# Indonesia Sustainable Fisheries Value Chain Assessments

## BLUE SWIMMING CRAB, TUNA AND SNAPPER SYNTHESIS OF FINDINGS & RECOMMENDATIONS

**PREPARED WITH SUPPORT FROM:**
THE DAVID AND LUCILE PACKARD FOUNDATION AND
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**PREPARED BY:**
WILDERNESS MARKETS
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## DISCLAIMER



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## PAPERS AND PROJECTS INFORMING OUR WORK:

"Priming the Pump: The Case for a Sector Based Approach to Impact Investing" by Matt Bannick and Paula Goldman. Project of the Omidyar Network.
*Find it here:* http://www.omidyar.com/sites/default/files/file_archive/insights/Priming%20the%20Pump_Omidyar%20Network_Sept_2012.pdf

**"**From Blueprint to Scale: The Case for Philanthropy in Impact Investing" by Harvey Koh, Ashish Karamchandani, and Robert Katz. Project of the Monitor Group.
*Find it here:* https://www.mim.monitor.com/blueprinttoscale.html

USAID Value Chain Development Wiki.
*Find it here:* https://www.microlinks.org/good-practice-center/value-chain-wiki

"Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition" by Lucy Holmes, Kent Strauss, Klaas de Vos, and Kate Bonzon. Project of Environmental Defense Fund and The Prince of Wales's International Sustainability Unit in cooperation with 50in10.
*Find it here:* http://www.50in10.org/wp-content/uploads/2014/07/fisheries_handbook.pdf

"Conservation Finance: Moving Beyond Donor Funding Toward an Investor Driven Approach" by Credit Suisse, World Wildlife Fund and McKinsey and Company.
*Find it here:* https://www.credit-suisse.com/media/cc/docs/responsibility/conservation-finance-en.pdf

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| EDF | The Environmental Defense Fund |
| ISU | The Prince of Wales's Charitable Foundation, International Sustainability Unit |
| KKP | Indonesian Ministry for Marine Affairs and Fisheries |
| OJK | Indonesian Financial Services Authority |
| MBA | Monterrey Bay Aquarium, Seafood Watch |
| MSC | Marine Stewardship Council |
| TNC | The Nature Conservancy |
| USAID | United States Agency for International Development |

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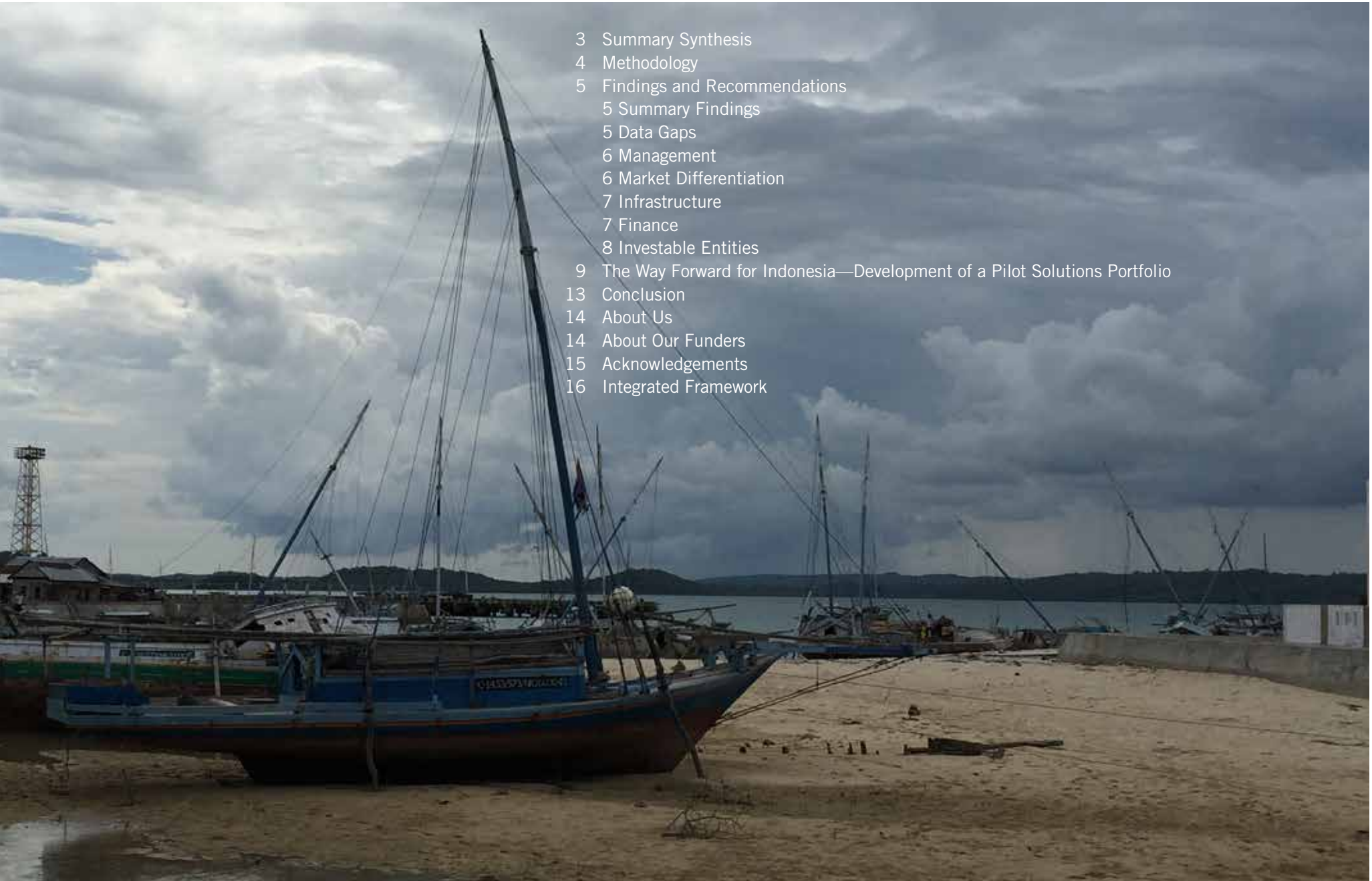

