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Improving Market Access for Smallholder Rice Producers in the Philippines

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Foreword

For 53 years, the Centre for Rural Development Seminar für Ländliche Entwicklung, SLE), of Humboldt-Universität zu Berlin, has trained young professionals in the field of German and international development cooperation.

Three-month practical projects conducted in development cooperation on behalf of German and international organisations form an integral part of the one-year postgraduate course. In interdisciplinary teams and with the guidance of experienced team leaders, young professionals carry out assignments on innovative future-oriented topics, providing consultant support to the commissioning organisations. Involving a diverse range of actors in the process is of great importance, which entails conducting surveys from the household level all the way to decision-makers and experts at national level. The outputs of this "applied research" directly contributes to solving specific development problems.

The studies are mostly linked to rural development (including the management of natural resources, climate change, food security and agriculture), cooperation with fragile or least developed countries (including disaster prevention, peace building and relief) and the development of methods (evaluation, impact analysis, participatory planning, process consulting and support).

Throughout the years, SLE has carried out over two hundred consulting projects in more than ninety countries, and regularly publishes results in this series. In 2015, SLE teams completed studies in Ghana, Namibia, Mozambique, and the Philippines.

The present study analyses the potential and the challenges for improving market access and linkages of smallholder rice farmers, with the aim of developing recommendations for specific interventions for the Better Rice Initiative to implement its market component in the Philippines.

The study was commissioned by the Advisory Service on Agricultural Research for Development (BEAF) to be implemented in collaboration with the International Rice Research Institute (IRRI) and the Public-Private-Partnership (PPP) project of GIZ, the Better Rice Initiative Asia (BRIA) and its partners in the Philippines.

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Our cordial thanks go to all farmers, millers, traders, retailers and others involved in processing and marketing rice, or related issues, and to *barangay* officials, agriculture staff in Local Government Units, as well as the mayors of the municipalities we visited; not forgetting agencies and organizations at provincial and national levels, who provided us with their expert knowledge and insights.

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Executive summary

Efforts to link smallholder farm households to markets and thereby improve their market access have been a crucial part of many rural development strategies of the past decade. Functioning and accessible markets, particularly for agricultural commodities, are vital for agricultural growth to realize its potential as a powerful driver of rural poverty reduction.

Smallholder farm households access markets as producers when selling their agricultural products but also as consumers satisfying their immediate consumption needs. These markets are characterized by limited information flows, high transaction costs and power imbalances leading to limited choices and constrained bargaining power for farm households. As a consequence, farm gate prices are depressed and production incentives are distorted. Hence, improving market access is critical to enable farm households to enhance their food security and increase their incomes.

In the Philippines rice is one of the main agricultural commodities that not only supports the livelihoods of around 45% of farm households but also serves as the country's main staple food. Thus, political efforts are split between simultaneously securing remunerative farm gate prices and affordable consumer prices. However, comparatively high production costs and inefficient rice marketing render this a difficult task. Consequently, improving market access for smallholder farmers in the Philippines is assumed to bridge the gap between affordable consumer prices for food security and remunerative farm gate prices for poverty reduction.

Therefore, the study sets out to analyze the market access constraints of smallholder rice farmers in the Philippines in order to identify entry points and to develop specific recommendations. The latter are directed at the Better Rice Initiative Asia (BRIA) to implement its "Better Market Linkages" component in the Philippines. It aims at promoting market-oriented rice production and entrepreneurship, particularly in Iloilo Province.

In order to deliver these outputs, the study used a multi-dimensional definition of market access determinants including physical, economic and social aspects. To cover this diversity, a partial value chain and livelihoods analysis was conducted. While the value chain analysis focused on the actors, service providers and their linkages, the livelihoods analysis looked at the heterogeneous asset base of farm households and the resulting marketing strategies. Therefore the study identified market access constraints stemming not only from the value chain but also from farm households' assets and capacities. Data was collected from communal

and municipal levels in Iloilo Province, analyzed and validated using largely qualitative methods.

Rice marketing in Iloilo Province involves numerous actors, such as farm households, traders, millers, wholesalers and retailers. They differ significantly in terms of volumes handled and functions assumed. While some specialize in one activity, such as aggregation or processing, others are vertically integrated and exercise multiple functions along the value chain. In addition to actors directly involved in handling the product, public and private service providers offer production- and marketing-oriented support, as well as financial services. Services, however, are not always sufficient or equally accessible to all. This occurs to the extent that, for example, agricultural extension overlooks marketing aspects and formal financial services are rarely accessed. Farmer organizations assume a double function, on one hand they take part in processing and marketing and on the other they provide invaluable services to their members. Farmer organizations receive government support for post-harvest facilities and service provision. Yet, farmer organizations are constrained by low capital stocks and weak governance, thus weakening the impact of such support programs.

By analyzing the relationship among the rice value chain actors, four market linkages were identified. They cover: (1) transactions directly with farm households (harvest linkage), (2) the aggregation of unmilled rice (aggregation linkage), (3) the sale of milled rice by processors (processing linkage) and (4) the distribution to the final consumer (distribution linkage). It became apparent that there are a variety of farm-to-table marketing channels that differ according to the number of actors involved and the geographic reach. While some channels are rather short, relying on a few intermediaries, others include agents brokering transactions and small-scale traders who aggregate unmilled rice from various sources before selling it to processors. The consumer markets identified mainly comprise municipal markets and small retail outlets in city- or village centers. Public distribution channels are known of but play an insignificant role in the marketing strategies of farm households. Generally speaking, most marketing channels and their arrangements are based on long-established personal relationships, often linked to tied output-credit relationships. This inflexibility of marketing arrangements is further amplified due to the unreliability and misconduct among trading partners, which increases the importance of trusted relationships in an environment of weak contract enforceability.

While Iloilo's rice value chain provides farm households with multiple opportunities, neither the full range of marketing channels nor the marketing-related sup-

port services are equally accessible to all farm households. This is linked to the varying asset endowment and resulting marketing strategies of smallholder farm households, as shown by the livelihoods analysis. Therefore, the study developed a smallholder typology based on a qualitative assessment of smallholders' market access. It uses the marketable surplus, the time of transaction, the number of marketing outlets accessed and the freedom to choose their trading party, to differentiate smallholder farm households. This revealed a continuum ranging from farm households with no market orientation (group 0) over farm households with severely constrained (group 1) and limited marketing options (group 2) to farm households with marketing options (group 3). A farm gate price analysis showed that there is a correlation between the qualitative market access indicators applied and prices obtained.

The analysis of the livelihood assets revealed important inter-group similarities and differences. With regard to the similarities, farm households across all groups heavily rely on hired labour for rice production, access informal information channels, place a high importance on their social networks, have multiple income sources and engage in rice processing steps for their own consumption purposes. However, it is the differences between the groups that are important in order to identify bottlenecks and respective entry points for interventions. The most significant differences were identified with regard to market-related knowledge, dependencies, the type of production financing, and access to post-harvest facilities and farm machinery. In turn, the differences shape the marketing strategy of the respective farm household. While farm households with no market orientation produce rice solely for home consumption, those belonging to the other three groups access markets to sell a share of their harvest to pay debts and land rental fees as well as to generate income. Thus, three distinct marketing strategies were identified:

- Farm households with severely constrained marketing options are obliged to sell immediately after harvest, often to a predetermined buyer. This is due to cash constraints and their production-financing agreements that often come in the form of tied output-credit relationships.
- Farm households with limited marketing options are able to choose a buyer based on price considerations and some add further value to their produce by drying it. Relying on other income sources and savings for production-financing increases their freedom of choice and control over the time of transaction.

- Farm households with marketing options store dried, unmilled rice and wait for higher prices during the lean season. Sometimes, they even engage in further processing steps and sell milled rice. Business orientation and capital stocks enable them to take control over their marketing.

In accordance with the identified marketing strategies, improving market access means empowering smallholder farm households to take control over their own rice marketing practice by increasing their ability to freely choose from the existing range of marketing opportunities and to freely decide upon the time of transaction. Therefore, they need access to financial capital, post-harvest facilities and information as well as favorable market linkages and access to adequate infrastructure. These market-related needs are based on group-specific and cross-cutting challenges that currently hinder farm households in their attempts at improving their marketing strategy. The main bottlenecks for improving farm households' market access are the reliance on loan-based production financing through informal moneylenders, the limited availability of drying- and storage facilities particularly at harvest time, low bargaining power and the difficulty to find new business partners due to insufficient information. Poor rural road infrastructure and insufficient water supply affect all groups of farm households.

Potential development interventions that target the market access of smallholder farm households therefore have to address one or more of the market-related needs and the identified bottlenecks. Five intervention areas have been identified:

- Increase access to financial capital. This can be achieved by improving financial inclusion through the development of a needs-oriented financial product and capacity building to strengthen the bankability of smallholder farm households. Another option is to promote on- and off-farm diversification by implementing integrated farming and livelihood diversification programmes. A third possibility is to decrease production costs through the promotion of labor-saving technology adoption or low external input farming practices.
- Expand access to post-harvest facilities. In order to do this, the availability of these needs to be improved through a mobilization of public and private investment. Farmer organizations have to be strengthened to make better use of public subsidies for post-harvest facility investments. Furthermore, smallholder farm households' accessibility needs to be strengthened by developing quota and incentive schemes and adapting usage fees and quantity requirements to smallholder farm households' realities.

- Improve market linkages of smallholder farm households. There is a need to strengthen existing market linkages by enhancing bargaining power, supporting collective action and facilitating intra-value chain coordination. Possible activities include the provision of quality infrastructure to establish fair-price building mechanisms, capacity building for farmer organizations and the development of a code of conduct by all value chain actors. Market linkages can also be improved by promoting the access to and use of additional market opportunities, such as niche markets and the valorisation of rice by-products.
- Enhance access to market information. In order to do so, timely and accurate market information, including prices, demand and weather forecasts, needs to be distributed by independent sources. Furthermore, knowledge exchange among farm households on marketing- and farming-related topics has to be facilitated with the help of external support. In addition, agricultural extension services have to further incorporate management and business skills into training sessions.
- Strengthen physical infrastructure by improving public transport infrastructure and securing the construction of new irrigation facilities or the rehabilitation of existing facilities. Investments in infrastructure should be made based on a close consultation with local authorities to ensure the greatest impact.

Taking into account BRIA's "Better Market Linkages" component, the remaining project duration and its level of operation, feasible and promising recommendations have been developed based on the identified intervention areas. In order to achieve the objective to promote market-oriented rice production, entrepreneurship and market linkages, the study team recommends implementing activities targeting the following outputs:

- Enable farmers to pro-actively improve their marketing. Here, it is advisable that BRIA targets the availability of and access to information, the capacity to make informed decisions and the ability to address product requirements that are market-channel specific. It is expected that through an improved availability and access to market information, as well as a better capacity to make use of such information, market incentives will work more efficiently, thus improving market orientation. It is recommended:
  - → To establish peer-learning platforms for smallholder rice farmers at local level to initiate knowledge-sharing regarding existing marketing opportunities and the potential they hold;

→ To review existing Training-of-Trainers modules to systematically incorporate marketing-related topics and services;

→ To organize networking events to facilitate the establishment of personal relationships among possible new trading partners.

- Strengthen farmer organizations as favorable market linkage for smallholders. Here, it is recommended that BRIA focuses on the internal management structures of farmer organizations, their rice marketing practices and their accountability to smallholder farm households' needs. It is expected that better-managed farmer organizations, which are able to improve their rice marketing and, at the same time, consider all their members' needs, will serve as favorable market linkage for smallholder farm households. It is recommended:

  → To support stakeholders to deliver management training sessions to farmer organizations to improve their internal governance structures;

  → To establish good practice learning platforms among farmer organizations to showcase benefits of well-managed organizations;

  → To develop an incentive system to encourage farmer organizations to improve their service delivery to smallholder rice farmers.

- Enhance collaborative action within the rice value chain to seize existing potential. Here, it is advisable that BRIA initiates intra-value chain exchange platforms. It is predicted that an improved intra-value chain exchange will increase coordination and collaboration among actors resulting in efficiency gains, higher resilience towards challenges and new product development, which also benefits smallholder farm households. It is recommended:

  → To engage in a participatory value chain development process bringing different value chain actors together in a series of workshops to support locally grown solutions;

  → To use agricultural fairs to facilitate personal business relationships and initiate product development.

It is thought that these actions would be most effective if the three intervention areas are addressed at the same time, promoting improved market linkage for individual farmers, facilitating new marketing arrangements for farmer organizations and contributing to additional value-generation for the rice value chain and the intra-value chain exchange.

Zusammenfassung

Seit der letzten Dekade gilt die Anbindung von Kleinbauern an Märkte und die Erleichterung des Marktzugangs als wichtiger Bestandteil vieler ländlicher Entwicklungsstrategien. Funktionierende und leicht zugängliche Märkte haben, besonders für landwirtschaftliche Erzeugnisse, eine zentrale Bedeutung für agrarbasiertes Wachstum. Drüber hinaus besitzen sie das Potential entscheidend zur ländlichen Entwicklung und Armutsreduzierung beizutragen.

Kleinbauern agieren an Märkten, um ihre landwirtschaftlichen Produkte zu veräußern, aber auch um als Verbraucher Produkte für den Eigenbedarf zu erwerben. Diese Märkte sind oftmals durch einen begrenzten Informationsfluss, hohe Transaktionskosten und ungleiche Machtverhältnisse gekennzeichnet. Dies führt zu einer eingeschränkten Wahlfreiheit und Verhandlungsmacht der Kleinbauern. Die Konsequenzen sind niedrige Erzeugerpreise und eine Verzerrung von Produktionsanreizen. Deswegen ist eine Verbesserung des Marktzugangs entscheidend, um das Einkommen und damit auch die Ernährungssicherheit kleinbäuerlicher Haushalte zu erhöhen.

In den Philippinen ist Reis eines der wichtigsten landwirtschaftlichen Erzeugnisse. Die Produktion und Vermarktung von Reis ist für nahezu der Hälfte der ländlichen Bevölkerung die bedeutendste Einnahmequelle. Darüber hinaus gilt Reis als wichtigstes Grundnahrungsmittel des Landes. Daher müssen politische Bemühungen einerseits profitable Erzeugerpreise und andererseits erschwingliche Preise für Verbraucher gewährleisten. Erschwert wird diese Aufgabe durch vergleichsweise hohe Produktionskosten und eine ineffiziente Reisvermarktung. Dieses Spannungsfeld zwischen erschwinglichen Preisen für Verbraucher zur Sicherung der Ernährungsversorgung auf der einen Seite und profitablen Erzeugerpreisen, die zur Armutsreduktion beitragen, auf der anderen Seite, gilt es durch die Verbesserung des Marktzugangs für Kleinbauern zu verringern.

Genau hier setzt diese Studie an. Ziel ist es, die Marktzugangsbarrieren für reisproduzierende Kleinbauern in den Philippinen zu analysieren und Ansatzpunkte zu identifizieren, um spezifische Empfehlungen für die Better Rice Initiative Asia (BRIA) in den Philippinen zu entwickeln. Diese Handlungsempfehlungen werden in die Projektkomponente „Better Market Linkages" integriert, welche das Ziel verfolgt marktorientierte Reisproduktion sowie unternehmerisches Handeln vor allem in der Provinz Iloilo zu fördern.

Um ein umfassendes Verständnis von Markzugang zu erhalten, wurde eine multidimensionale Definition entwickelt, die sowohl wirtschaftliche, sozio-kultu-

relle als auch geographische Zugangsbarrieren berücksichtig. Um dieser Definition gerecht zu werden, wurden eine partielle Analyse der Reiswertschöpfungskette, sowie eine dem Sustainable-Livelihood-Konzept folgende Analyse der Lebensgrundlagen der Kleinbauern durchgeführt. Während sich die Analyse der Wertschöpfungskette auf Akteure, Dienstleister und ihre Marktbeziehungen untereinander konzentriert, setzte die Analyse der Lebensgrundlagen (Livelihoods) ihren Fokus auf die heterogene Verteilung der Kapitalarten kleinbäuerlicher Haushalte und den daraus resultierenden Vermarktungsstrategien. Daraus ergeben sich marktspezifische Bedarfe und Herausforderungen die als Grundlage für die Handlungsempfehlungen herangezogen wurden. Für die empirische Datenerhebung sowie die Datenanalyse wurden im Rahmen der Studie qualitative Erhebungs- und Auswertungsmethoden angewendet.

Zahlreiche Akteure wie etwa landwirtschaftliche Produzenten, Händler, Betreiber von Reismühlen, Großhändler und der Einzelhandel sind in der Provinz Iloilo an der Reisvermarktung beteiligt. Während einige Akteure sich auf Teilschritte in der Wertschöpfungskette spezialisieren, wie etwa das Aggregieren oder die Verarbeitung von Reis, sind andere vertikal integriert und üben verschiedene Funktionen entlang der Wertschöpfungskette aus. Darüber bieten staatliche und private Organisationen produktions- und vermarktungsorientierte sowie finanzielle Dienstleitungen an. Dennoch sind diese Dienstleistungen nicht immer ausreichend oder gleichermaßen zugänglich für alle Akteure innerhalb der Wertschöpfungskette.

Eine besondere Rolle wird in dieser Studie den Bauernorganisationen zugesprochen. Diese übernehmen eine doppelte Funktion in der Wertschöpfungskette. Einerseits sind sie an der Verarbeitung und Vermarktung von Reis beteiligt und andererseits stellen sie ihren Mitgliedern wichtige Dienstleitungen wie Finanzierung, Informationen und Zugang zu Weiterverarbeitungsanlagen und Landmaschinen, zur Verfügung. Dennoch sind zahlreiche Bauernorganisationen durch geringes Eigenkapital und eine schwache Führung in ihren Möglichkeiten beeinträchtigt. Bisher zeigen auch staatliche und nicht-staatliche Förderprogramme der Bauernorganisationen nur geringen Erfolg.

