimp diseases and lack of capital were the biggest challenges that impeded farmers in adopting the best technology introduced by donors to create sustainable brackishwater aquaculture systems (Interview results, 2011). As a result, many ponds have remained unused and allowed to degrade. Despite farmers acquiring new knowledge and assistance from donor interventions, farmers continued to use traditional systems prone to failure (Interview results, 2013) because of problems such as shrimp disease and acid sulfate soils, which are brackishwater farming issues (Sammut et al., 2008).

How were the benefits of interventions sustained?

The success of programs managed and funded by large numbers of NGOs and IGOs during the recovery was hindered by a lack of coordination. Donors improved coordination at multiple administrative levels of government (central/provincial to district/local, sub district and village) (Interview results, 2013) but overall coordination was considered to be ineffective. While NGOs and IGOs believed that coordination between government and IGOs/NGOs was adequate, academics were concerned there was a lack of effective coordination in regards to aid delivery, achieving sustainable results and creating clear exit strategies (Interview results, 2013). Respondents felt better coordination could have been achieved by increased farm visits by donors and government agencies, and more regular and direct (face-to-face) communication between government and farmers.

Farmers felt they were not involved in determining their needs; consequently, well-intentioned assistance was not properly targeted. Lack of effective needs assessment of beneficiaries resulted in failure of the assistance to bring benefits to the community (Interview results, 2011). Many donor-built facilities were not being used because donors targeted the wrong beneficiaries with assistance being given to farmers who wanted it, not to farmers who needed it.

Government staff found that some donors and workers lacked expertise and an understanding of Aceh's cultural setting and protocols (Interview results, 2013). Local government staff felt donors were ignoring them by excluding the government in the assessment and aid delivery process (Interview results, 2011). Furthermore, lack of desire to coordinate with local government created barriers in understanding the social and cultural structure of local communities (Interview results, 2011). Additionally, some donors saw the community as an object of development (victims of disaster) so much so that they were not attached to the program (Interview results, 2011). Rather than looking at long-term outcomes, the major development programs used the level of expenditure and construction targets as indicators of success (Interview results, 2011). Monitoring and evaluation of donor intervention programs, based on livelihood impacts, were lacking (Interview results, 2013).

Challenges for the Acehnese

Some farmers were unwilling to improve their practices despite the potential benefits (Interview results, 2011). The farmers' low levels of skills, the association of government institutions with a prolonged conflict, as well as the impacts of the tsunami, were seen as challenges in rebuilding the aquaculture industry (Interview results, 2011). Donor agencies tended to hire few local people in the rehabilitation and reconstruction process leading to further detachment between aid providers and proposed beneficiaries. In addition, there were serious problems with distrust and suspicion between the government and farmers relating to how the government handled aquaculture development

(Interview results, 2011). This, in part, was a legacy of the conflict between GAM and the government, as well as the top down approach and complex bureaucracy which allowed corruption to occur from the top to the lowest level of government, and to the heads of some villages (Interview results, 2011). Consequently, efforts to redevelop the industry were partly hampered by misuse of funds and decision-making that excluded farmers – the intended beneficiaries - and lingering, mistrust between farmers and government agencies.

Discussion and Conclusion

The study showed that a lack of needs assessment, exit strategies and post-project monitoring led to short-lived benefits to farmers and no significant improvement in the aquaculture industry despite large expenditure. The problem was compounded by a lack of trust stemming from years of conflict (Régnier et al., 2008). Nevertheless, the peace agreement enabled farmers, particularly ex-combatants, to re-enter the aquaculture industry, albeit for a short while and with no significant improvement in their livelihoods. However, the peace agreement enabled farmers and donors to undertake activities in an environment once considered a dangerous conflict zone. Although peace has endured, concerns were raised that social divisions arising from unequal redevelopment and investment could trigger new social conflicts (Gaillard et al., 2008).

Aid dependency was one of the most significant negative impacts of the interventions and highlights the need for donor agencies to consider the social and cultural impacts of their mode of operation, particularly in an area like Aceh where conflict had led to community isolation for decades (Bauman, Paul & Ayalew, 2007). Although extensive infrastructure was rebuilt, and major investments in providing free farm inputs were made, the sustainability of the industry was questionable because of a lack of capacity to apply better management practices (Dahuri, 2007). Reclassification of fishers to fish/shrimp farmers also led to poor uptake of what was potentially effective technology. Farmers generally felt there was a lack of ongoing support with assistance ending well before they were able to fully adopt new knowledge and technologies. A lack of capacity in government agencies meant they could not fill the gap of NGOs and other agencies once they had withdrawn.

Effective coordination of programs and administration of funds are two critical requirements for successful redevelopment of Aceh's aquaculture industry (Masyrafah & McKeon, 2008). The focus on construction goals and expenditure as measures of success must shift towards improved livelihoods underpinned by sustainable development goals. Similarly, donor agencies and government must undertake more effective needs assessment and ensure that interventions target the correct beneficiaries in order to overcome disparities that could potentially lead to negative social and economic impacts. The findings of this study are also relevant to other countries and regions where donor agencies and governments have or will attempt to support redevelopment of a livelihood sector following a natural disaster. It is noted that programs need to undertake robust needs assessment before operationalizing redevelopment plans in order to have a positive community impact. Programs should also monitor and evaluate their activities in the context of social, economic and environmental benefits and address issues such as aid dependency. Although this study focused on the 2014 IOT in Aceh, the lessons learned have broader relevance.

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