# Summary Synthesis

Wilderness Markets, with the support of the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation, undertook a series of fishery value chain assessments to better understand the opportunities and constraints for private impact capital to flow into wild-capture fisheries markets in Indonesia. Building on extensive impact-focused investment experience in agricultural value chains, the objectives were to:

- Identify and categorize potential impact investment opportunities in wild-capture fisheries utilizing a combination of impact investment frameworks.
- In the absence of impact investment opportunities, document value chain constraints preventing such opportunities.
- Support the creation of sustainable wild-capture fisheries investment strategies by identifying appropriate frameworks for the assessment and development of intervention opportunities.

We assessed four developing country fisheries (DCFs) in two countries, with a particular focus on Indonesia, plus one fishery in California, US, for comparison. This document focuses on Indonesia and summarises our assessment of the blue swimming crab, snapper, yellowfin and skipjack tuna seafood value chains. Additional assessments for the US and Mexico fisheries reviewed can be found at www.wildernessmarkets.com.

Each fishery assessed provided a piece of a larger puzzle, allowing us to identify the components of a sustainable seafood value chain and its relationship to stock health which, in turn, drives value chain health. We have presented this as an integrated framework on page 16. We concluded that to provide an environment for investment and long-term environmental and social sustainability, Indonesian fisheries must address six main constraints—data, management, market differentiation, infrastructure, finance and the lack of investable harvester-level organizations. None of the fisheries reviewed had addressed all six of the constraints, thus hampering the ability of impact investors to make effective grant and program-related investment (PRI) decisions.

Our findings further imply that *addressing these constraints individually or in sequence results in significant unintended consequences*. A strategy to address these constraints simultaneously is obligatory. While we found significant potential livelihood opportunities in Indonesia, these are unsustainable from an ecological perspective due to the absence of reliable management, monitoring and enforcement. The presence of a legally recognized and enforced management system is considered a prerequisite for the development of investable triple bottom line (TBL) enterprises in the sustainable seafood value chain. Simply put, *a strategy to address livelihood challenges in Indonesia is likely to exacerbate stock health challenges in the absence of effective management*.

Indonesia's long maritime history and the importance of fisheries to the nation uniquely position it to address the identified constraints for the long-term sustainability of its natural marine resources, poverty alleviation and economic development.

We are grateful to the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation for their support of this work.

The six main constraints to an economically sustainable fisheries value chain in Indonesia are data, management, market differentiation, infrastructure, finance and the lack of investable entities.

The results of our research are clear: Indonesian fisheries must address each constraint in order to provide an environment conducive to long term sustainable investment in fisheries.