Durch die Analyse der Beziehungen zwischen den Akteuren in der Reiswertschöpfungskette wurden vier zentrale Vermarktungsschnittstellen identifiziert: (1) Verkauf unmittelbar nach der Ernte, (2) Aggregation von unverarbeitetem Reis, (3) Verkauf von verarbeitetem Reis und schließlich (4) Verteilung und Verkauf an den Endverbraucher. Es zeigte sich, dass eine Vielzahl von unterschiedlichen Vermarktungskanälen existiert, die sich einerseits in der Anzahl der betei-

ligten Akteure und anderseits in der geographischen Reichweite des Absatzmarktes unterscheiden. Während einige Wertschöpfungsketten eher kurz sind und nur wenige Zwischenschritte aufweisen, sind andere Vermarktungskanäle durch eine Vielzahl an beteiligten Akteuren, beispielsweise Agenten und kleine Händler, die unverarbeiteten Reis aus verschiedenen Quellen aggregieren bevor sie diesen an Verarbeiter weiterverkaufen, gekennzeichnet. An den Endverbraucher wird vor allem über kommunale Märkte und kleine Läden in Dorf- und Stadtzentren verkauft. Zwar sind staatliche Verteilungskanäle bekannt, dennoch werden diese nur von einer sehr begrenzten Anzahl an kleinbäuerlichen Akteuren in Anspruch genommen. Meist basieren Vermarktungskanäle und entsprechende Handelsvereinbarungen auf gut etablierten persönlichen Beziehungen, die oft an die Einlösung eines Kredits durch die Ernte gebunden sind. Diese mündlichen Verträge zwischen den kleinbäuerlichen Reisproduzenten und ihren Abnehmern werden beiderseitig in zahlreichen Fällen gebrochen und zu ihrem Eigennutzen ausgelegt. Deswegen gelten auf Vertrauen basierende Handelsbeziehungen als eine wichtige Institution in der lokalen Reiswertschöpfungskette.

Obwohl die Reiswertschöpfungskette in der Provinz Iloilo zahlreichen kleinbäuerlichen Haushalten unterschiedlichste Vermarktungsmöglichkeiten bietet, sind weder die Kanäle noch die entsprechende Unterstützung der Vermarktung für alle kleinbäuerlichen Haushalte gleichermaßen zugänglich. Dies hängt, wie die Analyse der Lebensgrundlagen (Livelihoods) zeigt, mit der heterogenen Kapitalausstattung und den daraus resultierenden Vermarktungsstrategien kleinbäuerlicher Haushalte zusammen. Um dieser Heterogenität gerecht zu werden, entwickelte die Studie eine Typologie für kleinbäuerliche Haushalte basierend auf einem qualitativen und multidimensionalen Verständnis von Marktzugang. Als Unterscheidungsmerkmale wurden vier Kriterien herangezogen: (1.) der zur Vermarktung verfügbare Überschuss, 2.) der Verkaufszeitpunkt, (3.) die Anzahl der möglichen Handelspartner und (4.) die Möglichkeiten den Handelspartner frei wählen zu können. Auf diese Weise bildet sich ein Kontinuum, welches von Haushalten ohne Marktorientierung (Gruppe 0) über Haushalte mit stark eingeschränkten (Gruppe 1) sowie mit begrenzten Vermarktungsmöglichkeiten (Gruppe 2) bis hin zu Kleinbauern mit Vermarktungsmöglichkeiten (Gruppe 3) reicht. Die Gegenüberstellung der Erzeugerpreise zeigt zudem, dass ein Zusammenhang zwischen diesen qualitativen Indikatoren für Marktzugang und den erzielten Preisen besteht.

Anhand der Analyse der Kapitalausstattung kleinbäuerlicher Haushalte wurden bedeutende Ähnlichkeiten, aber auch Unterschiede zwischen den genannten Gruppen offengelegt. So sind kleinbäuerliche reisproduzierende Haushalte, unabhän-

gig von der Gruppenzugehörigkeit, auf die Beschäftigung von Lohnarbeitern für die Reisproduktion angewiesen. Überdies legen sie hohen Wert auf ihre sozialen Netzwerke, die sie als informelle Informationskanäle nutzen können. Sie haben verschiedene landwirtschaftliche und nicht-landwirtschaftliche Einkommensquellen und lassen Reis, der für den Eigenverbrauch bestimmt ist, weiterverarbeiten. Jedoch sind die Unterschiede zwischen den Gruppen entscheidend, um Ansatzpunkte für mögliche Interventionen zu identifizieren. Die bedeutendsten Unterschiede wurden bei dem Zugang zu Marktinformationen, der Produktionsfinanzierung, sowie dem Zugang zu Lagerungs- und Weiterverarbeitungsanlagen festgestellt. Diese Punkte beeinflussen wesentlich die Vermarktungsstrategie der Reisproduzenten. Es wurden drei verschiedene Vermarktungsstrategien identifiziert:

Kleinbäuerliche Haushalte mit stark eingeschränkten Vermarktungsoptionen sind häufig durch Produktionskredite an einen Abnehmer gebunden. Um den Kredit auszulösen sind die Reisproduzenten verpflichten unmittelbar nach der Ernte, einen Teil ihrer Produktion abzugeben.

- Kleinbäuerliche Haushalte mit begrenzten Vermarktungsoptionen sind in der Lage den Höchstbietenden Käufer auszuwählen. Zudem können einige Kleinbauern ihre Gewinnspannen vergrößern indem sie den Reis vor dem Verkauf trocknen. Da sie für die Finanzierung ihrer Produktion auf andere Einkommensquellen und Ersparnisse zurückgreifen können, haben sie einen größeren Spielraum bei der Wahl des Aufkäufers und des Verkaufszeitpunkts.
- Kleinbäuerliche Haushalte mit Vermarktungsoptionen lagern den noch unverarbeiteten aber getrockneten Reis und sind somit in der Lage nach der Erntezeit Preisfluktuationen abzuwarten und ihr Produkt trotz saisonaler Schwankungen zum höchsten Preis zu verkaufen. In einigen Fällen können sie den Reis weiterverarbeiten und entspelzten Reis verkaufen. Geschäftsorientierung und Eigenkapital ermöglichen ihnen ein höheres Maß an Kontrolle über die Vermarktung ihrer Erzeugnisse.

Eine Verbesserung des Marktzugangs bedeutet demnach kleinbäuerliche Haushalte in die Lage zu versetzen, in stärkerem Maße über die Vermarktung ihrer Produktion zu bestimmen. Folglich müssen Kleinbauern in ihrer Wahlmöglichkeit und Verhandlungsmacht gestärkt und unterstützt werden. Zudem sollen Reisproduzenten darin gefördert werden einerseits frei über die Absatzkanäle als auch über den Verkaufszeitpunkt bestimmen zu können. Aus diesem Grund benötigen kleinbäuerliche Haushalte neben dem Zugang zu finanziellen Kapital auch Zugang zu Weiterverarbeitungsanlagen und Lagerhallen. Darüber hinaus sind Marktinformation, und Kenntnisse über potentielle Absatzmärkte und Abnehmer, und

der Zugang zu geeigneter Infrastruktur von großer Bedeutung. Diese Bedarfe basieren sowohl auf den gruppenspezifischen, als auch auf übergreifenden Herausforderungen, die kleinbäuerliche Haushalte derzeit daran hindern ihre Vermarktungsstrategien zu verbessern. Folgende Elemente wurden als zentrale Marktbarrieren für kleinbäuerliche Haushalte identifiziert: die finanzielle Abhängigkeit zahlreicher Kleinbauern von informellen Krediten, die unzureichende Verfügbarkeit von Weiterverarbeitungsmöglichkeiten und Lagerungsstätten für Reis, sowie unvorteilhafte Handelsbeziehungen und die begrenzte Verhandlungsmacht seitens der Kleinbauern. Schlechte Verkehrsinfrastruktur und unzureichende landwirtschaftliche Bewässerung stellen zudem eine generelle Beeinträchtigung für die landwirtschaftliche Produktion und Vermarktung dar.

Maßnahmen die darauf abzielen den Marktzugang kleinbäuerlicher Haushalte zu verbessern, sollten daher eine oder mehrere dieser Marktbarrieren adressieren. Im Rahmen der Studie wurden fünf Interventionsbereiche identifiziert:

- Steigerung des Zugangs zu Finanzkapital. Dies kann erreicht werden, indem die finanzielle Inklusion von Kleinbauern durch die Entwicklung bedarfsgerechter Finanzprodukte verbessert wird. Gleichzeitig muss der Zugang kleinbäuerlicher Haushalte zu Banken durch Fortbildung gezielt gestärkt werden. Eine andere Option besteht in der Diversifizierung der Einkommensquellen beispielsweise durch die Förderung integrierter landwirtschaftlicher Anbausysteme sowie durch die zusätzliche Erschließung von nicht-landwirtschaftlichen Einkommensquellen. Darüber hinaus ist es sinnvoll, die Produktionskosten zu reduzieren, indem die Anwendung Technologien oder Anbaupraktiken gefördert werden, die den Einsatz externer Betriebsmittel reduzieren.
- Erweiterung des Zugangs zu Lagerungs- und Weiterverarbeitungsanlagen. Dazu sollte die Verfügbarkeit von Weiterverarbeitungsanlagen durch die Mobilisierung staatlicher und privater Investitionen verbessert werden. Bauernorganisationen müssen gestärkt werden, um bestehende staatliche Unterstützungen für Investitionen in Verarbeitungsanlagen besser zu nutzen. Außerdem sollte der Zugang kleinbäuerlicher Haushalte gestärkt werden, indem Quotenmodelle und Anreizsysteme entwickelt, sowie Gebühren und Mengenanforderungen an die Gegebenheiten kleinbäuerlicher Haushalte angepasst werden.
- Verbesserung der Marktanbindung für kleinbäuerliche Haushalte. Existierende Marktbeziehungen sollten durch eine Stärkung der Verhandlungsmacht, die Unterstützung von kollektiven Maßnahmen und die Förderung der Koordination innerhalb der Wertschöpfungskette verbessert werden. Mögliche Aktivitäten sind: Bereitstellung von Qualitätsinfrastruktur, um faire Preisfindungs-

mechanismen zu etablieren; *Capacity Building* für Bauernorganisationen; und die Entwicklung eines Verhaltenskodex für alle Akteure in der Reiswertschöpfungskette. Die Erschließung neuer Märkte und Marktnischen kann zudem wesentlich zur Absatzsteigerung und zur Verbesserung der Marktzugangs von Kleinerbauern beitragen.

- Verbesserung des Zugangs zu Marktinformationen. Dazu müssen aktuelle und qualitativ hochwertige Marktinformationen, insbesondere Preisinformationen, Nachfragewerte und Wettervorhersagen von unabhängigen Informationsquellen zur Verfügung gestellt werden. Außerdem sollte der Wissensaustausch zwischen kleinbäuerlichen Haushalten zu Vermarktungs- und Produktionsthemen durch externe Unterstützung weiter gefördert werden. Zusätzlich wird empfohlen landwirtschaftliche Beratungsdienste intensiver für vermarktungsrelevante Themen und betriebswirtschaftliche Förderung zu sensibilisieren und diese Themen vermehrt in Trainingsmodule zu integrieren.
- Ausbau von Infrastruktur. Durch die Verbesserung des öffentlichen Verkehrsnetzes sowie den Bau und die Sanierung von Bewässerungsanlagen wird eine breitenwirksame Entwicklung ermöglicht. Um die bestmögliche Wirkung zu erreichen, sollten Infrastrukturmaßnahmen in enger Absprache und Beratung mit der lokalen Verwaltung getätigt werden.

Unter Berücksichtigung der Ausrichtung der „Better Market Linkages" Komponente, der Interventionsebene sowie der verbleibenden Laufzeit des BRIA-Projekts wurden Empfehlungen entwickelt, die auf den obigen Interventionsbereichen aufbauen. Um marktorientierte Reisproduktion, unternehmerisches Handeln sowie Marktanbindung zu fördern, empfiehlt die Studie Aktivitäten, die auf folgende Ergebnisse abzielen:

- Befähigung von Kleinbauern ihre Vermarktung proaktiv zu verbessern.
  Es scheint ratsam, dass BRIA die Verfügbarkeit von und den Zugang zu Informationen adressiert, die Fähigkeit informierte Entscheidungen zu treffen sowie Anforderungen zu erfüllen, die spezifisch für einzelne Vermarktungswege sind. Es ist zu erwarten, dass durch den verbesserten Zugang zu Marktzugang neue Marktanzreize entstehen und somit die Marktorientiert der Kleinbauern gesteigert wird. Es wird empfohlen:

  → *Peer-Learning*-Plattformen für Reis-Kleinbauern auf lokaler Ebene zu etablieren, um den Wissensaustausch über existierende Möglichkeiten der Vermarktung und deren Potentiale zu initiieren,

→ Bestehende Trainings-Module für Berater systematisch zu überarbeiten, um Themen und Dienste zur inhaltlichen Komponente Vermarktung auszuweiten,

→ *Plattformen und Veranstaltungen* zu organisieren, um persönliche Beziehungen zwischen möglichen neuen Handelspartnern zu etablieren und somit die Entstehung von Netzwerken zu fördern.

- Stärkung von Bauernorganisationen als vorteilhafte Marktanbindung für Kleinbauern. Hier wird empfohlen, dass BRIA einen Schwerpunkt auf die Verbesserung der internen Managementstrukturen der Bauernorganisationen sowie deren Praktiken zur Reisvermarktung und die entsprechenden Ausrichtung an den Bedarfen kleinbäuerlicher Haushalte legt. Es wird erwartet, dass besser geführte Bauernorganisationen, die in der Lage sind ihre Reisvermarktung zu optimieren und gleichzeitig die Bedarfe ihrer Mitglieder konsequenter berücksichtigen, kleinbäuerlichen Haushalten als vorteilhafte Marktanbindung dienen können. Es wird empfohlen:

  → Lokale *Stakeholder* darin zu unterstützen Management-Trainings für Bauernorganisationen anzubieten, um deren interne Organisationsstrukturen zu verbessern,

  → Lernplattformen für Bauernorganisationen zu etablieren, um die Vorteile gut geführter Organisationen anhand von Praxisbeispielen zu präsentieren,

  → Ein Anreizsystem zu entwickeln, um Bauernorganisationen zu ermutigen ihre Dienstleistungen für reisproduzierende Kleinbauern zu verbessern.

- Unterstützung von gemeinschaftlichem Handeln innerhalb der Reis-Wertschöpfungskette um existierende Potentiale besser nutzen zu können. Dazu könnten Plattformen für den Austausch innerhalb der Wertschöpfungskette durch BRIA initiiert werden. Es wird erwartet, dass ein verbesserter Austausch innerhalb der Wertschöpfungskette Koordination und Zusammenarbeit unter den Akteuren verbessert. Dies wiederum lässt Effizienzgewinne, eine höhere Anpassungsfähigkeit für Herausforderungen und neue Produktentwicklungen erwarten, wodurch auch kleinbäuerliche Haushalte profitieren können. Es wird empfohlen:

  → Einen partizipativen Entwicklungsprozess der Wertschöpfungskette anzustoßen, indem unterschiedliche Akteure in aufeinanderfolgenden Workshops zusammengebracht werden. Auf diese Weise soll die Entwicklung lokaler Lösungsansätze unterstützt werden.

→ Landwirtschaftsmessen zu nutzen, um die Vernetzung der Akteure weiter zu fördern.

Die größtmögliche Wirkung wird erzielt, wenn diese drei Interventionsbereiche gleichzeitig adressiert werden, indem Marktpotentiale für einzelne Kleinbauern und neue Handelsbeziehungen zur Vermarktung durch Bauernorganisationen gefördert werden sowie zu einer zusätzlichen Wertschöpfung und dem Austausch innerhalb der Reis-Wertschöpfungskette beigetragen wird.

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Abbreviations

ADB	Asian Development Bank
AEW	Agricultural Extension Worker
AFFP	Agriculture Fisheries Financing Program
AMP	Agri-Microfinance Program
ASEAN	Association of Southeast-Asian Nations
ATI	Agricultural Training Institute
BEAF	Advisory Service on Agricultural Research for Development
BMZ	German Federal Ministry for Economic Cooperation and Development
BRIA	Better Rice Initiative Asia
CBAP	Cooperative Banks Agri-Lending Program
CDA	Cooperative Development Authority
CPU	Central Philippine University
DA	Department of Agriculture
DA-AMAD	Department of Agriculture Agribusiness and Marketing Assistance Division
EC	European Commission
ESFIM	Empowering Smallholder Farmers in Markets
FACOMA	Farmers' Cooperative Marketing Association
FO	Farmer Organization
FSSP	Food Staples Sufficiency Program
GDP	Gross Domestic Product
GFP	German Food Partnership
GIZ	German Agency for International Cooperation
GTZ	German Agency for Technical Cooperation
GVA	Gross Value Added
IA	Irrigators' Association
IRRI	International Rice Research Institute
LGU	Local Government Unit
MAO	Municipal Agricultural Officer
MSI	Masaganang Sakahan, Inc
NEDA	National Economic and Development Authority
NFA	National Food Authority

NGO	Non-Governmental Organization
NIA	National Irrigation Administration
PCDO	Provincial Cooperative Development Office
PCIC	Philippine Crop Insurance Corporation
PDP	Philippine Development Plan
PhilMech	Philippine Center for Postharvest Development and Mechanization
PhilRice	Philippine Rice Research Institute
PHP	Philippine Peso
PRA	Participatory Rural Appraisal
PSA	Philippine Statistics Authority
RBFH	Rice-based Farm Household
RPC	Rice Processing Center
SEC	Security and Exchange Commission
SLA	Sustainable Livelihood Analysis
SLE	Seminar für Ländliche Entwicklung (Centre for Rural Development)
SRI	System of Rice Intensification
SSP	Sikat Saka Program
SWOT	Strengths, Weaknesses, Opportunities and Threats
VCA	Value Chain Analysis

Glossary

Barangay	Smallest administrative unit in the Philippines. Native Filipino term for village or district.
Bodega	Storage facility or warehouse
Canvassing	To investigate market prices by comparing different buyers.
Carabao	Water buffalo used to plow lowland rice fields
Caretaker	Cultivate and manage the agricultural farmland of land owners. All necessary production inputs are provided by the land owner who is also the decision maker. The caretaker gets paid in-kind for his work.
Custom-milling	A service that is provided by millers, mobile millers or local *kono*-mills, facilitating the processing of palay into milled rice in exchange for a milling fee.
El Niño	A recurring weather phenomenon caused by warming of the Pacific Ocean near the equator, leading to drought, in some areas to heavy rainfall, depressing rice yields.
Institutional buyer	Company or organization that purchases large quantities of rice on a regular basis. Can be public or private and often includes, among others: hospitals, schools, hotels, restaurants, private companies.
Jeepney	Popular means of transportation in the Philippines with a front diesel engine, accommodating 20 to 30 passengers and / or goods, of the size of a small bus or truck.
Kono	A local small-scale rice milling facility at *barangay* level.
Palay	Unhusked rice
Ratooning	Growing rice as a perennial crop by letting shoots regrow after harvesting the panicles for one or two subsequent crops. Ratooning is a traditional production method.
Remittances	Remittances are funds transferred from migrants to their home country.
Sari-sari store	A local convenience store.