# Methodology

We used a data-driven USAID seafood value chain approach[1] to evaluate five fisheries in three different regions: a multi-species fisheries value chain in the Baja peninsula area of Mexico; Indonesian BSC, snapper, yellowfin and skipjack tuna value chains; and California groundfish value chain on the West Coast of the US. In addition, we used a range of frameworks and models during the course of these assessments, including: "Priming the Pump: The Case for a Sector Based Approach to Impact Investing[2]" from the Omidyar Network; "From Blueprint to Scale: The Case for Philanthropy in Impact Investing"[3] by Monitor Institute; and finally, from EDF and ISU, "Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition."[4]

While each had merits, our ultimate findings rested on utilizing a combination of the EDF/ISU framework and the USAID value chain approach. Indeed, we found the value chain approach critical to understanding the specifics of how to achieve many of the key elements identified in the EDF/ISU framework. The combination of these models are presented in our integrated fisheries framework (see page 16), highlighting the need to invest in improved stock health drivers along with value chain related investment and appropriate repayment mechanisms.

The EDF/ISU framework identifies **three Key Enablers** that are a prerequisite to increased value: secure tenure, sustainable harvests, and robust monitoring and enforcement.

1 USAID Value Chain Development wiki, https://www.microlinks.org/good-practice-center/value-chain-wiki

2 Bannick M., Goldman P.; *Priming the Pump: The Case for a Sector Based Approach to Impact Investing*; 2012; http://www.omidyar.com/sites/default/files/file_archive/insights/Priming%20the%20Pump_Omidyar%20Network_Sept_2012.pdf

3 Koh H., Karamchandani A., Katz R.; *From Blueprint to Scale: The Case for Philanthropy in Impact Investing*; April 2012; https://www.mim.monitor.com/blueprinttoscale.html

4 Holmes, L., Strauss, C. K. de Vos, K., Bonzon, K.; *Towards Investment in Sustainable Fisheries: A Framework for Financing the Transition*; 2014; EDF and ISU in cooperation with 50in10"; http://www.50in10.org/wp-content/uploads/2014/07/fisheries_handbook.pdf

# Findings and Recommendations

## Sustainable value chain constraints

Our assessments revealed six key constraints to sustainable seafood investments in Indonesia: data, management, market differentiation, infrastructure, finance and a lack of investable entities at the harvester level. Prioritizing efforts to address these constraints, at the same time as the Key Enablers, are imperative to ensure successful achievement of TBL outcomes at the enterprise level.

**TABLE 1: SNAPPER VERSUS TUNAS VERSUS CRAB**

| | SNAPPER | TUNAS | CRAB |
|---|---|---|---|
| Landed Volume (MT) | 119,088 | 1,119,566 | 39,125 |
| Export Volume, (MT) | 2,572 | 201,160 | 28,211* |
| % Exported | 2% | 18% | 71% |
| Export Value, (1,000s USD) | 10,304 | 749,992 | 329,724* |
| Export Unit Value (USD/KG) | 4.01 | 3.72 | 11.7 |

*Volume and value of BSC and all other crab species.
Source: (KKP, 2012)

### DATA GAPS

To effectively attract more than philanthropic capital, harvesters, potential impact investors, and sustainable financiers need to be able to realistically assess risk and return. In the DCFs, poor data extends throughout the value chain.

Further complicating the data issue is the inconsistency from fishery to fishery, and often within the fishery in Indonesia. Even with the presence of the same NGOs working at the same levels of the value chain in the fisheries, data remains inconsistent with no obvious efforts by any groups to coordinate data collection. This may be efficient in the short-term, but not in the long-term.

A key concern at the resource level was lack of a reliable, trusted and robust mechanism to share stock health data with all value chain participants. This is particularly true in some Indonesian locations where participants do not trust the data or the providers of the data. Significant management and decision making challenges arise in these locales.

All value chains, including the US, suffer from the lack of quantified end market data. Despite the growth and attention given to certification and sustainability programs, little market segmentation data or differentiation research related to costs and benefits is available to the value chains. Research to quantify demand and document attributes via an end market segmentation analysis will provide existing value chain participants with the necessary basis to determine the value of participating in certain programs and of differentiating products through sustainability initiatives.

Quantified market data will also be useful to a range of funders—philanthropic as well as return seeking—in order to assess the viability of and prioritize potential for investment opportunities associated with improved management.

### Recommendation

**Philanthropic capital and Indonesian leadership should provide leverage to improve data quality, consistency, and accessibility to clearly communicate the stock health status plus size and scope of market opportunities. Establishing a trusted and robust mechanism to share data with all value chain participants in Indonesia is the foundation of improved management and a sustainable seafood value chain.**

## MANAGEMENT: MISSING KEY ENABLERS

Secure tenure, sustainable harvests, and robust monitoring and enforcement are critical to the long-term health of natural marine ecosystems and the enterprises that depend on them.[5]

With the improvements in tenure, harvest management and robust monitoring and enforcement, the US fishery has realized overall improved stock health, which is in stark contrast to the DCFs reviewed, where poor data and data access, open access fisheries, poor enforcement, and a lack of management were often compared to operating in the "Wild West."

### Recommendation:

**Indonesian leadership should be a priority in developing and implementing the Key Enablers of sustainability to ensure stock health. Recognizing the substantial investment that will be required to change governance approaches to this issue, as well as the complex cultural, social and economic issues inherent, a neutral party should facilitate early debate.**

## MARKET DIFFERENTIATION: LACK OF A BUSINESS CASE

The additional costs associated with implementing a range of potentially sustainable practices were not compensated in the value chains assessed, either through reduced costs or improved pricing power. Some participants indicated these practices were important for market access purposes, particularly the US, Australia or the EU. However, this is currently irrelevant for the large volumes of Indonesian landings in the tuna and snapper value chains consumed locally or exported to Asian markets. Similarly, competition between different seafood exporters in primary import-dependent nations appears to be reducing pricing options.

This lack of a clear business case for sustainability is compounded by NGOs with strengths other than formulation of the business case for changes in practice and by the open access system which incentivizes the "race to fish" over any effort to conserve resources or improve management.

### Recommendation:

**Efforts to directly link improved economic and social outcomes to implementation of the Key Enablers should happen simultaneously—a direct lesson from the California, US, groundfish example, where biological success has been achieved but economic success is lagging.**

5 Holmes, L., Strauss, C. K., de Vos, K., Bonzon, K.; "Towards investment in sustainable fisheries: A framework for financing the transition"; 2014; EDF and ISU in cooperation with 50in10; http://www.50in10.org/wp-content/uploads/2014/07/fisheries_handbook.pdf

## INFRASTRUCTURE: LACK OF ACCESS TO EXPORT-LEVEL INFRASTRUCTURE

Indonesia possesses an extensive port inventory designed to facilitate domestic and export market access. However, the majority of the ports do not provide access to the necessary cold chain, logistics and health and catch inspection facilities necessary to meet export requirements. These logistical challenges keep harvesters out of export ready markets as well as many domestic markets which require access to a suitable cold chain. Indonesia has prioritized addressing this constraint in its national policy.

### Recommendation:

**Linking improved infrastructure to improved stock health drivers is a priority.**

**Developing the capacity of all stakeholders, including individual harvesters and harvester groups, to address these combined challenges is important. Infrastructure recommendations are closely linked to investable entity recommendations.**

## FINANCE: INITIATIVES ARE NOT LINKED TO FISHERIES SUSTAINABILITY

Indonesia has a well developed and extensive network of financial institutions and a robust banking sector. Recent OJK initiatives such as the Laku Pandai and JARING programs have been designed to provide increased access to finance in rural communities and improve capital access in the maritime and fisheries sector. However, neither of these extensive programs integrate any fisheries specific sustainability metrics into their design nor into their risk assessment criteria. OJK and the International Finance Corporation have recently launched a "Roadmap for Sustainable Finance in Indonesia" initiative which is part of a program to improve environmental and social metrics of financial institutions in Indonesia. Separately, KKP has also launched policies designed to provide tax incentives for investment in fisheries, focused on improving logistics, access to cold chains and processing in order to secure export markets and job creation. These initiatives also do not appear to incorporate stock health or management improvements into their risk assessments.

Significantly, in the context of the capital needed to assure stock health through improved data collection, enforcement and management, none of the agencies identified appears to be focused on developing a *sustainable fisheries management finance mechanism*. The overwhelming majority of participants are focused on value chain finance as opposed to financing that would improve fisheries management. This presents a major constraint in the development of a sustainable fisheries sector in Indonesia.

### Recommendation:

**Indonesia possesses significant maritime resources and investment capital. Close collaboration between OJK and KKP should be encouraged, with a specific focus on developing industry wide guidance on permitted and prohibited investments and to integrate stock health criteria into appropriate lending criteria as part of institutional risk management.**

**The development of a sustainable fisheries management finance mechanism should also be prioritized in order to ensure value chain and finance incentives are aligned with stock health.**

## INVESTABLE ENTITIES: LACK OF TRIPLE BOTTOM LINE INVESTABLE ENTITIES

A critical constraint to investing impact capital at the resource or the harvester level was the almost complete lack of TBL entities at any level of the value chain. There are no investment opportunities at the resource level in Indonesia, and only limited opportunities at the the harvester level.