Suki	Suki relationships are deeply embedded in the Filipino culture. They describe a business relationship that has developed over years into a regular exchange. They are based on trust and create a platform for personal relationships that can evolve from purely economic reasons into genuine friendships. Within suki relationships special benefits are shared among partners. In such suki arrangements, transactions are completed despite the fact that a higher price could be achieved with a different business partner.
System of Rice Intensification	SRI is a low external input to increase rice yields by managing plants, soil, water and nutrients in a way to create the most suitable growing environment for rice.
Utang	Utang na loob is called a debt or obligation of gratitude (a form of reciprocity). This may include an informal credit offered to friends or relatives based on trust and that the debtor will repay. It is granted to farmers to finance their production, or to retailers and customers who receive milled rice but cannot pay immediately.
Vermicomposting	Vermicomposting is a means of using earthworms and mircoorganisms for composting plant residues into a high quality organic fertilizer and soil conditionar called vermicompost ("worm castings").
Weight of a sack of milled rice	49.5-50 kg
Weight of a sack of palay	42-45 kg

1 Introduction

Efforts to link smallholder farm households to markets and thereby improve their market access have been a crucial part of many rural development strategies of the past decade. Functioning and accessible markets, particularly for agricultural commodities, are vital for agricultural growth to unfold its potential as a powerful driver of rural poverty reduction (Byerlee, de Janvry, Sadoulet 2009; World Bank 2007).

Smallholder farm households access markets as producers when selling their agricultural products but also as consumers satisfying their immediate consumption needs. These markets are characterized by limited information flows, high transaction costs and power imbalances leading to limited choices and constrained bargaining power for farm households. As a consequence, farm gate prices are depressed and production incentives are distorted (Kydd, Dorward 2004). Hence, improving market access is critical to enable farm households "to enhance their food security and increase their incomes" (IFAD 2003:5).

In the Philippines, rice is one of the main agricultural commodities that not only supports the livelihoods of around 45% of Filipino farm households but also serves as the country's main food staple (ESFIM 2010). Thus, political efforts are split between simultaneously securing remunerative farm gate prices and affordable consumer prices. However, comparatively high production costs and inefficient rice marketing render this a difficult task (Dawe et al. 2007; Briones 2014). Consequently, improving market access for smallholder farmers in the Philippines is assumed to bridge the gap between affordable consumer prices for food security and remunerative farm gate prices for poverty reduction.

Various approaches to improve smallholder farm households' market access have been tested and implemented in international development cooperation projects.

A common approach is to establish inclusive business models that contribute towards mutual benefits for both smallholder farmers and businesses. For example, a contract farming agreement can provide a farm household with production inputs and services in exchange for the delivery of the harvest to their partner. While various arrangements exist, none of them can be assumed to be beneficial per se. They need to be designed carefully to consider smallholder farm households needs and realities (GIZ 2014; Gradl et al. 2012; Prowse 2012).

Another approach targets farmer organizations (FO) in order to improve collective action among smallholders that would increase their bargaining power and

economies of scale. Despite the assumed benefits, implementing collective action has proven difficult in the past due to governance issues. Thus, context-specific ways need to be identified to effectively strengthen collective action (Gyau et al. 2014; Hellin, Lundy, Meijer 2009; Markelova et al. 2009).

While the former two approaches attempt to reorganize smallholder agricultural production, a third approach targets the information asymmetries prevalent in rural economies. Market information systems that provide information on prices, weather, demand and possible trading partners are assumed to improve smallholders' market position and decision-making capabilities. It is important to identify appropriate information-sharing channels, funding mechanisms and needs-oriented content (Aker 2011; Magesa, Kisangiri, Ko 2014; Shepherd 1997).

In line with improving their decision-making and market position, niche markets with low volumes have been identified as better suited for smallholder farmers' production realities. Here, they hold a comparative advantage and may potentially receive higher prices. A market-matching exercise such as this needs to be based on a thorough understanding of demand characteristics and farm households' capacities (Ferris et al. 2014).

In light of these different approaches, this study was commissioned by the Advisory Service on Agricultural Research for Development (BEAF) to identify entry points (Chapter 7) and to develop specific recommendations for the Better Rice Initiative Asia (BRIA)[1] (Chapter 8), enabling it to implement measures that will improve the market access of smallholder rice farmers in Iloilo Province. Therefore, a thorough context analysis of the Philippines' rice sector and the project site (Chapter 2) lays the groundwork for an empirical analysis of the rice value chain (Chapter 5) and smallholder farm households' livelihoods (Chapter 6). This combined approach was chosen due to the fact that smallholder farm households are highly diverse and do not possess the same means to access any given market opportunity (Chapter 3). Empirical data has been collected using a variety of interview-based tools (Chapter 4).

1 The Better Rice Initiative Asia (BRIA) is a public-private partnership under the German Food Partnership (GFP) implemented by the German Agency for International Cooperation (GIZ). The initiative is implemented in Indonesia, Thailand, Vietnam and the Philippines. BRIA Philippines has three project components addressing rice production practices, market linkages and advocacy.

2 Context

The Philippines, an archipelago with 7,107 islands of which 800 are inhabited, consists of three main geographic regions: Luzon in the North, the Visayas in the Center and Mindanao in the South. Since the Philippine's decentralization reform in 1991, the country is subdivided into 81 provinces consisting of 1,490 Local Government Units (LGUs) on the subnational level, which comprise 144 cities and and 42,028 *barangay*s[2] (ADB 2009; World Bank 2000). Due to its geographical location, the country is often severely affected by natural disasters and extreme climate events. Weather impacts and climate variability such as El Niño[3] cause droughts and typhoons, exposing the Philippines to different kinds of risks. Furthermore, being situated across seismically active tectonic plates, an area known as the Pacific Ring of Fire, the Philippines are vulnerable to natural hazards such as volcanic eruptions and earthquakes (Cruz et al. 2007).

2.1 Socio-economic context

A tripling in population within the last 50 years has increased the population of the Philippines to over 100 million in 2015 making it the 13th biggest country in the world and resulting in a problematic population density in some urban areas (PSA 2015). Increasing urbanization is linked to a growing manufacturing and service industry that contributes to about 90% of the country's overall Gross Domestic Product (GDP) (World Bank 2015a). These economic sectors are responsible for the Philippine's classification as a Newly Industrialized Country and its classification as a lower-middle income country by the World Bank (Bożyk 2006:164; World Bank 2015b). Despite a continuous average annual growth rate of 5% since 2002, unemployment and underemployment are still an issue. Furthermore, income gains are unequally distributed among the population (ADB 2009). Consequently, the last three decades have been characterized by a large-scale migration of Filipino workers. Currently, the Philippines provide one of the biggest overseas workforce (ca. 10 million worldwide, most of them working in the service and production sector (CFO 2013). Additionally, domestic labor migration from rural areas to urban centers including Manila and Cebu is steadily increasing (ibid.).

2 A *barangay* is the smallest administrative division in the Philippines.

3 An oscillation of the ocean-atmosphere system in the tropical Pacific that has significant consequences on the global system.

Despite this rapid urbanization, more than 50% of the population live in rural areas and depend on agriculture (PSA 2015).The country's main agricultural crops are rice, corn, coconut, sugarcane, bananas, pineapple, coffee, mangoes, tobacco, and abaca. The Filipino agricultural sector not only provides income opportunities for a large part of the population, it also provides the main staple food crop: rice.

A popular saying in the Philippines says: "If you haven't had your rice today, then you have not eaten" (Santiaguel 2013). This emphasizes the importance of rice in the Filipino cuisine, despite the growing popularity of fast food and the increasing substitution of rice by bread, noodles and other cereal products (Aguilar 2008). Although annual rice consumption has dropped from a record level of more than 128 kg per person in 2008 to 114 kg per person in 2014, rice still remains the most important source for caloric intake (Santiaguel 2013 and Aguilar 2008).

2.2 Philippine rice sector

The Republic of the Philippines is the world's eighth-largest rice producer (GRiSP 2013). However, the country's harvested rice area is small compared to other major rice-producing countries in Asia. In the Philippines, rice is mostly grown on small family-based farms with an average size varying from less than 0.5 to 4.0 ha (PSA 2015). The possibility of increasing this harvested area is nearly exhausted and yield increases have begun to slow down (Dawe, Moya, Casiwan 2007). With approximately 4.2 million ha of rice farming land and a production of about 11.2 million metric tons of milled rice, rice produced in the Philippines can only satisfy 90% of the domestic demand (PSA 2015). Added to that, the constantly growing population has rendered domestic rice production gains insufficient and made the Philippines the biggest rice importer in the world (Dawe, Moya, Casiwan 2007). Thus, 10% of the annual rice consumption requirements are covered by low-priced, imported rice mostly from Thailand and Vietnam (GRiSP 2013). In order to compete with the low-priced imports, the domestic rice price is constantly decreasing, thus putting further pressure on production costs. Low levels of mechanization and the dependency on labor input are among the reasons why palay[4] production costs are higher in the Philippines than in other ASEAN[5] rice-producing countries. While rice growers in the Philippines spend an average of 10 Philippine Pesos (PHP) to produce one kilogram of palay, their counterparts

4 Unhusked rice.

5 Abbreviation for Association of Southeast-Asian Nations

in Vietnam and Thailand only need to invest 5 PHP and 8 PHP respectively, to yield the same volume (GRiSP 2013). These productivity constraints have effects on the agricultural sector itself. Profound changes have to take place concerning the adoption of technology, marketing practices and value chain finance, which all affect the overall structure, in order to compete with other ASEAN rice producers (Reardon et al. 2014).

As a consequence, rice prices for consumers and farm-gate prices for farmers are some of the highest in developing Asia (GRiSP 2013). The high consumer prices are enforced through an import control carried out by the National Food Authority (NFA), a government agency, which also procures 4 to 6% of the domestic palay at fixed government support prices. The NFA also engages in rice distribution by selling milled rice to consumers at subsidized prices through accredited retailers/wholesalers (Intal, Garcia 2008).

Rice: a political crop

The Philippine rice sector has always been at the center of the government's agricultural policies, since it accounts for 17.4% of the Gross Value Added (GVA) in agriculture, and 3.5% of the total GDP. It provides a source of income to the value chain actors on the demand and supply side, representing more than three million rice farmers and their families, thousands of traders, millers, retailers, and their families, and numerous individuals employed in the processing, distribution, and sale of its related products (Intal, Garcia 2008). As rice is the main staple food in the Philippines it is crucial for the nation's economy and hence an important intervention point to promote agricultural development and poverty alleviation. Thus, rice is a highly political and socially sensitive commodity in the Philippines.

Government programs in the rice sector

The government's most important political goals in the rice sector consist of achieving self-sufficiency and fair income levels for rice farmers, while making sure that consumer prices remain stable (Mariano, Giesecke 2014). The strategic framework for programs undertaken by the government and its implementing agencies is set by the Philippine Development Plan for 2011-2016 (PDP). In line with the PDP, the Department of Agriculture (DA) has launched its overall strategic framework for 2011-2016: the Agrikulturang Pilipino (Agri-Pinoy). Under Agri-Pinoy, the DA has implemented the Food Staples Sufficiency Program (FSSP) with a key focus on self-sufficiency in rice. Within the FSSP, the Agri-Pinoy Rice Program is of central importance. The program's support covers several issues: "research and development, rice production; irrigation; post-harvest and other infra-

structure facilities; market development services; extension, education and training services" (DA 2015).

Mechanization is considered to be a key intervention area by the government and its implementing agencies are looking to improve the overall productivity of the agricultural sector and thus make it globally competitive. To support and address the national government program to increase farm and labour productivity, the DA is currently implementing the Rice Mechanization Program, which grants combined harvesters, threshers, dryers and warehouses to eligible FOs via an 85:15 cost sharing scheme, wherein the DA bears 85% of the total costs. Under the program, the Agribusiness and Marketing Assistance Division (DA-AMAD) implements the provision of Rice Processing Centers (RPC) to cooperatives.

Alongside the DA's objective to strengthen rice production through mechanization, investments are on one hand allocated to organic farming and on the other, to the promotion of high-yielding hybrid seed varieties. Thus, a coherent and systematic strengthening of the agricultural sector remains a key challenge. Among the three main sectors of the Philippine economy, agriculture is the most neglected in terms of investments and development. It has not received adequate resources for the funding of critical programs or projects, such as the construction of irrigation systems. Efficient government support of the agricultural sector is slowed down by the DA's decentralized structure. In particular, coordination between the DA's implementing agencies at national and regional levels on one hand and provincial and municipal levels on the other, continues to be rather weak, resulting in an inefficient delivery of financial and extension services (Magno 2001; Intal, Garcia 2008).

Agricultural support services

Governmental delivery of extension services has been greatly influenced by the decentralization reform, as it has led to a shift in responsibility regarding agricultural extension from the central government to the provincial, city and municipal level (World Bank, 2000). Since then, about 77% of extension staff and 65% of the budget are controlled by LGUs (Tenorio, Aganon 2006). LGUs are the frontline agencies in agriculture support services. They deliver extension and on-site research services to farmers. LGUs are in charge of planning and implementing locally initiated programs and projects related to agricultural development. Agricultural Extension Workers (AEW) are employed by LGUs to organize educational activities and provide advisory services to individual farmers. Provincial agriculturists are in charge of coordinating and supervising extension plans and programs in each locality (Magno 2001). The Agricultural Training Institute (ATI), the extension

and training arm of the DA, has the mandate to train the DA's agriculture staff and LGUs' extension staff. However, the delivery of local extension services is impeded by several factors such as problems concerning limited capacities and resources, partisan local politics and uncertain lines of financial accountability between central government agencies and the LGUs (World Bank 2000).

Alongside the governments' engagement to strengthen agricultural support, various service providers such as academic institutions, non-governmental organizations (NGOs) and private agri-business companies are involved in the provision of agricultural support services in the Philippines. Whereas the scope and coverage of NGOs is very limited, private agri-business companies organize demonstration plots, provide information on their products and advisory services to customers (Tenorio, Aganon 2006).

Furthermore, the government encourages FOs to become a key stakeholder in agricultural extension services. A growing number of FOs are involved in community organizing, skill-based trainings, distributing training materials and promoting agricultural technologies (Tenorio, Aganon 2006).

Agricultural credit and rural finance

The provision of agricultural credit and rural finance is important to strengthen the agricultural sector. During the last two decades, the rural financial market in the Philippines has gone through various stages of development in order to increase the flow of credit towards the agricultural sector. In 1998, market-oriented reforms led to government-subsidized loans that have been implemented under the Agro-Industry Modernization Credit and Financing Program (AMCFP), created by virtue of the Agriculture & Fisheries Modernization Act (AFMA) [Republic Act 8435]. Currently, there are four credit facilitation programs: i) Cooperative Banks Agri-Lending Program (CBAP), ii) Sikat Saka Program (SSP), iii) Agri-Microfinance Program (AMP) and iv) Agricultural and Fisheries Financing Program (AFFP). All credit programs adhere to market-based principles that ensure funds to private finance institutions, NGOs, peoples' organizations and individuals (Geron, Casuga 2012).

Although the financial and credit policy reforms led to a proliferation of financial institutions, an improvement in bank density, and the provision of new products to bank customers (Llanto 2004), the expected increase in credit flows to small farmers and other small-scale borrowers did not occur. Rural areas still suffer from limited access to financial services provided by formal banks. According to finance experts, rural credit delivery is constrained by weak institutions, a lack of coordination and collaboration of the rural finance sector and inadequate mechanisms to enforce credit constraints (Gualberto 2007).

As formal institutions do not serve the credit demand for a significant segment of the borrowing population in rural areas, informal credit markets prevail. Aspects such as easy accessibility and the limited requirements of informal loans prevail over the low interest rates offered by formal financial institutions. After an overview of agriculture and more specifically rice production in the Philippines, the next section presents the study region.

2.3 Profile of the study region

Iloilo Province is one of four provinces located on Panay Island, one of the largest islands in the Western Visayas Region (Administrative Region VI of the Philippines; see Figure 1).

Figure 1: Administrative map of the Philippines and Iloilo Province

Source: wikimedia commons https://en.wikipedia.org/wiki/Iloilo#/media/File:Ph_fil_iloilo.png, January 12, 2015)

Region VI is the third largest regional economy in the country, the biggest outside Luzon, and the fastest growing economy among the Visayas regions. Located in the southeastern corner of Panay Island, Iloilo Province has 43 municipalities with a population of about 1.8 million, more than half of whom live in rural areas (PSA 2015). The capital is the City of Iloilo (Iloilo City).