Cooperatives and small and medium sized enterprises (SMEs) have played an important role in the development of more equitable agricultural value chains. However, for a varying range of social, cultural, historical and political reasons, they do not appear to be an active part in the Indonesian fisheries value chains evaluated. Indeed, coops in Indonesia appear to remain flawed vehicles for enterprise development, in part due to their governance structure and in part due to a history of poor management and political interference.

This has resulted in the dependence on aggregators, AKA "middlemen" and first receivers of catch who are able to adopt upgrading strategies in response to market demands, and, consequently, have captured market share and market value. As with most DCF value chains, the aggregator is the first legal entity in the artisanal fisheries value chains assessed in Indonesia, effectively excluding harvesters from any economic activity other than as a provider of biomass.

Indonesian harvesters are not organizing themselves into groups to improve efficiency or increase their market value, despite the opportunity to do so.

While there are many upgrading opportunities related to logistics and access to markets, we identified two significant risks:

- In the absence of effective management and controls, upgrading strategies are likely to lead to increased fishing effort.
- The aggregator or first receiver can capitalize upon upgrading strategies to the detriment of the harvester.

## Recommendation:

**To realize the benefits of improved management without increasing fishing, efforts should focus on developing the capacity of harvesters to organize so that they can improve practices in conjunction with the Key Enablers.**

# The Way Forward in Indonesia— Development of a Pilot Solutions Portfolio

Developing sustainable seafood value chains requires simultaneously addressing a suite of issues. In Indonesia, these include:

- Addressing the Key Enablers of stock health.
- Investing to provide key fisheries data about the conditions, opportunities and constraints.
- Investing in pilot and test models that link seafood value chains improvements to stock health and the Key Enablers.

Given the constraints documented in our assessments as well as the lack of effective TBL models, Indonesia's sustainable fisheries sector is clearly in the "Early Stage Development" in the Conservation Investment Lifecycle.[6] In this stage, the focus is necessarily on pilot projects, and experimental approaches which are by definition high risk and highly illiquid. We therefore propose developing a pilot solutions portfolio, consisting of two kinds of interventions suitable for impact investor support: the first designed to inform; the second designed to develop a series of pilots to test models in seafood value chains based on successful innovations in other value chains.

The former "inform" interventions, which will provide information about conditions, opportunities and constraints, is most appropriate for grants. The latter, "test and pilot" interventions, while grant based initially, will integrate a design to transition into PRI opportunities, and are important to building experience in this value chain. These initiatives will seek to apply Indonesia's well-established knowledge of value chain finance opportunities to improve stock health and ensure investments become self-sustaining.

6 "Conservation Finance: Moving Beyond Donor Funding Toward an Investor Driven Approach" by Credit Suisse, World Wildlife Fund and McKinsey and Company.

**STAGES OF THE CONSERVATION INVESTMENT LIFE CYCLE**

| | EARLY-STAGE DEVELOPMENT | ESTABLISHMENT OF BUSINESS MODEL | REPLICATION/ SCALE-UP | COMMERCIALIZATION |
|---|---|---|---|---|
| **Regulatory policy, markets** | | | Development of regulation and market structures | |
| **Description** | • Pilot projects/proof of concept<br>• Experimental approaches | • Single ecosystem projects<br>• Stable expectation of cash flows, risks and returns<br>• Government establishes regulatory framework | • Multiple proven projects spanning a country, or replication of proven business model across multiple countries or ecosystems | • Tradable investments into conservation classes<br>• Investments into associated markets |
| **Investment instruments** | • Venture philanthropy<br>• Ground-making equity/ catalytic first-loss absorbing equity<br>• Grants/donations<br>• Seed funding | • Project and early-stage finance<br>• Venture capital | • Specialized investment vehicles (e.g., funds, feeder platforms)<br>• Equity investment | • Market instruments (e.g., equity, bonds, options)<br>• Securitized cash flows |
| **Investors** | • NGOs<br>• Grant-making trusts<br>• Venture philanthropists<br>• Development banks | • Venture philanthropists<br>• Development banks<br>• NGOs<br>• HNWIs | • Large-scale NGO JVs<br>• Development banks<br>• HNWIs | • Institutional investors<br>• Retail investors<br>• HNWIs |
| **Investment profile** | • Very high risk compared to similar investments in other sectors<br>• Very illiquid<br>• Uncertain recovery of principal | • High risk<br>• Medium investment horizon possible<br>• Possibly high IRR upon exit | • Medium risk<br>• Long-term, stable returns<br>• Long investment horizon, rather illiquid | • Low risk compared to similar investments in other sectors<br>• Liquid |

Source: CS/WWF/McKinsey

# Grant-based opportunities to provide information needed to smooth the way

Rather than instigate direct investments, these will inform current and potential value chain participants of the conditions, opportunities and constraints in the sustainable seafood value chain.

**Standardized data sets and a trusted and robust mechanism to share stock health data** are critical for facilitating discussions around stock health, sustainable harvests and value. Specifically, consistently collecting data for fleet size and location, landing volumes, prices paid by first receivers, location of catch and sizes of the fish, and the country where the fish is ultimately consumed would be invaluable for management, monitoring and enforcement as well as for value chain participants and investors. Equally important is the establishment of a trusted mechanism to share stock health data accessible with all value chain participants.

Second, support the development of a **sustainable fisheries management finance mechanism**. In this context, this relates to the capital needed to assure stock health through improved data collection, enforcement and management. Given the importance of this function, and the fact that it does not appear to be an area of focus or investigation for any of the parties interviewed in KKP, OJK and the NGO community at this time (with the possible exception of EDF), this topic should be developed sooner rather than later. Efforts would focus on building an understanding of what is meant by and required for effective fisheries management; develop an understanding of the budget and financial implications and opportunities; develop a strategy to link value chain improvements to fishery management finance; and to structure acceptable repayment mechanisms.

Third, detailed **business case feasibility assessments** would assist existing or new firms as well as potential investors in considering investment opportunities. Specifically, this type of assessment would show what species, product types and lines of business are sustainable and profitable, what's not, and under what conditions. For example, it would help in understanding the importance of a "portfolio" of species in supporting profitability and sustainability or understanding the utility of MSC certification against the potential additional revenue gained by doing so. This type of assessment does not appear to be commonly available or understood by many of the groups seeking to align the seafood value chain with sustainability.

**Fourth, value chain end market demand assessment**s will help all value chains assessed, including the US. As an example, despite the growth and attention given to certification programs, little market segmentation data or differentiation research is available to harvesters, processors or distributors to gauge the size of the target market and potential monetary returns for such certification efforts.

This value chain end market research for sustainable seafood products is a priority. In our research, we encountered numerous harvesters and aggregators who had access to sustainable seafood but did not understand channels of distribution, pricing options, geographic locations of their potential end markets and associated logistical costs, or key attributes (packaging requirements and costs) and features (should it be marketed as "local," "sustainable," "artisanal," etc.).

Groups like APRI and AP2HI (the Indonesian crab processors association and pole and line tuna associations, respectively), would greatly benefit if they knew, for example, that there was a viable market for certified blue swimming crab or tuna. Such information may also be useful to facilitate a snapper related trade association. Facilitating the development of this information will, at worst, serve as a baseline for whether such demand exists and how it can be quantified. At best, it will encourage existing firms to engage in the sustainable seafood market, as well as potentially attract new investors.

## Grant or program-related investments to lead to triple bottom line enterprises

Due to the dearth of existing models from which to learn, innovative pilots that link stock health and value chain improvements warrant support from philanthropies and impact investors. Investing in these pilots will remove the high financial hurdle for entrepreneurs, mitigate some of the associated risks for banks and investors and allow for the development of and support for enterprises that create benefits for communities and the environment.

Interventions to **test and pilot concepts designed to improve stock health** are both a challenge and a high priority. Compliance with programs designed to improve stock health through improved fisheries management such as TURFs, fishery reserves, and concessions linked to improved value chain business cases remains challenging. Unfortunately, no one has successfully linked these disciplines to date.

Investing in these pilots will remove the high financial hurdle for entrepreneurs, mitigate some of the associated risks for investors and banks and allow for the development of enterprises that create benefits for communities and the environment.

**Product and firm level upgrading pilots,** to address constraints at different levels of the value chain, can move forward at the same time or at staged intervals depending on the conditions within the fishery and the value chain. In some locations, each could take place concurrently, providing interventions at multiple levels of the value chain at the same time; whether or not this is the best course of action is contextual. For example, some fisheries products in Indonesia should be upgraded to a higher quality through a more consistent use of ice at the harvester level and through quicker transport to market at the aggregator level, based on improvements in the management of the stock.