According to the Family Income and Expenditure Survey (PSA 2006), the annual average family income in Iloilo Province is 144,675 PHP (about 2,811 euros), which is among the highest average household income rates in the Philippines. Likewise, income inequality in Western Visayas is less severe compared to the national average (ADB 2009).

Economic and infrastructure development is constantly increasing in Iloilo Province. From 1988 to 2004/2005, access to potable water, electricity and telephone line density has significantly improved, while road density changed only slightly. Most of the Philippine road network consists of gravel and tertiary roads (Donnges et.al 2007). Insufficient transport infrastructure continues to be a key challenge for Iloilo Province. Especially in rural areas, infrastructure falls behind national standards (ADB 2009). Nonetheless, the provincial capital of Iloilo City represents an important import and export trading hub in the Western Visayas, equipped with important transport infrastructure such as a major maritime port and an international airport.

The climate pattern of Iloilo Province belongs to the Type 1 Climate Zone based on the Corona Classification, which is characterized by two pronounced seasons: dry from November to April and wet for the rest of the year. Its location between the wet/typhoon prone and dry/hot belts of the archipelago results in the likelihood of high rainfall variability (PIDS 2005). Soils are mostly thick and fertile, thus suitable for agricultural production. Clay and loam soils are predominant, which make the land conducive to rice production (ADB 2009). Further details are available on the characteristics of rice production in Iloilo Province and the municipalities surveyed in Annex 9.3.

The Western Visayas are the largest rice-producing region of the Visayas, contributing 11.3% to the national rice production. Region VI is self-sufficient in rice, estimated at 136% in 2009, making it a major rice supplier to other parts of the country (NEDA 2011). The region has a total agricultural area of 666,917 ha (32% of the total land area). In 2014, a total of 2,292,201 tons of palay were being produced on 668,810 ha, representing a 26.4% share of the total palay production in the Visayas with an average yield of 3.4 t/ha (PSA 2015).

In Iloilo Province, rice is cultivated on 197,831 ha (57% of the total agricultural land area). In 2010, more than 114,000 rice farmers produced some 685,000 t of palay through irrigated and rain-fed agriculture. Provision of adequate irrigation is still a key challenge: only 41% of the cropping area is currently irrigated (NEDA 2011). Rice planting is adapted to local climate conditions, marked by the beginning of the first cropping in June and second cropping in October. A comprehensive overview of the necessary production and processing steps to convert palay to milled rice is given in Annex 9.4.

For a better understanding of the study area, the municipalities of Santa Barbara, Pototan, Oton and Ajuy, which were selected as the main study sites, are introduced in the next section.

Pototan

Pototan is labeled "the rice granary of Western Visayas". Due to its total LGU income of more than 122,800,000 PHP, it is classified as a first class municipality. Only 10% of the population lives in urban areas. Thus, most income opportunities are provided by the agricultural sector. The total land size devoted to rice production is 3,500 ha with one third representing rain-fed rice and 2,400 ha of irrigated production area. The average farm size is around 1.85 ha and slightly bigger than in the neighboring municipalities. In the municipality of Pototan, land is generally flat while some parts have rolling hills, with the highest elevation measuring 30 to 50 meters above sea level, which results in mostly low-land rice production. In 2011, a modern rice processing center was set up in order to boost rice production within the municipality. The local government is working on an integrated farming project called Palayamanan to strengthen rice production but also other crops, vegetables and livestock.

Santa Barbara

In Iloilo Province the municipality of Santa Barbara is classified as a second class municipality with a total LGU income of 85,424,000 PHP (PSA 2015). The lowland area of Santa Barbara is mainly used for agricultural production with one third (2,610 ha) representing a rice-production area. The average farm size is relatively small with 1.62 ha. Only 15% of the rice producing farm households are connected to irrigation systems. The local government has set up future investment projects to further improve the irrigation system. The transport infrastructure condition is good and larger investment projects are set to be implemented within the coming years.

Oton

Oton is a first class municipality with the highest total LGU income of all the study sites, at 127,522,000 PHP. Rice is the main crop in Oton, grown on a total area of almost 5,650 ha with 60% of the rice production being irrigated and 40% being a rain-fed production area. Rice production is mostly undertaken on low-land with an average farm size of 1.47 ha. The Municipality of Oton is challenged by water scarcity. Due to the newly built airport, Oton has been a recipient of infrastructure improvement projects. During the past years, the municipality has made increasing investments in the construction of roads and irrigation systems.

Ajuy

Ajuy is a second class municipality and as such has the lowest LGU income rates of the four selected municipalities (78,120,000 PHP). The majority of Ajuy's population works in the rice sector and average farm size ranges from 1 to 5 ha. Around 60% of rice farmers have access to irrigation, mostly on low-land production sites. Ajuy is characterized by a distinctive number of upland rice farms that are mostly rain-fed. The local MAO identified the weak transport infrastructure as a key challenge for Ajuy as upland rice farm areas in particular are easily disconnected during rainy season. Around 70% of the palay produced in Ajuy is traded to Negros Occidental and the rest goes through Iloilo City or Masbate Island. Furthermore, Ajuy was highly affected by typhoon Yolanda in 2013 and thus has received support from development aid organizations' programs that focus on resilience strengthening and rehabilitation.

3 Conceptual framework

The following chapter outlines the research design and the study's underlying concepts. More precisely, these include the study's understanding of market access as well as a partial Value Chain Analysis (VCA) and the Sustainable Livelihoods Analysis (SLA).

3.1 Research design

In order to develop context-specific and needs-oriented recommendations and to identify interventions to improve market access, the livelihoods of smallholder rice farmers have been analysed in relation to market access. In addition to smallholders' interaction in rice markets, the rice value chain needs to be assessed in order to identify bottlenecks for farm households[6] to access markets (see Figure 2). The three underlying theoretical concepts are explained in detail below.

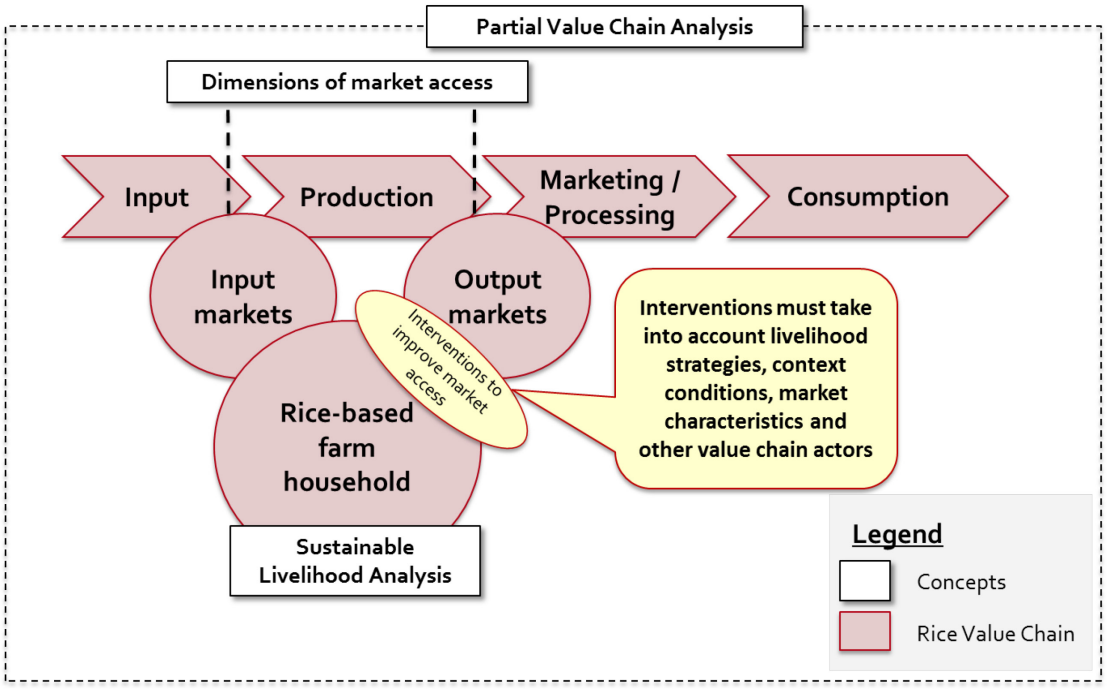

Figure 2: Research design

Source: own illustration

6 The term "farm households" refers to local rice-based farm households with a farmland size ranging up to 5 ha. (ESFIM 2010)

3.2 Dimensions of market access

To fully understand smallholder farmers' potential and constraints regarding their participation in the local rice value chain, it is necessary to firstly identify the crucial factors that determine market access.

Market access commonly focuses on physical access constraints measured in travel time to markets (Chamberlin, Jayne 2013). However, recent research has revealed that "market access has multiple dimensions [...] which may not be easily reducible to a single index or all-purpose indicator" (Chamberlin, Jayne 2013: 264). Therefore, the study developed a multi-dimensional definition of market access based on existing literature (Arias, Hallam, Ekaterina, Morrison 2013; Barrett 2008; Ferris et al. 2014; IFAD 2003):

> *Market access can be constrained by six dimensions, which determine the capabilities of and incentives for market actors to regularly find and/or seek buyers for their produce who pay a remunerative price.*

Accordingly, farm households' market access can be constrained by:

- Product requirements (e.g. quality and quantity standards demanded by down-stream value chain actors);
- Physical conditions (e.g. lack of post-harvest facilities or geographical proximity to markets);
- Market structure (e.g. unfavorable market agreements for farm households stemming from tied-output credit relationships);
- Marketing costs (e.g. unprofitability of marketing due to high transportation costs and low producer prices);
- Access to and use of agricultural support services (e.g. limited access to financial support services or agricultural extension services);
- Farmers' capacities / assets (e.g. capital to finance production or human assets, such as market knowledge and entrepreneurial skills).

Based on the diverse set of market access determinants, it has become evident that it is necessary to apply appropriate concepts to grasp the local reality. Therefore, the study adopted a partial Value Chain Analysis (VCA) and the Sustainable Livelihoods Analysis (SLA).

3.3 Value Chain Analysis

The VCA serves as an analytical lens to understand the complex mechanisms of markets, the relationship and linkages between its actors and their respective constraints as well as their opportunities. Thus, the VCA focuses on all activities related to the production, processing, trading and consumption of a commodity. The study applied a partial VCA to map the rice value chain. In this context, relevant stakeholders, namely value chain actors and service providers, have been identified and analyzed. Value chain actors include all stakeholders involved in the trading of a particular product as it moves through the entire chain, in this case farmers, traders, processors, retailers and final consumers. Service providers encompass regulatory agencies, extension services and financial services that support the entire value chain's operations (cf. GTZ 2007: 55-60).

As such, the partial VCA helps to identify demand-side induced (i.e. product requirements) and linkage-related (i.e. market structure) market access constraints and potentials. The partial VCA includes the following research steps:

- Mapping of value chain actors as well as their functions;
- Mapping of existing marketing channels;
- Service analysis;
- Partial economic analysis (i.e. farm-gate prices);
- Identification of strengths and weaknesses of the rice value chain.

However, the VCA's focus on a single commodity (e.g. rice) neglects the complex livelihoods of farm households in developing countries. Therefore, a SLA has been applied to help understand the complexity of peoples' living conditions (EC 2011: 25).

3.4 Sustainable Livelihood Analysis

The livelihoods of farm households in developing countries often rely on a diversified farm structure and a combination of on- and off-farm income sources, which influence household decision-making and their attitude towards agricultural intensification (Hazell, Rahman 2014; World Bank 2007).

The SLA aims to identify farm households' access to resources and livelihood assets, as well as their resulting livelihood strategies, in order to determine specific interventions for an improved market access that satisfies the diverse needs.

Key elements of the SLA are illustrated in the Sustainable Livelihood Framework (see Figure 3).

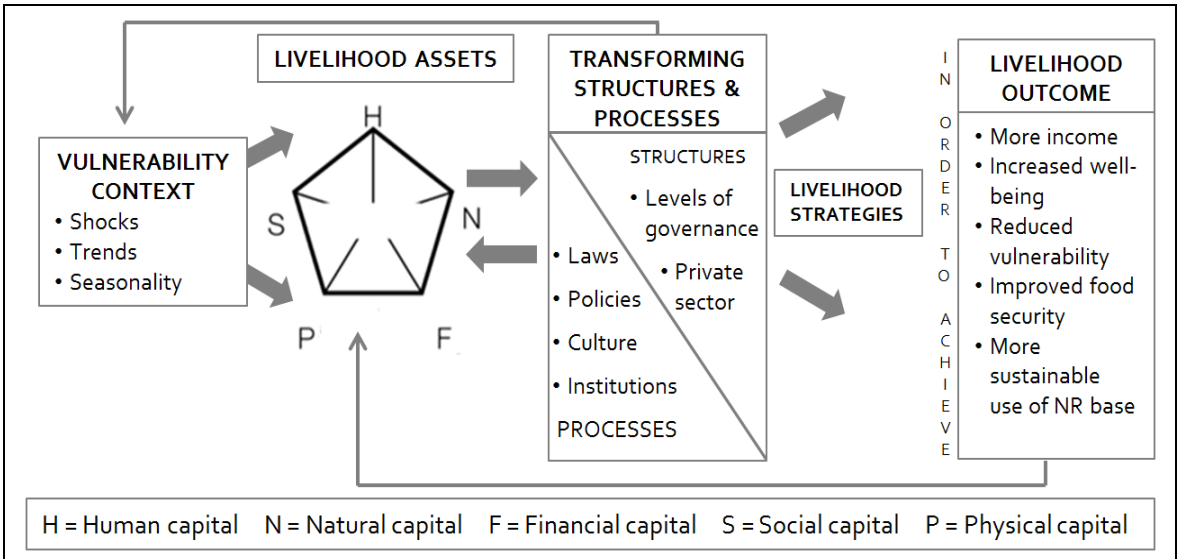

Figure 3: Sustainable Livelihood Framework (DFID)

Source: own illustration based on Practical Action (2014)

The study adopted the approach to obtain an "accurate and dynamic picture of how different groups of people operate within their environment" (Horemans 2005) and to "identify main [...] [needs] and opportunities" (IFAD n.d.) of local rice-based farm households (RBFH) with regard to market access. Additionally, this is essential to develop context-specific recommendations that are adapted to the needs of different sub-groups of farm households.

As a complete livelihood analysis is not necessary for the study's desired outcomes, the approach has been adapted as follows:

- Identification of livelihood assets and strategies regarding income generation;
- Assessment of the importance of rice marketing within the set of livelihood strategies;
- Identification of the needs of local farm households regarding their potentials and challenges to market rice;
- Clustering of local farm households according to their livelihood strategies and potential to undertake profitable actions to market their produce.

In order to understand the determinants of smallholders' market access, the following set of indicators relates to livelihood capitals in terms of accessing markets. Figure 4 shows the key capacity indicators that have been identified by livelihood capital.

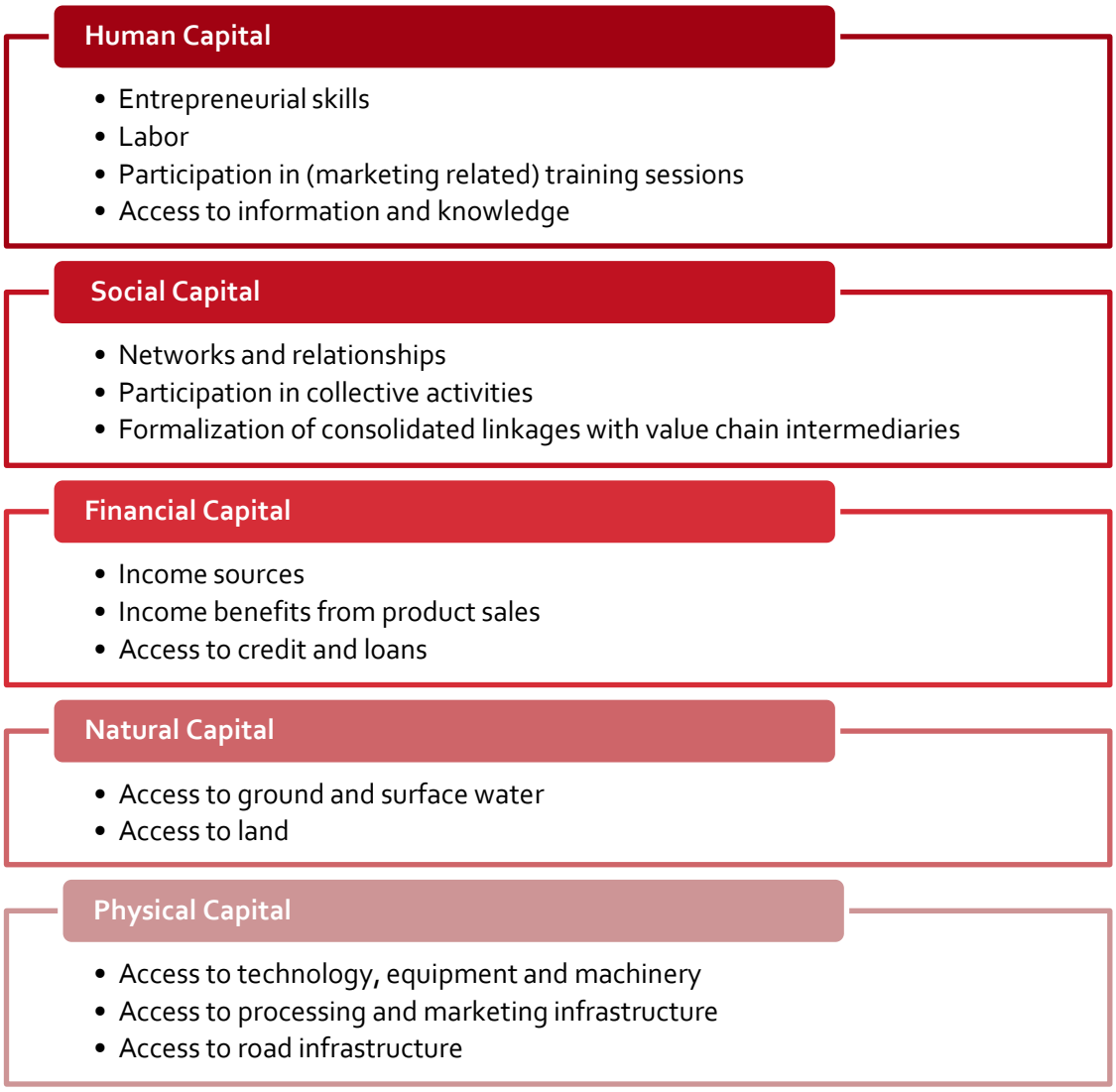

Figure 4: Indicators that define farm households' livelihood assets

Source: own illustration

The combination of the VCA and SLA enables the study to grasp the heterogeneous landscape of farm households and their diverse livelihood strategies. By clustering them according to their market-related livelihood strategies, it is possible to design specific, supportive measures to improve the market access of different groups of farm households. The classification of farm households is based

on a qualitative assessment of their individual market access using the following criteria: i) the marketable surplus; ii) the time of the transaction; iii) the number of marketing outlets; and iv) the freedom to choose a trading party with or without any financial or social obligations. This leads to four groups of farm households ranging from farmers with no market orientation to farmers with severely constrained market access, and farmers with limited options to farmers able to choose from several marketing options (see Table 1).[7]

Table 1: Classification of farm households with regard to market options

	Type of Farm		Criteria
Non-commercial farms	Group 0	Farm households with no market orientation	
Commercial smallholder farms	Group 1	Farm households with severely constrained marketing options	▪ Single marketing channel ▪ With or without freedom of choice ▪ Selling directly after harvest
	Group 2	Farm households with limited marketing options	▪ Multiple marketing channels ▪ Freedom of choice ▪ Selling directly after harvest or one week after
	Group 3	Farm households with marketing opportunities	▪ Multiple marketing channels ▪ Freedom of choice ▪ Sale transaction at the most desirable price available

Source: own illustration

The empirical research methodology has been created by applying the underlying theoretical concepts, the dimensions of market access, the Value Chain Analysis and the Sustainable Livelihood Analysis to the research framework outlined above.

7 Within the following sections the study will refer to the terminology group 0, group 1, group 2 and group 3 in order to describe local farm households and their corresponding market options.

4 Methodology

The study results are essentially based on empirical research. A qualitative research approach facilitated an explorative and in-depth investigation of the research topic on how to improve market access for smallholder rice producers.

4.1 Research units and sampling

In order to develop context-specific and needs-oriented recommendations, smallholder rice producers were put into their household context instead of focusing on individual farmers or rice production units. Taking local living conditions and diversified livelihoods into account, the study places RBFHs as research units at the center of the study. RBFHs are defined as farm households cultivating less than 5 ha with at least one rice crop per year[8]. Data collection focused on the market interactions of RBFHs and their immediate business contacts along the value chain, namely agents, (palay) traders, cooperatives, millers and retailers. As a consequence, in addition to RBFHs, these value chain actors also constitute primary research units, i.e. entities selected for analysis during the field phase.

Interview partners and research locations were selected using stratified purposive sampling (Trochim, Donnelly 2008). The sampling criteria were based on the market access determinants (see Chapter 3.2) and were aimed at obtaining a maximum variation to "capture a wide range of perspectives relating to [...] [market access]" (Lærd n.d.). Consequently, the sample is not representative of the population and the study cannot draw inference from the sample to apply to the overall population.

Santa Barbara, Pototan and Oton were selected as study areas, representing three out of six municipalities within BRIA's intervention area. The selection took into account: production method; average farm size; extension worker-farmer ratio and poverty incidence, using existing aggregated data at municipal level (agricultural profiles) (see Table 2 for an overview of the applied sampling criteria and steps). To cover a wider range of study areas, Ajuy was selected as a municipality outside the BRIA project area. Within each municipality, two *barangays* were selected based on the prerequisite that the sample of *barangays* should include irrigated and rain-fed farms, small to large farms as well as short and long travel

8 According to the Land Bank of the Philippines, farmers with less than 5 ha are considered to be smallholders (ESFIM 2010).

times to trading hubs. Thereby, interviewed farm households covered a wide variety of production contexts.

Table 2: Sampling steps and criteria

Step	Sampling Unit	Criteria
I	Municipality: Santa Barbara, Pototan, Oton and Ajuy	▪ Production method (irrigated / rain-fed) ▪ Average farm size ▪ Extension worker to farmer ratio ▪ Poverty incidence
II	*Barangay*: Cabugao Norte, Calaboa Oeste, Cau-Ayan, Guinacas, Progreso, Santa Rosario, Buray and Caboloan Norte	▪ Production method (irrigated / rain-fed) ▪ Average farm size ▪ Travel time
III a	Rice-based farm households	▪ Production method (irrigated / rain-fed) ▪ Farm size
III b	Value chain actors: agents, traders, millers, retailers	▪ Size (volume traded / processed) ▪ Range of activities

Source: own data

During the orientation period of the empirical research, sampling criteria were validated with the support of experts.

4.2 Toolkit of data collection

A variety of qualitative research tools was used within the scope of the study. Every data collection tool addressed a defined information source and pursued a specific purpose. They were designed to complement each other and to include different perspectives on the research subject.

Structured questionnaires, conducted with RBFHs and value chain actors, constitute one of the predominant data collection methods. The questionnaires include mainly open, but also closed questions with given response categories. This kind of structured questionnaire was chosen because it offers a systematic treatment of the designated interview topics and questions. Furthermore, the questionnaires allow for a minimum level of comparability across the findings of the interviews. The guideline-based interview tool was chosen because it provides an open approach that can be easily adjusted to different interview situations. This

flexibility facilitates in-depth investigation, which was necessary for interviews with service providers along the value chain and experts at different levels.

Apart from that, workshops that included PRA (Participatory Rural Appraisal) tools and focus group interviews were conducted during the field phase. The use of several PRA methods facilitated the disclosure and visualization of the perceptions of RBFHs. One of these PRA-methods is the services and opportunities map, which helps to understand participants' perceptions of the importance and accessibility of existing services providers. In order to develop a services and opportunities map, participants were asked to identify supporting factors for improved market access and to visualize them in the form of a map. The distance of the identified elements to the village illustrates their accessibility, whereas other indicators point to their perceived importance. The PRA seasonal calendar tool has been applied in order to visualize the distribution of seasonally varying phenomena, such as economic activities, resources, production activities, problems, and natural phenomena, over time. Transect walks represent another PRA-tool, which was conducted in several communities. A transect walk is a systematic walk through a designated area, guided by local residents. It is useful to "break the ice" and to gain an initial orientation at a new research site.

Focus group interviews on different topics completed the data collection toolkit. This kind of interview brings together several interview partners and provides the opportunity for concentrated data collection and in-depth investigation. Variable group compositions facilitate the discussion of interview topics from different perspectives. Hence, focus group interviews were used to triangulate and validate research results.

Finally, a participatory value chain mapping was conducted in the form of a Value Chain Development workshop, enabling dialogue among relevant actors and creating a common understanding of the opportunities and challenges of the local rice value chain. Additionally, participatory value chain mappings were conducted with scientific experts from various supporting organizations.

4.3 Data collection procedure

The data collection toolkit was implemented in a three-step process. The initial orientation and method-testing phase was followed by a period of intensive data collection. Feedback and result validation concluded the process (see Figure 5).

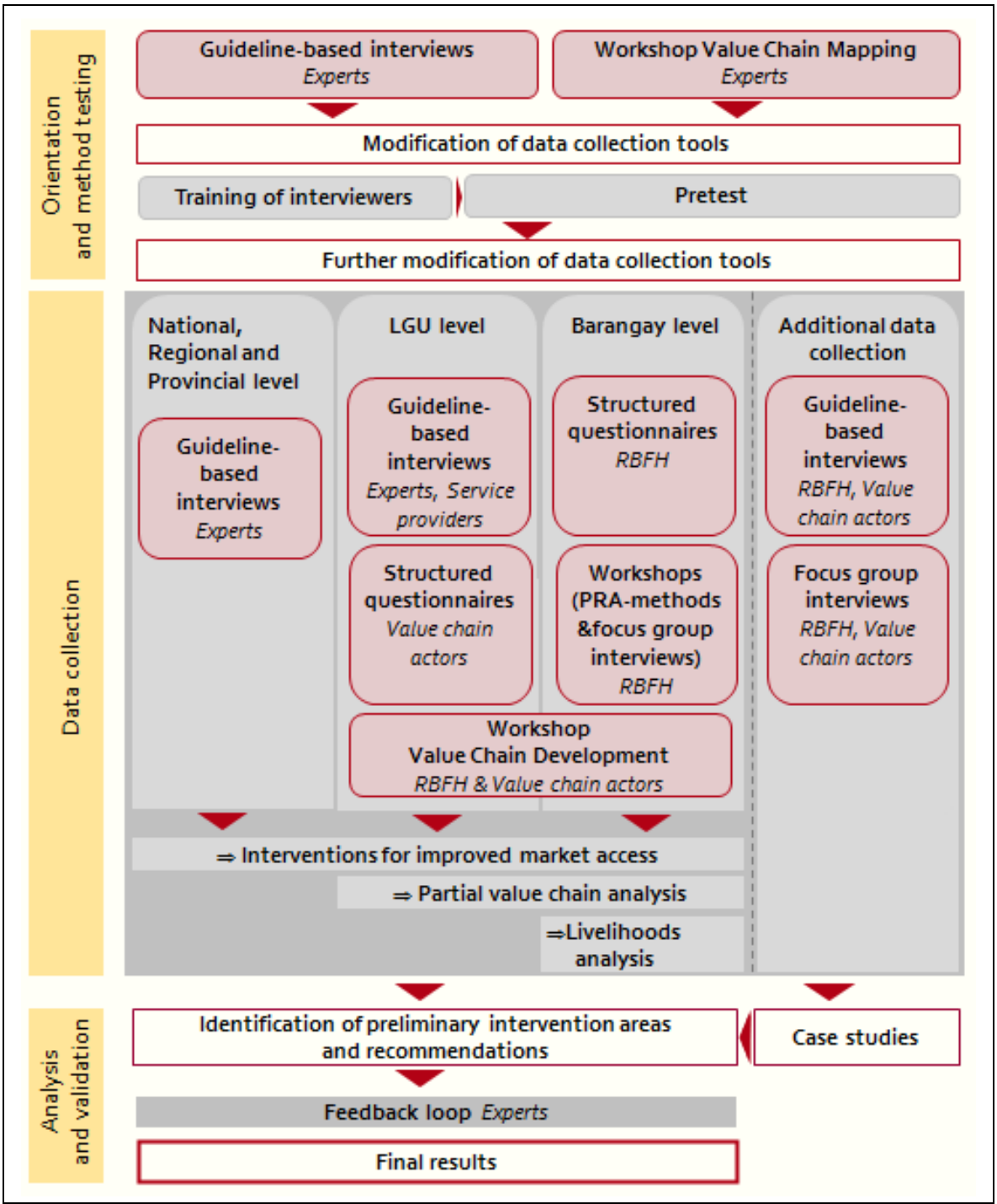

Figure 5: Data collection procedure

Source: own illustration

Phase A: Orientation and method testing

- Guideline-based interviews were conducted with national- and regional-level experts. Representatives from IRRI, the National Rice Program as well as the Philippine Rice Research Institute (PhilRice) were interviewed.
- An interviewer training session was conducted with five students from the Central Philippine University (CPU). Subsequently, the CPU students supported the SLE study group during the data collection in phase B.
- Pretests of the designated research tools, including a workshop with RBFHs, contributed towards further adjusting the data collection tools.

Phase B: Intensive data collection

- Municipal level: Guideline-based interviews were conducted with LGU staff, including extension workers and agricultural officers. Additionally, structured questionnaires were carried out with value chain actors such as traders, agents, millers and retailers.
- *Barangay* level: Two *barangays* were selected within each municipality. In the first *barangay*, data collection comprised one transect walk and structured questionnaires were conducted with at least 6 to 10 RBFHs. In addition to these research tools, a workshop with PRA-methods and a focus group interview was implemented in the second *barangay*.
- Apart from that, further guideline-based interviews and focus group interviews helped to elaborate case studies. Additional workshops contributed to a more comprehensive data collection.

Phase C: Validation of results and feedback loop

- Two workshops with experts from BRIA, IRRI, PhilRice and national stakeholders served to present preliminary study results and request feedback.

The field research comprises a total number of 140 interviews. This includes 56 structured questionnaires conducted with RBFHs and 40 structured questionnaires with other value chain actors. Furthermore, 44 guideline-based interviews were completed with local experts. In addition, the SLE study team carried out 13 workshops including focus group interviews and PRA methods (see Table 3 for a summary of the total field activities).

Table 3: Number of interviews and other survey activities conducted				
Level	**Structured questionnaires**		**Guideline-based interviews**	**Workshops/ Participatory tools**
	RBFH	**Value Chain Actors**		
Macro-Level			10	2
Meso-Level			18	
Micro-Level	56	40	16	11
Subtotal	56	40	44	13
Total interviews: 140 **Total survey activities: 153**				
Source: own illustration				

4.4 Data documentation and analysis

The majority of the collected data was documented in the form of interview minutes. PRA methods were documented in the form of minutes and photos. To facilitate the analysis of the qualitative data, a software-supported system (MAXQDA) was used by applying a systematized set of codes to extract the respective results. Subsequently, interview statements were summarized, concentrated and correlated. Moreover, the following analysis formats were applied:

- Analysis of the rice value chain in Iloilo Province as a whole, carrying out a SWOT[9]-analysis;
- Classification of the interviewed RBFHs into different groups according to their individual market access, to be able to subsequently design specific interventions tailored to each group's needs;
- Price analysis of the collected data on farm gate prices with regard to the classified farm households, selling time and the different marketing channels.

9 Abbreviation for **s**trengths, **w**eaknesses, **o**pportunities and **t**hreats

5 Rice value chain in Iloilo Province

This chapter provides an overview of the rice value chain in Iloilo Province. The analysis of the rice value chain focuses on the marketing and processing of palay and milled rice, exploring the diversity of existing marketing channels and the actors involved.

In this regard, this chapter includes a description of all the relevant value chain actors and service providers. In addition, farmer organizations (FOs) are covered in detail, because of their multiple functions along the value chain. In the second part, rice marketing channels in Iloilo Province will be described and summarized before looking further into the differing marketing channels of niche products and rice by-products. This chapter concludes with an overall analysis of the potentials and limitations of Iloilo's rice value chain.

Since the focus is on marketing palay and milled rice, the production side (including input markets) is not part of this value chain analysis (see Chapter 3.1).

Box 1: Examplary interview situations with actors of the rice value chain

Interviewing a trader

Photo: A. Poppe

Interviewing a retailer

Photo: E. Kürschner

5.1 Rice value chain map

Figure 6 summarizes the trading relationships identified between actors of the rice value chain and their marketing channels for the purchase and sale of palay and/or milled rice. It is followed by a detailed description of the value chain actors and service providers as well as their linkages (see Chapter 5.1; 5.2).

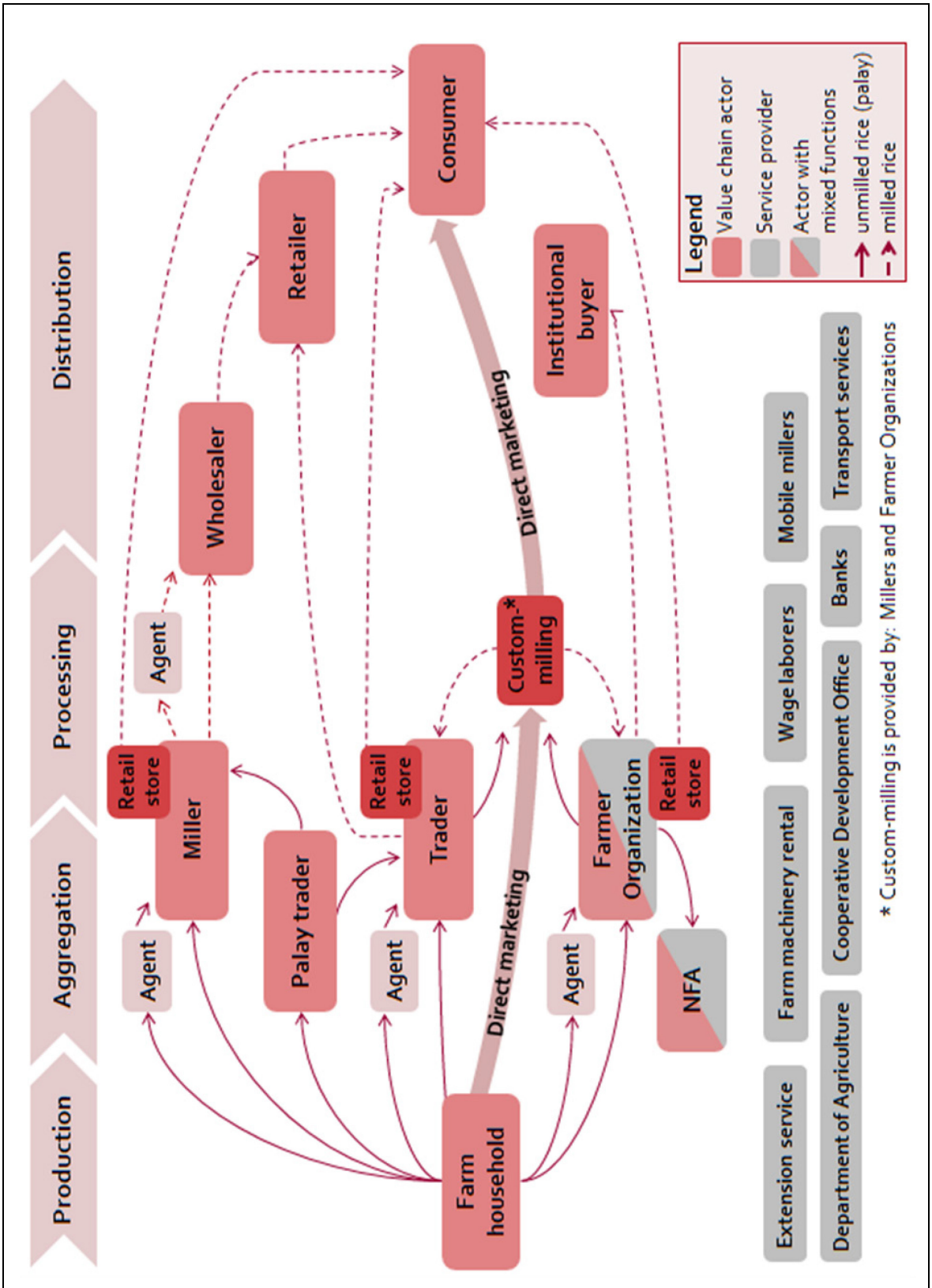

Figure 6: Rice value chain map, Iloilo Province

Source: own illustration

5.1.1 Value chain actors

The following section provides a brief overview of the different value chain actors involved in the production and aggregation of palay, its processing into milled rice and distribution to consumers.[10]

Farm household

- *Activity*: production and marketing of palay
- *Trading parties*: agents, traders, millers, FOs (sale)
- *Volume handled*: not specified (depending on farm size)

Farmers are the first step in the rice value chain as they produce and supply palay, the raw material for the rice value chain. However, most of the farmers interviewed are limited or even severely constrained within their marketing options and sell their produce shortly after harvest. In the majority of cases, the buyer picks up the freshly harvested, threshed palay from the side of the field. In other cases, farmers deliver their produce to palay buying stations[11] or to the buyer's facilities. Only a few farmers have the means to apply further post-harvest steps in order to dry and store their palay and sell it at a later date (see Chapter 6).