**Distribution and market level pilots** would build off the results of the recommended market demand assessments. Interventions would differentiate product and improve demand or pricing with standards, branding, and certification to match market demand. These differ from the "product and firm level" upgrades in that they target a level of the value chain closer to the end consumer. They would also ensure access to appropriate infrastructure like ice and freezers, based on profitability predicted by the market demand assessments. Ideally, if change on the water is warranted, as in Indonesia, it would be incentivized or incorporated into these models. Practically speaking, this kind of intervention **should formalize and strengthen horizontal relationships**, like bringing together harvesters as has been done by AP2HI or bringing together producers through APRI in Indonesia. Pilots like this would help groups analyze profitability regarding development or access to infrastructure, provide for marketing, and possibly provide funding for appropriate certification.

Finally, we would encourage at least one of these pilots includes artisanal harvesters in Indonesia. Since they constitute a large proportion of landings in Indonesia, they often bear the burden of conservation strategies, but are excluded from immediate benefits. Developing **inclusion pilots for the very poor is essential, particularly in Indonesia**. Specifically, we suggest involving financial institutions to provide access to **micro savings and loans**, potentially digitally via mobile networks, along with access to appropriate infrastructure to provide traceability, preserve quality and reduce waste. This access would be in exchange for enforced conservation measures such as complying with TURFs, concessions, no take areas, size limits and similar measures.

Potential options include:

- **Microfinance tied to conservation outcomes**: small loans to fishers in exchange for improved conservation practices, restrictions on activities, gear change, support for management improvements or all of the above.
- **Working capital tied to conservation outcomes**: product-upgrading loans to "good middlemen" in exchange for minimum size and seasonal closure support.
- **Patient capital tied to reduction of effort**: seed funding for reduction of effort initiatives tied to future improvements resulting from biological recovery.

We would encourage at least one of these pilots includes artisanal harvesters in Indonesia since they often bear the burden of conservation strategies, but are excluded from immediate benefits.

# Conclusion

Indonesia ranks in the top five countries by length of coastline and has prodigiously productive fisheries sector by volume captured. Unfortunately, while fisheries exports are only about 3% of GDP, much of the seafood landed is either wasted due to spoilage or is sold domestically at low value because of poor quality. At the same time, the population of the world's fourth largest country is growing, as is their appetite for seafood—per capita consumption is over 30 kilograms.[7] Even with the logistical challenges present in Indonesia, it is possible to reduce waste and improve landing value while also improving fishery management.

While there are significant financial resources available, as well as a broad range of impact investors interested in Indonesian fisheries, and a number of livelihood opportunities for investment, there are few to no entities ready to provide TBL outcomes similar to examples in the agricultural markets. We did not find investment opportunities that could address the full suite of challenges associated with improving financial and social outcomes, while also contributing to conservation outcomes.

Our research indicates that this is due to six main identified constraints to an economically sustainable fisheries value chain in Indonesia—**data, management, market differentiation, infrastructure, finance** and the **lack of investable entities**. As these issues are addressed alongside the Key Enablers of stock health, Indonesia can look forward to a self-sustaining and economically vibrant fisheries sector.

Looking across the value chains assessed, taking action on solely one point, such as improving data management for improved stock health information, has not resulted in a cascade of solutions toward sustainability. Value chains must confront the multiple constraints simultaneously to move toward investable, self-sustaining fisheries. Similarly, linking the value chain approach to the EDF/ISU framework allows for a data driven, market focused approach in selecting, prioritizing and implementing interventions.

Ultimately, developing sustainable seafood value chains will mean developing a portfolio of solutions. On the assumption that the Key Enablers are being addressed and that good governance is part of the solution, there are two kinds of value chain based opportunities appropriate for foundation-type support: the first will **inform value chains** by providing information about stock conditions, opportunities and constraints and is most appropriate for grants; the latter will **pilot and test models** in seafood value chains based on successful innovations in other value chains and that support and benefit from improvements in fisheries management. The "test and pilot" work is also appropriate for grants and, we anticipate, program-related investment, with the idea that this work could lead to triple bottom line entities attractive to impact investors.

Given the logistical challenges present in these value chains, it is possible to reduce waste and improve landing value to Indonesia while also improving fishery management.