Agent

- *Activity*: facilitation of transactions between different business partners (on a commission basis)
- *Trading parties*: farmers, traders (purchase), millers (purchase, sale), wholesalers (sale)
- *Volume handled*: 100-50,000 sacks/cropping

Agents are sometimes hired by farmers, but are more often commissioned by traders or millers to procure the required amounts of palay from farmers and to facilitate transportation. Agents have to guarantee that sample and delivered produce are of the same quality. Apart from palay trading, some agents are also engaged in brokering milled rice and establish contacts between millers and big wholesalers. Agents operate on different levels trading palay and/or milled rice within a municipality or across provinces.

10 Please refer to Annex 9.5 for a detailed description of these actors and their practices.

11 Palay buying stations are usually run by traders. Palay buying stations run by the National Food Authority (NFA) only play a minor role, since there are only 400 buying stations nationwide (Office of the Presidential Assistant for Food Security and Agricultural Modernization 2015).

"The buyer and the farmer don't know each other; only you. You're in the middle. […] You should always be in the middle. If the miller knows the buyer, next time, he will go to him directly" (Reynaldo D., Oton).

Palay trader

- *Activity*: purchase and sale of palay only
- *Trading parties*: farmers, agents (purchase), millers (sale)
- *Volume handled*: 500-4,500 sacks/cropping

Palay traders usually operate at municipal levels and accept small amounts of palay, which they aggregate and then sell to millers or traders in batches of 100-300 sacks. Most palay traders purchase palay at harvest time when prices are low. Only traders with a higher purchase power can afford to procure the more expensive dried palay during lean season. Depending on their storage capacities, some palay traders immediately sell their freshly harvested purchased palay to millers or traders, whereas others sun-dry and store the palay in order to achieve a higher price during lean season.

Trader (palay and milled rice)

- *Activity*: trading palay and milled rice using custom-milling for processing
- *Trading parties*: farmers, agents (purchase), wholesalers, retailers (sale)
- *Volume handled*: 2,500-12,000 sacks/cropping

Traders purchase palay during harvest time, in batches of at least 50 sacks, from farmers or palay traders, sometimes using the service of agents. In contrast to palay traders, palay and milled rice traders are involved in all the processing steps, including milling. Traders dry and store their procured palay, either in their own facilities or in FOs' or millers' facilities. They use custom-milling (see Box 2) and sell the end product, milled rice, to wholesalers and retailers.

"When you store palay, mill it and sell it at lean season, it's a sure way to make profit" (Leonardo, L., Oton).

Trader/Retailer

- *Activity*: trading palay and milled rice, custom-milling for processing, selling milled rice in their own retail store
- *Trading parties*: farmers, agents (purchase), consumer (sale)
- *Volume handled*: 300-30,000 sacks/cropping

In comparison to a trader, traders/retailers sell milled rice at their own store. In addition, they often operate their own rice farms from which they procure some but not all of the retailed rice. The rest is procured from long-established business partners, mostly farmers, but also palay traders and agents. Like traders, traders/retailers are also involved in processing palay into milled rice and often use their own drying and storage facilities. They use the custom-milling services of a private mill or a FO when they need supply for their retail store. Finally, traders/retailers sell the milled rice in their retail outlets to consumers and local canteens.

Box 2: Custom-milling

Custom-milling is a service provided by millers, mobile millers or *kono*-mills, in which they process palay into milled rice in exchange for a milling fee, which is usually paid in cash but in some cases is also provided in-kind.

- In order to process palay for their own consumption, most farmers use the custom-milling services of mobile millers and *konos.*
- Farmer organizations, traders and some farmers use custom-milling services for marketing purposes. They opt for bigger rice mills, which provide better milling quality and thus, facilitate a better sale price.

Farmers and traders usually have a preferred mill that they turn to, based on good relationships with the miller and a satisfactory milling quality. Milling fees are 1.5-2 PHP/kg of milled rice for mobile millers or *konos* and 70-100 PHP/sack of milled rice for bigger milling facilities. These types of rice mill often demand a minimum volume of at least 50 sacks of palay in order to compensate the fuel consumption. Storage is usually included in the milling fee. Drying costs are extra, at 7-67 PHP/kg of palay depending on the method used (sun drying or mechanical drying).

Miller

- *Activity*: processing palay into milled rice in their own milling facility, trading palay and milled rice
- *Trading parties*: farmers, agents, traders (purchase), wholesalers, retailers (sale)
- *Volume handled*: mobile miller:10-50 sacks/day day, *kono* mill[12]: not specified, regular rice mill: 1,500-30,000 sacks/cropping

12 A local small-scale rice milling facility at *barangay* level.

As well as processing palay, most rice mills are engaged in the procurement and trade of palay and milled rice, buying either directly from farmers or using the service of agents and traders. In many cases, millers also operate rice farms and process their produce using their own facilities. Because of their comparatively high trading volume, millers are often able to set prices, which makes them powerful actors in the rice sector. Millers dry and store their procured palay and mill on demand to supply wholesalers or retailers. However, milling facilities differ significantly in their size of operation and service delivery (see Box 3).

At *barangay* level, there are also small *kono* mills and mobile millers, which cater to farmers' needs. Their milling machines can only process small volumes, producing low quality milled rice. In addition, most milling facilities offer custom-milling services to traders; big farmers and FOs (see Box 2).

Wholesaler

- *Activity*: purchase of milled rice and sale to retail outlets
- *Trading parties*: agents, traders, millers (purchase), retailers (sale)
- *Volume handled*: not specified

Wholesalers procure milled rice from millers or traders, often using the service of agents. Wholesalers resell milled rice, providing the supply for retailers and supermarkets. Depending on the volume handled, wholesalers may have inter-provincial business relationships.

Retailer

- *Activity*: sale of milled rice to consumers
- *Trading parties*: agents, traders, millers, wholesalers (purchase), consumer (sale)
- *Volume handled*: not specified

Retailers sell milled rice to consumers at market stalls, in *sari-sari* stores[13] or other retail stores. However, the study sample shows that many retailers are not only engaged in retailing but also engage in further activities along the value chain, such as trading and brokering (see trader/retailer).[14]

13 Local convenience stores.

14 Further details regarding handled volumes cannot be made due to data collection limitations (Chapter 4).

Box 3: Milling facilities

Mobile miller infront of his transportable milling facility

Photo: A. Poppe

Mobile milling facilities only handle small volumes of palay. The palay undergoes only one polishing step, thus producing milled rice of low quality. In most cases it is intended for self-consumption purposes.

Big milling facility that provides several milling phases

Photo: C. Plastrotmann

Millers and some farmer organizations own big milling facilities with several milling phases. Those facilities handle big volumes of palay and produce milled rice in regular and well-milled quality which reach higher price levels.

5.1.2 Service providers in the rice value chain

Each value chain relies on a range of services, which can greatly enhance the chain's efficiency. Service providers can be public, private or non-profit actors offering production-oriented, marketing-oriented and financial services. The follow-

ing summary focuses on the most important service providers with regard to farm households' market access.[15]

Production-oriented services

Production-oriented services mainly target farmers and include agricultural extension services, farm supplies and capacity development.

The Municipal Agricultural Officer (MAO) together with Agricultural Extension Workers (AEWs) form farmer support at municipal level. While the MAO has coordinating and planning functions, AEWs are in charge of providing extension services to farmers through individual consultations, field visits and farmer field schools. These activities facilitate the MAO's and AEWs' good knowledge base of local conditions and ensure their close contact with farmers. However, depending on the financial resources of the LGU, municipal extension services might face challenges in the form of insufficient staff and lack of operational means.

The Department of Agriculture (DA) is the government agency responsible for the promotion of agricultural development at national level. Through associated institutions; the Agricultural Training Institute (ATI) and PhilRice, the DA supports municipal extension services through Training of Trainers and its Local Farmer Technician program. The DA also uses the municipal support service in order to introduce and distribute new rice varieties as well as to occasionally provide subsidized farm inputs directly to farmers.

The National Irrigation Administration (NIA) is mainly in charge of the installation and maintenance of irrigation systems. In order to ensure water distribution among irrigated farms at a local level, the NIA established and supports irrigators' associations (IA). Membership to Ias is open to every farmer who owns or takes care of agricultural land with access to irrigation. Supported by the NIA's provincial, regional and municipal structures, Ias' main responsibilities are the operation and maintenance of irrigation systems and a fair distribution of water. Additionally, NIA provides capacity-building training sessions to strengthen financial administration and organizational structures. In addition to the NIA, the DA, the Land Bank of the Philippines and the Philippine Crop Insurance Corporation (PCIC) also use the well-organized network of Ias to offer additional services to farmers, such as inputs, production loans, crop insurances and even production and post-harvest machinery.

15 For a more detailed overview including all identified service providers, please refer to Annex 9.6.

Marketing-oriented services

Marketing-oriented services target value chain actors and their capabilities, and comprise the provision of post-harvest facilities, capacity building for marketing actors and market interventions by the government.

Apart from production-oriented services, within the framework of its Agri Pinoy Rice Program and the Farm Mechanization Program, the **DA** also supports farmers through FOs and Ias with highly subsidized post-harvest and rice processing facilities. Since the DA sees high potential in grouping farmers into formal organizations, it prioritizes well-managed cooperatives and associations when granting combine harvesters, threshers, dryers and warehouses as well as Rice Processing centers (RPC). With the help of these facilities, the DA attempts to create parallel marketing structures that have the potential to enable farmers to receive higher prices for palay and engage in further value-adding activities. Because of its numerous activities in both production-oriented and, to lesser extent, marketing-oriented services, the DA is an important strategic ally. However, the DA faces challenges regarding collaboration among its various structures at different levels, especially between regional and provincial levels. Furthermore, the DA's cooperation with other governmental organizations in the rice sector leaves room for improvement. As a result, a coordinated development strategy for the entire rice value chain is still lacking, since governmental interventions aimed at production and marketing are not closely coordinated.

The beneficiaries of the two DA programs are overseen by two government agencies: the Cooperative Development Authority (CDA) for cooperatives and the Security and Exchange Commission (SEC) for associations.[16] Apart from supervision, government entities also offer institutional support. While the NIA offers support to its Irrigators' Associations, organizational support to cooperatives is provided by the Provincial Cooperative Development Office (PCDO), which provides training sessions on leadership, good governance and financial literacy. About 40% of all cooperatives in Iloilo Province use this service and request demand-based training sessions. However, the PCDO faces severe financial and staffing constraints resulting in long waiting periods for training sessions and hence a low number of sessions are conducted.

The National Government also intervenes directly in rice markets through the National Food Authority (NFA). The NFA is responsible for ensuring food security

16 The only associations of relevance to farmers are Irrigators' Associations. They are supported through the NIA's institutional development program.

and the stabilization of rice and corn prices by keeping buffer stocks and buying palay and selling milled rice at fixed prices. However, farmers perceive the role of the NFA as ambivalent. On one hand they want the NFA to buy more palay and support a high price level. On the other, they are discouraged by high product requirements, lengthy application processes and late payments. This leads to the NFA's low procurement rate, which currently purchases just 4% of the Filipino rice production (Intal, Garcia 2008). With regard to the entire value chain the NFA, in its role as a supervising body, brings together federations of industry sub-sectors in quarterly meetings where issues regarding the rice market are discussed. However, since the National Government's interventions in the rice sector are primarily undertaken by the NFA, the latter is often subject to changing political interests and decision-making processes.

Financial services

Iloilo's rice value chain actors can rely on the financial services provided by several different financing sources. Farm households can take production loans from formal providers, such as private or public banks and cooperatives[17] with interest rates ranging between 1.5% to 3% per month. On the other hand, there are also many informal creditors, such as private individuals, input providers, neighbors and relatives offering loan services and charging interest rates ranging from between 0% and 10% per month. Farm households often rely on so-called *utang*[18] to finance their production. *Utangs* are provided by numerous value chain actors, mostly traders and millers. In this case, loan conditions usually include the pledge of the loan provider on the future harvest, often resulting in unfavorable pricing for farm households.

While there are several credit services that specifically address smallholder agriculture, none could be identified that offer specific support to other value chain actors such as small-scale traders or retailers. In general, not only farm households but also other value chain actors tend to prefer informal loan providers due to lower transaction costs in the form of paperwork, collateral and time between application and loan disposal.

17 The most prominent banks providing loans for agricultural production in the study province are Life Bank, Rural Bank Pototan, Progressive Bank and the government-owned Land Bank of the Philippines. The latter offers special credit services to smallholder rice farmers.

18 *Utang* is informal credit offered to friends and relatives based on trust that the debtor will repay. It is granted to farmers to finance their rice production or to retailers and customers who receive milled rice but cannot pay immediately.

5.1.3 Farmer organizations

FOs can take various forms and can be distinguished according to their legal status, size, functions and arrangements. Whereas farmer groups tend to be rather informal, farmer associations and cooperatives are officially registered with government agencies. A specific case of associations is irrigators' associations (IA), supervised by the National Irrigation Administration (NIA) (see Chapter 5.1.2). Besides their main task of supervising the irrigation system, some IAs provide additional services to farmers[19], from the provision of machinery and post-harvest facilities up to the procurement and marketing of palay.

Regarding the aforementioned differentiation between value chain actors and service providers, FOs in general serve as both. With regard to rice marketing they generally engage in a range of activities along the rice value chain and a lot of FOs perform the same marketing activities as other value chain actors.

- *Activity*: trading palay and milled rice using their own milling facilities or custom-milling for processing
- *Trading parties*: farmers, agents (purchase) wholesalers, retailers, institutionalized buyers, NFA, traders (sale)
- *Volume handled*: 2,000-45,000 sacks/cropping

Under the farm mechanization program cooperatives and associations are eligible to be granted machinery by the DA (see Chapter 5.1.2) with the aim of increasing their processing capacity and scaling up their business as well as enabling their members to engage in further value-adding steps to increase their profit share.

Apart from being a value chain actor, many FOs provide their members with several services, offering benefits that are critical to enhance their agricultural productivity and market linkages. Access to those services is often a main incentive to become a member. Services can include:

- Financial assistance through the provision of low interest loans and the distribution of dividends;
- Marketing assistance for both input and outputs markets (e.g. buying and selling in bulk, thus obtaining a better price);

19 Members are usually given priority, but non-members can also use IA services when paying additional fees.

- Technical assistance through training sessions and seminars (e.g. on production and marketing issues);
- Other forms of assistance such as insurance (e.g. in the case of crop failure, hospitalization, death), scholarships.

If well-managed, FOs have several comparative advantages over individual operating farmers. Still, many FOs in the Philippines are either too small or have not yet fully matured to take on processing activities or sustained large-scale marketing. FOs that already have the necessary physical endowments can accumulate produce to process and sell in bulk. Hence, FOs often achieve higher prices from their buyers. With regard to the purchase of inputs, they are also often able to obtain better terms (also related to buying in bulk). If equipped with entrepreneurial skills, they are in a better position to exploit a variety of marketing and business opportunities such as engaging with institutional buyers20. Said institutional buyers prefer to do business with FOs as they are in a better position to provide stable supplies of quality products than individual farmers.

Apart from their potentials, FOs experience a number of challenges that vary according to their type, size and functions. While associations usually have a homogenous member base, cooperatives are often multi-purpose and therefore consist of a heterogeneous group of members, not necessarily all farmers. Therefore, multi-purpose cooperatives are likely to encompass more divergent interests and asymmetric power among their members. In some cases, smallholders reported their difficulty in using their organization's processing facilities. This is linked to the fact that scheduling for usage is often non-transparent or favors actors with a bigger volume. Sometimes traders even use FOs' facilities for their processing and storing. In other cases, one well-off member provides the financial contribution to avail post-harvest facilities through the DA's farm mechanization program (mentioned in Chapter 2.2). Until the member is paid out by the FO, he/she will use the purchased equipment. It is only when his/her needs are satisfied that other members have the chance to use the facilities. This arrangement also contrasts with the idea of the farm mechanization program making post-harvest facilities more widely available to farmers.