7 "Fisheries at a Glance." Retrieved on October 5, 2015, from: http://www7.bkpm.go.id/img/file/fisheries.pdf

# About Us

Wilderness Markets is working with a range of philanthropic and impact investors to assess sustainable seafood markets in order to facilitate the development of conservation focused impact investment opportunities in fisheries globally.
With the support of the David and Lucile Packard Foundation and the Gordon and Betty Moore Foundation, we have had the opportunity to assess four fisheries in developing country fisheries (DCFs) and two US fisheries in order to identify and assess the constraints preventing impact capital from accessing this market. At the same time, we identified potential investment opportunities within these fishery value chains.

Our work over the past two years has taken us through the New England groundfish fishery (US), a multi-species value chain in Baja (Mexico), Indonesia's value chains for yellowfin and skipjack tuna, blue swimming crab, and red snapper and California's groundfish value chain (US). These fisheries were assessed against a common set of frameworks in order to maintain consistency, with an overall focus on development and improved economic outcomes for harvesters.

Wilderness Markets clients include the David and Lucile Packard Foundation, the Gordon and Betty Moore Foundation, the Environmental Defense Fund, The World Bank Group and others.

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# About Our Funders

### THE DAVID AND LUCILE PACKARD FOUNDATION

For more than 50 years, the David and Lucile Packard Foundation has worked with partners around the world to improve the lives of children, families, and communities—and to restore and protect our planet.

### THE GORDON AND BETTY MOORE FOUNDATION

The Gordon and Betty Moore Foundation believes in bold ideas that create enduring impact in the areas of science, environmental conservation and patient care. Intel co-founder Gordon and his wife Betty established the foundation to create positive change around the world and at home in the San Francisco Bay Area. Environmental conservation efforts promote sustainability, protect critical ecological systems and align conservation needs with human development. Patient care focuses on eliminating preventable harms and unnecessary healthcare costs through meaningful engagement of patients and their families in a supportive, redesigned healthcare system. Science looks for opportunities to transform–or even create–entire fields by investing in early-stage research, emerging fields and top research scientists. Visit Moore.org or follow @MooreEnviro.

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## INDONESIA

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# Integrated Framework



## Key Data Points

**01** **Resource:** Stock health, landings volume and value

**02** **Harvesters:** Fleet size, capacity, and landings volume and value by gear type

**03** **Shoreside Services:** Availability, condition, and control

**04** **Processing and Distribution:** Number and location of processors, logistical infrastructure, and number of product lines

**05** **Sales Outlet:** Product preparation

**06** **End Market:** Product preparation, and export volumes and values

MORE DIRECT IMPACT

Actions taken at levels with darker colors are associated with more direct impact on the resource; the farther from the resource the action is taken, the more indirect and harder to trace the impact will be.

## Value Chain

In sustainable fisheries, secure tenure is guaranteed through various measures, including quota, licenses and permits. Numerous NGOs are working to provide secure tenure in fisheries.

Many types of gear are used to harvest the resource; numerous NGOs focus their efforts to find low impact/high-efficiency gear.

Services vary in importance by fishery:
- Ice
- Fuel
- Bait
- Cold Storage
- Unloading
- Boat and net repair
- Food provisioner

- Primary Processor
- Secondary Processor

Fish and Seafood Wholesalers
- Domestic
- Export

- Fish and Seafood Markets
- Restaurants
- Food Service
- Local Markets
- Grocery Stores
- Specialty/Gourmet Shops

- Domestic vs Export Markets
- Commodity
- Mid-price
- High Value—speciality and "craft" markets

## Requirements

Investable Entities
Business Cases

## Interventions

**Key Enablers of Sustainability**
- Secure Tenure
- Sustainable Harvests
- Robust Monitoring and Enforcement

**Alternative Mechanisms**
- TURF's
- Concessions
- Reserves

**STOCK HEALTH**

**Firm Level Upgrading Strategies**

| UPGRADING BY: | UPGRADING REQUIRES: |
|---|---|
| Improving products | Access to supporting markets |
| Improving process | Access to learning, know-how, skills |
| Specializing in new functions | Appropriate incentives (consider risks, expected returns) |
| Moving into new market channels | |

**Market Upgrading Strategies**

| UPGRADING BY: | UPGRADING REQUIRES: |
|---|---|
| Certification | Strong producer / harvester associations |
| Standards and Branding | Strong trade associations |
| Improved Differentiation | Strong regulatory environment |
| Access to infrastructure and services | |

SOURCES:
USAID Value Chain Development wiki, https://www.microlinks.org/good-practice-center/value-chain-wiki

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