20 Companies or organizations that purchase large quantities of rice on a regular basis can be public or private and often include, among others: hospitals, schools, hotels, restaurants and private companies.

Case Study: Dingle Multi-Purpose Cooperative (DMPC)

The DMPC was first established in 1956 under the name the Farmers' Cooperative Marketing Association (FACOMA). Due to internal management and governance problems, FACOMA was forced to shut down between 1985 and 1996. With a loan from the Landbank worth 1,000,000 PHP and the provision of a mechanical dryer the organization, renamed DMPC, was able to reestablish itself and restart business in 1997. In order to keep their business running, the DMPC now creates action and development plans that are assessed annually and adapted to the needs of the cooperatives' members.

The DMPC caters to more than 800 members to whom they offer a variety of services aimed at improving their livelihoods.

Members have access to the following services:

- Financial assistance in case of death or hospitalization;
- Possibility of investing money in the cooperative for which they are paid interest;
- Scholarships for the children of their members amounting to 5,000 PHP/semester;
- Crop insurance through PCIC;
- Post-harvest activities such as drying, storing, custom milling.

The DMPC provides its members with production loans. Until now, the cooperative has only encountered minimal problems related to credit payment defaults. If a farmer cannot pay back his loan, he/she has the possibility of renewing it and paying it back after the next cropping.

With a total volume of 45,000 sacks of palay handled per cropping, the DMPC is one of the largest cooperatives. The DMPC has benefited from the DA's Agri-Pinoy Rice Program, receiving both an additional warehouse and a new rice mill.

Furthermore, the DMPC engages in institutional buying with the Landbank that grants their employees a rice allowance as a non-wage benefit. This market opportunity guarantees the DMPC the permanent sale of 350 sacks of rice every other month.

One key challenge that is common to most FOs is the lack of working capital. Especially at harvest time many organizations face the challenge of limited capital for both procurement operations and the provision of loans for the next cropping cycle. This can partly be attributed to loan defaults. In one case, low repayment rates have led to a situation in which a cooperative did not have the necessary capital to engage in further palay trading. On the other hand, some organizations also state that they have difficulties in procuring palay since their members do not necessarily sell their produce to them. Instead, they sell to buyers who offer a higher price.

Furthermore, many FOs suffer from an insufficient capacity of their post-harvest facilities. Even if organizations are granted machinery by the DA, it is often reported to be of poor quality (e.g. with a bad energy rating). As the DA buys

standard quality machinery in bulk, while the existing realities of different FOs might vary to a great extent, post-harvest equipment does not necessarily meet the specific needs of each organization.

In order to be successful, FOs require clear and stable rules, procedures and structures that ensure accountability and assist leaders to act in the interest of all members. The ability to undertake complex activities such as operating commonly owned assets requires a higher level of commitment, business skills and experience than solely coordinating marketing or procurement activities. Therefore, capacity building is critical before taking on further functions.

5.2 Rice marketing channels

Rice marketing in Iloilo follows a diverse set of channels involving a variety of actors. The study identified four types of marketing linkages, which are analyzed in detail below. The analysis focuses on the trading parties, the time of purchase as well as the type of arrangement and the relationship between the two trading parties. The linkages are differentiated by the traded commodity (palay or milled rice) and the actors involved.

5.2.1 Harvest linkages

Harvest linkages refer to the marketing of palay by the farmer to other actors of the value chain, such as agents, traders, millers or FOs. Most of the time palay changes hands immediately or shortly after harvest.

Marketing channels: (1) According to Figure 7, there is a range of marketing channels available to farmers, including millers, traders, Fos and their respective agents. In most cases, these buyers are based in the same or adjacent municipalities. However, many interviewed farmers depend on one specific marketing channel due to production financing agreements, family ties or *suki* relationships[21]. Some farmers can choose their customers freely, based on the highest price offered (see Chapter 6.2.2). Buyers, however, actively search for farmers who want to sell to them, frequently hiring agents to establish the contact. (2) In addition to this, the NFA is supposed to offer an alternative marketing channel for farmers. However, the study sample revealed that smallholder farm households are usually

21 *Suki* relationships are deeply embedded in the Filipino culture. They describe a business relationship that has developed over years into a regular exchange. They are based on trust and create a platform for personal relationships that can evolve from purely economic relationships into genuine friendships. Within *suki* relationships special benefits are shared among partners

not able to fulfill quantity and transportation requirements[22], and hence, cannot use this selling opportunity. Since there are no farmers in the study sample who sell their produce to the NFA, the selling procedures focus on the harvest linkages mentioned above (1).

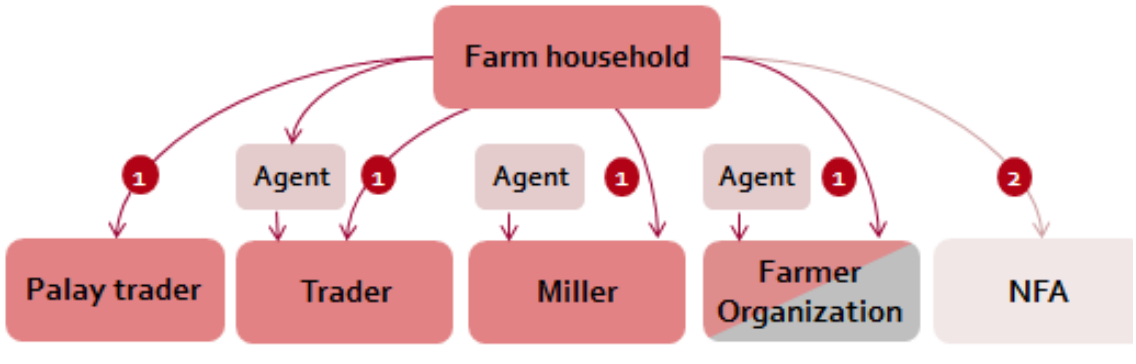

Figure 7: Harvest linkages

Source: own illustration

Selling procedure: (1) Some traders, millers and even several FOs set a minimum requirement of selling at least 50 sacks of palay. The usual practice is that buyers firstly require a sample of the palay before indicating the corresponding price, thus making most farmers price-takers. Apart from the quality requirements of the palay sample (see Box 4), the prevailing market price and the quantity to be sold are taken into consideration when prices are set. Prices vary across different municipalities. The majority of the farmers get paid in cash immediately after the purchase is concluded. Transportation of the purchased palay from the field to the buyer depends on the buying agreement and/or the quantity sold. If farmers only sell small quantities, they have to provide transportation.

Box 4: Product requirements of palay

The price of palay is highly influenced by certain product requirements that are universally valid regardless of individual market linkages:

- Moisture content
- Cleanliness (no foreign materials)
- Uniform varieties

22 Three of the farmers interviewed sold to the NFA in the past but stopped because of the NFA's strict requirements including: 14% moisture content and the provision of transportation to the NFA warehouse. One farmer mentioned quantity requirements of at least 200 sacks. Furthermore, farmers have to fill out applications and acquire a licensing card before they can sell to the NFA. Apart from that, the interviewed farmers reported delays in payment. In their opinion, the slightly higher NFA-price cannot make up for all these requirements and thereforethey prefer to sell to other buyers.

Challenges: Many farmers prefer to stick with established trading partners and are hesitant to engage in new business relationships[23], due to occasional incidents of unreliability and misconduct. In this regard, several farmers suspect that their buyers apply illicit methods to alter prices such as the manipulation of weighing scales. In addition, farmers claim that palay buyers have established price cartels by commonly agreeing among each other on an area-wide buying price. In some cases, farmers experienced unreliability with buyers who did not come at the agreed date, leaving the harvested palay at risk of getting wet.

Palay buyers, on the other hand, emphasize that some farmers breach verbal buying agreements by providing false samples or less than the agreed quantity. In addition, the majority of palay buyers report defaults in the repayment of *utangs* due to crop failures. However, most palay buyers have established long-lasting business relationships with farmers and are content with their trading arrangements.

5.2.2 Aggregation linkages

Aggregation describes the step in the value chain where palay has been amassed, but not yet processed. It mostly takes place immediately after harvest.

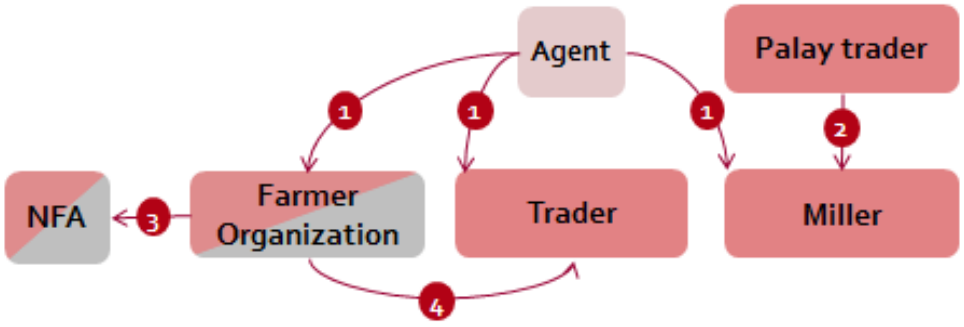

Figure 8: Aggregation linkages

Source: own illustration

Marketing channels: (1) A relatively common aggregation linkage exists between agents who have acquired palay from several farmers for their clients: trad-

23 According to one of the agents interviewed, it can take him a couple of days to convince a farmer to sell him the palay (Interview Reynaldo D.).

ers, millers and sometimes FOs[24]. Depending on their demand and volume handled, big buyers use agents to purchase palay from farmers in other provinces[25]. (2) Besides agents, there are also palay traders who engage in aggregation linkages in order to sell the amassed palay to local millers. (3) In some cases, FOs choose to sell unprocessed palay to the NFA instead of processing it in their own facilities. (4) Another option for FOs would be to sell to traders.

Selling procedure: (1) Traders, millers or in some cases FOs use the services of agents with whom they have usually established long-term business relationships. The commissioning buyers advance cash to the hired agent who is responsible for procuring a specific amount of palay with a certain quality. Upon delivery the buyer pays a commission of between 5 and 15 PHP/sack. Agents lead price negotiations on behalf of the buyer. They also carry price risks with regard to the quality and price differences between transaction and delivery.

(2) Depending on their facilities, palay traders either sell directly to millers, or they dry and store the procured palay themselves and sell it to millers during lean season. Although there are no selling agreements, palay traders usually have long-established relationships with several rice mills, with which they are in regular contact. Some millers require a minimum amount of palay that can vary between 50 and 100 sacks. Palay traders canvass prices[26] and sell to the miller who offers the best price. Although millers have a high bargaining power and usually set the price, palay traders can negotiate or decide to sell to another rice mill.

(3) Farmer organizations, especially cooperatives, are usually engaged in processing or distribution linkages. However, some organizations opt to sell unmilled rice to the NFA after the first cropping when market prices decrease and fixed NFA prices represent a good selling opportunity[27]. Apart from that, the NFA offers cooperatives additional incentives for drying and transporting palay to NFA warehouses, plus special cooperative development incentive fees, which cooperatives can accumulate to then use to acquire machinery from the DA.

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24 Cooperatives use the services of agents when they do not have stable agreements with their members. In this case, cooperatives use agents to procure additional or sometimes the total required amount.

25 Iloilo Province and Antique Province harvest at the same time, while Capiz Province and Akan Province harvest at a slightly different time (Interview Reynaldo D.).

26 To investigate the price by comparing different buyers.

27 In the case of one cooperative in Santa Barbara the amount of palay sold to the NFA totals 7,000 sacks per year.

(4) If the price is good, some of the interviewed FOs also sell palay to traders. Some of the interviewed traders, on the other hand, try to avoid buying from cooperatives, because it is more profitable to procure palay directly from farmers. In any case, according to one trader, if palay stocks are reduced, palay is also bought from cooperatives.

Challenges: Aside from difficulties in transportation, which is affected by unfavorable weather conditions, aggregation value chain actors consider their market linkages to be quite positive. However, they are constrained in their business expansion by a lack of access to capital.

5.2.3 Processing linkages

The processing linkage refers to the sale of milled rice to wholesalers and retailers. These transactions take place throughout the year and involve rice millers, traders and cooperatives[28] as processing actors.

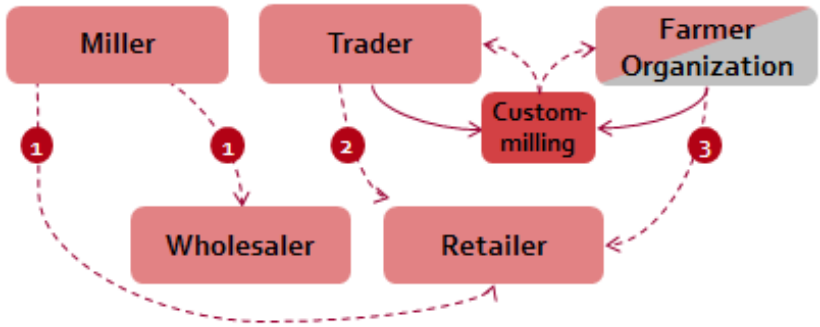

Figure 9: Processing linkages

Source: own illustration

Marketing channels: (1) Millers sell to several different wholesalers and retailers. The number of retailers who buy regularly varies between 2 and 50, depending on the size of the milling facilities. (2) Traders sell their custom-milled rice to several different whole-

Box 5: Product requirements of milled rice

Apart from the rice variety and its differing characteristics of technical and eating quality, such as whiteness and length of grains, buyers of milled rice attach importance to the uniformity of the rice variety and that the sack of milled rice measures no less than 50 kg.

28 Within the sample, the only farmer organizations (FO) engaged in processing have been cooperatives. Therefore the terms FO and cooperative are used synonymously in the following sub-chapter.

salers and retailers, ranging from 4 to 10 regular customers. (3) Cooperatives sell to various wholesalers and retailers either directly or through agents.

In either case, the buying wholesalers or retailers can be located in the same municipality or in adjacent municipalities to the selling party. Depending on the volume handled, some millers, traders and cooperatives also have business contacts in other provinces such as Capiz, Guimaras and even in Negros Occidental.

Selling procedure: (1) Most rice millers have verbal agreements with consolidated business partners. Some millers hire agents or advertise their rice via telephone to find new business partners. However, a personal relationship is needed before business transactions are undertaken. The volume of the rice purchased depends upon the demand by wholesalers[29] or retailers. Some of the big wholesalers require a delivery of a minimum amount of 250 sacks of milled rice, whereas small retail stores usually have a lower turnover. Prices are negotiated between business partners but are mostly based on prevailing market prices. Retail stores sometimes get a discount if they purchase higher volumes of milled rice. Various kinds of payment have been reported: i) via bank transfer, ii) check or in cash: either iii) immediately, iv) due within one week or v) upon delivery of the next batch.
(2) Traders deliver milled rice to wholesalers and retailers on demand. The volume of individual transactions varies from 5-8 sacks/week to more than 250 sacks/week. Prices are usually negotiated based on the prevailing market price or agreed upon among trusted business partners. Payments are usually made in cash, either immediately or on a commission basis. Depending on the amount, payment by check is also possible.
(3) Most of the cooperatives interviewed indicated that they sell to regular customers. Only one cooperative is engaged in price canvassing and relies on bypassing agents to sell their milled rice. The volume of the transaction depends upon the business partners and ranges from 4 sacks/week to 200 sacks/week. Prices are set by the cooperatives based on the prevailing market price, which according to one cooperative is highly influenced by the millers in the province. Payments are made in various forms: i) bank transfer for inter-provincial marketing, ii) immediate cash payment, iii) cash payment within 1-2 weeks, iv) repayment in agricultural goods such as in palay (only for members) or v) check.

Generally speaking, the relationships between milled rice sellers and wholesalers or retailers are well-established, stable and based on trust.

29 Wholesalers often buy more than 250 sacks of milled rice.

Challenges: Traders and millers have indicated that finding new business partners is rather difficult, as most wholesalers or retailers have their customary rice sources. However, several interviewees reported the occurrence of payment defaults by their buyers. Furthermore, some milled rice sellers consider the rising competition among millers and traders as a challenge. This also leads to greater bargaining power on the side of big wholesalers and retailers. On their side, wholesalers and retailers occasionally face difficulties regarding the delivery of milled rice from millers or traders, because in many cases the actual weight falls below the agreed amount.

5.2.4 Distribution linkages

Distribution describes the step in the value chain where milled rice is sold to the end consumer.

Besides retailers and wholesalers, there are several value chain actors, such as traders, millers and cooperatives[30], who are mainly engaged in other value chain activities, but who also run retail outlets and sell milled rice to consumers.

Figure 10: Distribution linkages

Source: own illustration

Marketing channels: Most retailing actors sell to (1) private customers on a walk-in basis. In the case of small *sari-sari stores*, owned by traders or mobile millers, those customers are often neighbors. Some retail stores also sell to small businesses such as local canteens. (2) Institutional buyers such as hospitals and hotels represent a different kind of customer, which is characterized by high buying volumes. However, institutional buyers are usually based in the same or adjacent municipalities as the retail outlet.

30 Within the sample, the only farmer organizations (FO) engaged in the distribution of milled rice have been cooperatives. Therefore the terms FO and cooperative are used synonymously in the following sub-chapter.

Selling procedure: (1) Walk-in customers usually just stop by the retail outlet and purchase small amounts of milled rice. In most cases, they pay immediately in cash.

(2) Only one trader indicated that he sells to institutional buyers, such as schools, hotels, beach resorts, hospitals and restaurants. This has been achieved through personal visits. In contrast, 50% of the cooperatives interviewed have been able to secure contractual arrangements with institutional buyers, such as government institutions (Land Bank, PCIC), universities and different kinds of cooperatives). These guaranteed marketing outlets require cooperatives to deliver 100-400 sacks/month[31]. Some of these contracts have been facilitated by the Land Bank's subsidiary Masaganang Sakahan, Inc. (MSI) whose aim is to link cooperatives to institutional buyers.[32]

Box 6: Consumer preferences

Consumers request rice that is white in color, whole, in long grains and with a good smell. After cooking the rice, it should be soft and provide an aromatic taste. Depending on the financial background, some customers are willing to pay more for high quality rice. Health conscious consumers also buy black, brown or red rice and are interested in buying organically produced rice. However, most consumers are rather price orientated and prefer low cost rice over high quality rice.

Challenges: The major challenges posed to value chain actors engaged in retailing concern fluctuating market prices, which decrease to low levels right after harvest season. Apart from that, the high amount of imported and smuggled rice contributes to falling rice prices, thus creating unfavorable market conditions for value chain actors engaged in distribution.

5.3 Niche markets

Niche markets enable smallholder farmers to shift from selling to an undifferentiated commodity market to selling a differentiated product. As niche markets satisfy specific market needs, farmers producing niche products can achieve higher prices for their commodity and improve their livelihoods. In some regions of the Philippines, for example, the cultivation of heirloom rice varieties as a niche product helps to empower communities (IRRI 2015a).

31 Supply contracts are not always on a monthly basis. Some request weekly deliveries whereas others only want delivery every other or every three months. The amount has been calculated in monthly supplies to achieve comparability.

32 MSI advocates monthly rice allowances to employees as non-wage benefits that can be procured from local farmers and their cooperatives.

In Iloilo Province, some of the interviewed farmers supply niche markets by selling by-products. Other smallholder rice producers cultivate special rice varieties such as purple, red or black rice to enter niche markets. Furthermore, some farmers produce organically to cater to specific demand. The following sub-chapter gives a brief overview of possible niche markets.

Rice by-products

During the different rice processing stages by-products such as rice husk and bran are generated. 100 kg of palay generate about 20 kg of rice husk and about 5-10 kg of rice bran (IRRI 2015b). About 38% of the value chain actors interviewed sell husk to local markets as animal fodder for an average price of 12.4 PHP/kg. Husk is mostly given for free, used as fuel for driers or processed into organic fertilizer.

Case Study: Rice bran brokering

Reynaldo D. does not only work as an agent in palay trading, but he also trades rice bran. He establishes the connection between millers and rice bran traders and usually handles 1,000 sacks per month. The trader buys the by-product from millers and then sells it to piggeries and poultry farms. Currently, the price stands at 700 PHP per sack. Reynaldo considers it to be a really good business since rice bran is scarce.

Many interviewees indicated that there is a steady demand for rice by-products. As down-stream value chain actors usually process the rice, they benefit from this additional income. When a farmer has the palay custom-milled, he/she keeps the by-products or can also use it as an in-kind payment for the milling process.

Special rice varieties

Some farmers also cultivate special rice varieties such as brown, red, black and purple rice as well as glutinous rice. Farmers and other value chain actors are aware that these varieties are rich in fiber, iron, zinc and protein and are consequently healthier for the consumers. Even so, many farmers are reluctant to cultivate these varieties as they worry about low yields.

Furthermore, the majority of value chain actors believe that there is a low demand for these varieties and have not identified Iloilo Province as being an interesting market. However, individual farmers sell special rice varieties to retailers or

directly to supermarkets and universities. This indicates that the niche market for special rice varieties is emerging.

Box 7: Example of a special rice product

Purple rice from Ajuy

Packaging and branding add value to special rice varieties such as purple rice.

Photo: E. Kürschner

Organic rice

The Department of Agriculture states that "more farmers are now shifting to organic farming and more consumers now prefer organic products" (Department of Agriculture 2015). Yet, both farmers and other value chain actors state that the consumer demand for organic and special rice, as well as the inclination to produce these niche products is still low.

The market for organic products[33] is also evolving in Iloilo Province. In particular people who are aware of healthy diets are interested in consuming organically produced rice. Organic rice is sold at a price of between 60 and 100 PHP/kg at local wet markets (Panay News 2014). Zarraga, a municipality within the BRIA intervention area, has recently set up a DA-funded Organic Trading Post to sell organically produced meat, fish, vegetables, fruit and rice. In order to supply the trading posts, farmers need to be certified by a member of a municipal technical working

33 The Organic Act of 2010 "intends to promote, propagate, develop, and further implement the practice of organic agriculture in the country to improve soil fertility, increase farm productivity, reduce farm-source pollution, further protect the health of the farmers, consumers, and the general public, as well as save on imported farm inputs." (Department of Agriculture 2015)

group.[34] At the moment, the trading post only opens three days a week, as there is still a lack of organic products. Longer opening hours are intended for the future. Furthermore, universities such as the Central Philippine University (CPU) have hosted organic trade fairs.

Some farmers also intend to export niche products, such as organic black rice (Panay News 2014). Additionally, two organic farmers stated that they sell their produce directly to universities, hospitals and restaurants and take orders via social networks.

Case Study: An organic farmer group from Zarraga

Joby A., a farmer from Zarraga, assembled a group of 20 farmers to produce organic rice collectively through the System of Rice Intensification (SRI) in order to later export the produce. In 2014, Joby contacted a company that imports both organic rice, and rice transitioning to organic, of smallholder rice producers to the United States. Together with the company an arrangement was set up to secure the procurement when quantity requirements can be met by the farmer group. By 2016, the group wants to export their first contingent. To achieve the requirements, Joby allocates funds from governmental and non-governmental organizations.

"Farming is easier when you help each other" (Joby A.): the group meets once a week to talk about rice production and challenges. The principle of voluntarism guides the interaction of group members, meaning that when help is needed other group members assist. To process the produce the farmer group wants to make use of the existing assets of individual farmers: one member has access to a drying facility while another one owns a market stall in Iloilo City to market the produce. Joby manages the communication of the group transparently and informs the members on current developments.

When producing for niche markets, farmers face various difficulties. In terms of organic farming, the lack of organic inputs means that they produce their own fertilizers. Furthermore, extension workers and training sessions cover conventional farming practices rather than organic farming.

With regard to processing organic rice, drying, storing and milling facilities need to ensure purity and a good processing quality. However, some value chain actors are still hesitant to engage in processing special and organic rice. In the case of certified organic products, most milling facilities cannot be used to process

34 While the certification criteria are the same, local certification is free of charge and official certification at the Organic Certification Center of the Philippines costs about 30,000 to 50,000 PHP/year and is often too expensive for smallholders.

conventional rice as residues may contaminate the rice. A low demand for niche products hinders the farmer from getting the actual price for the product.

5.4 Potentials and Limitations of Iloilo's rice value chain

The analysis of the rice value chain in Iloilo Province has disclosed a range of findings, which is further analyzed here in terms of potentials and limitations using a SWOT[35] analysis. The SWOT is conducted without a focus on a specific actor but rather with a view on the entire value chain.

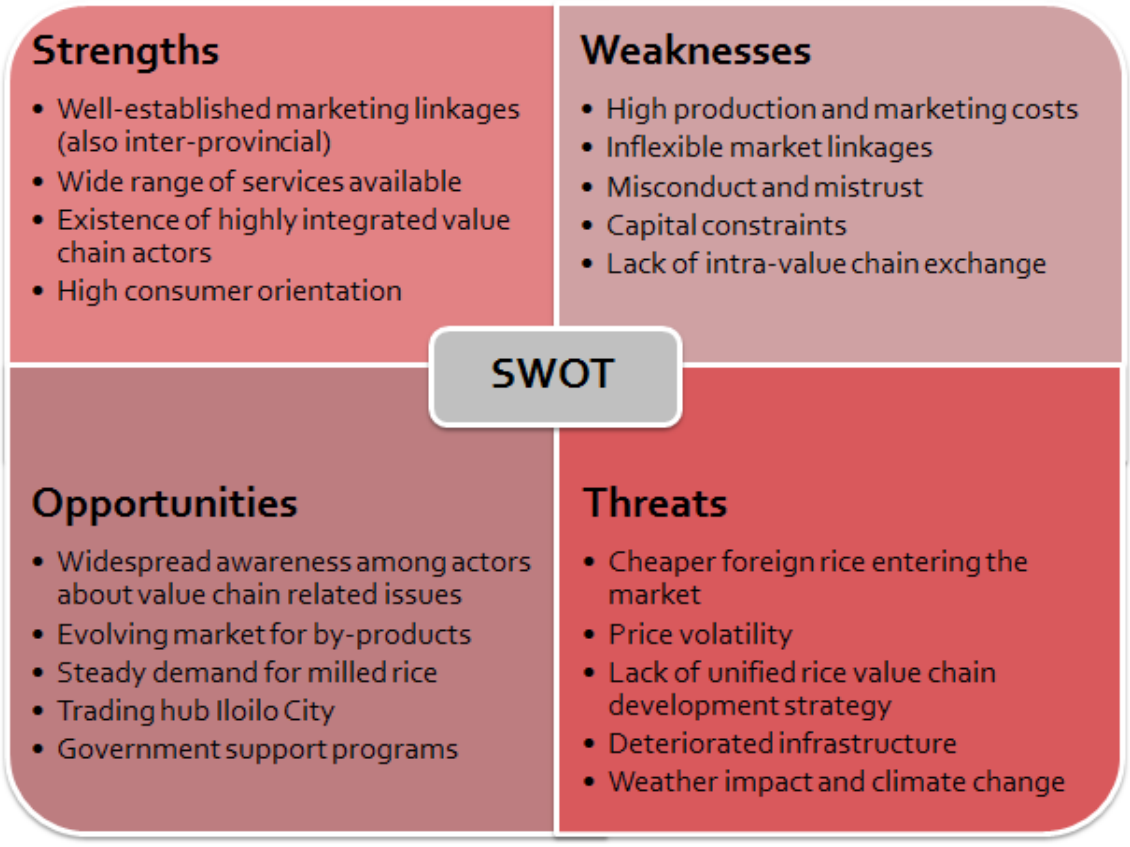

Figure 11: SWOT-analysis of the rice value chain in Iloilo Province

Source: own illustration

35 Abbreviation for **s**trengths, **w**eaknesses, **o**pportunities and **t**hreats

Strengths

As the analysis of marketing channels in Iloilo has shown (see Chapter 5.2), all actors ranging from farmers to wholesalers and retailers rely, to a differing degree, on long-established business relationships that are often based on trust and personal ties. Thus, a market access gap does not exist since finding a buyer for palay or milled rice is not difficult. Some of these relationships offer such great reliability that one could speak of semi-contractual arrangements, so-called *suki* relationships. In a few cases, these business partnerships cross provincial borders and thereby tap into additional markets, providing outlets for Iloilo's surplus production (see Chapter 2.3).

In addition, value chain actors can rely on a wide range of services that are helping to increase efficiency and facilitate the commodity flow. Farm machinery rental markets are growing, labor markets are demand-driven[36], the transportation of products is generally working well and transactions of milled and unmilled rice are facilitated by agents when needed. In addition, post-harvest facilities are provided by a range of actors, including private millers but also FOs and Ias. Even so, access to post-harvest facilities is temporarily challenged, especially at harvest time, when the existing post-harvest facilities cannot meet the demand.

The analysis further revealed that single actors are integrated vertically in the value chain, meaning they diversify their activities and cover several steps of the value chain. Some of them even cover the whole range from farming to retailing. This potentially reduces marketing costs and increases overall efficiency as marketing channels are shortened and the number of actors involved is reduced. In addition, there are value chain actors who constantly increase their handled volume; thereby achieving significant economies of scale (see Chapter 5.1.1).

All in all, the analysis showed that all actors involved in the rice value chain are aware of consumer preferences as they themselves are regular rice consumers.

Weaknesses

Despite trends towards the mechanization of farm production and value chain integration, production and marketing costs remain high when compared to other ASEAN countries (see Chapter 2.2; (Dawe, Moya, Casiwan 2007)). This not only

36 In Iloilo Province, farm production relies heavily on hired labor for almost all the steps of the production cycle. During harvest time demand peaks tighten rural labor markets making it sometimes difficult for farmers to find sufficient labor force.

reduces the profits of individual actors but also highly affects the competitiveness of Filipino rice production.

The abovementioned well-established marketing linkages also characterize a weakness in Iloilo's rice value chain. While business relationships are well-established, they can also constitute inflexible linkages. Therefore, some market actors react hesitantly to new opportunities (see Chapter 6.2). From an entrepreneurial perspective, this is a weakness as new, more lucrative opportunities might be ignored.

Inflexible business relationships can also be seen as a result of mistrust towards new business partners because of occasional incidents involving misconduct and unreliability. Especially within harvest linkages, farmers and their buyers are wary of interacting with new business partners without personal and long-established relationships. However, various actors along the value chain complain about constrained contract enforceability and the abuse of market positions: cash and in-kind advances are occasionally defaulted on with only limited options for sanctions. Some of the more powerful actors extract higher profits through modified weighing scales and price setting power.

It is not only inflexible market linkages but also capital constraints that stand in the way of market actors investing in new business opportunities or expanding their current operation. Thus, the further development of economies of scale is hampered and additional value-generating activities are out of reach. Currently, capital needs are mostly addressed via informal moneylenders, since formal financial services are not sufficiently adapted to the agricultural sector's needs and financial cycles (see Chapter 6.1). However, informal loan providers usually charge high interest rates and thereby inflate capital costs, which increases operation costs and decreases profits.

Lastly, there is a lack of intra-value chain exchange. Value chain actors of different segments rarely discuss common challenges and potentials. Furthermore, many actors within the same segment keep their business information confidential instead of sharing it among each other.

Opportunities

Interviews with value chain actors and a Participatory Value Chain Development Workshop revealed that on one hand there is widespread awareness among most actors about issues that are specific to each chain segment. On the other, it underlined the willingness to collaborate across the various chain segments. This offers potential for further cooperation and a joint strategy development. Coop-

eration and joint strategy development could, for example, be used to further develop already evolving markets for rice by-products, such as bran and husk. Or it could be used to tap into marketing potentials offered by Iloilo's position in the Western Visayas. Iloilo City is not only a major trading hub, it also produces a rice surplus. Due to the steady demand for milled rice, this surplus has been exported to other Provinces such as Negros or Cebu. This opportunity could be taken advantage of more effectively.

All in all, the rice sector and especially the production and immediate post-harvest steps are within the focus of many Government support programs that offer opportunities for farmers to add further value to their products or to improve their decision-making power with regard to selling times. Currently, access to and use of these programs is unevenly shared, offering room for improvement.

Threats

As already mentioned above, production and marketing costs are comparatively high in the Philippines. Thus, rice originating from other ASEAN countries is much cheaper to procure and can be sold with a large profit. Despite strict import quotas by the Government, downward pressure on prices is significant because more rice of foreign origin is smuggled. This downward pressure will not weaken due to the upcoming trade liberalization in 2017, which will establish free trade for rice among ASEAN countries. This might have devastating effects on the Filipino rice industry as a whole. Despite their depressed nature, prices are also highly volatile. This poses a threat for actors with low cash flows who cannot always wait to sell at higher prices.

In addition, this study could not identify a common development strategy for the entire rice value chain. Government actors either focus solely on the production side or are in charge of regulating marketing actors. However, for a competitive and thriving rice value chain, all steps need to be equally considered.

All in all, the rice value chain is challenged by deteriorating infrastructure. Irrigation systems and road networks are often of poor quality, thereby excessively increasing production and transportation costs (see Chapter 2.3). The poor road conditions are further worsened by weather impacts, placing a severe strain on all actors engaged in transportation. Additionally, sudden and continuous rainfall are a threat to all value chain actors engaged in transportation, since the value of palay decreases sharply if it gets wet during or upon harvest. Finally, climate change represents a major challenge for profitable rice production, due to an increased

uncertainty of precipitation or persistent drought for example, which affects the entire value chain.

These strengths and opportunities, but also weaknesses and threats that affect the value chain as a whole, also impose implications for the market access of farm households. Hence, the following chapter focuses on the special conditions, strategies and needs of rice-based farm households.

6 Livelihoods of rice-based farm households

The previous chapter has set out the complexity of the rice value chain in Iloilo Province. The role of rice-based farm households in the rice value chain and their access to markets is affected by various factors. Their market participation is directly linked to their access to human, social, financial, natural and physical capital. Their individual capital endowment indicates which opportunities can be taken and which challenges occur when accessing local rice markets.

This chapter takes the Sustainable Livelihoods Analysis (SLA) into consideration and sets out to explore the capital endowment of smallholder famers as well as their respective market-related livelihood strategies. The last section reveals their specific needs and constraints with regard to favorable market access. This analysis serves to identify appropriate entry points to support the livelihoods of smallholder rice producers.

The farm households interviewed have been categorized according to the quality of their market access in order to make group-specific observations (see Table 1 in Chapter 3.4). They are classified in the following groups: households with no market orientation (group 0), farm households with severely constrained marketing options (group 1), farm households with limited marketing options (group 2) and farm households with marketing options (group 3).[37] Before discussing these topics, the next section briefly introduces the study sample.

Box 8: Examplary interview situations with local farmers

Interviewing farmers

Photo: C. Plastrotmann

Photo: C. Plastrotmann

37 The study uses the terminology group 0- 3 to describe farm households and their market-orientation.

Rice-based farm household profiles and farm characteristics

During the course of this study, a total of 56 farm households were interviewed in four different municipalities of Iloilo Province. In general, the interviewed farmers are in their 50s and 60s with an average of 56 years. About 75% are male and 25% are female. The average number of household members ranges from 3 to 12 with an average of 4.7. Nearly half (47.3%) of the farm households interviewed have completed secondary school education and more than a third hold a college degree. 12% finished their education after elementary school. The average farming experience is 28 years, ranging from 4 to 70 years.

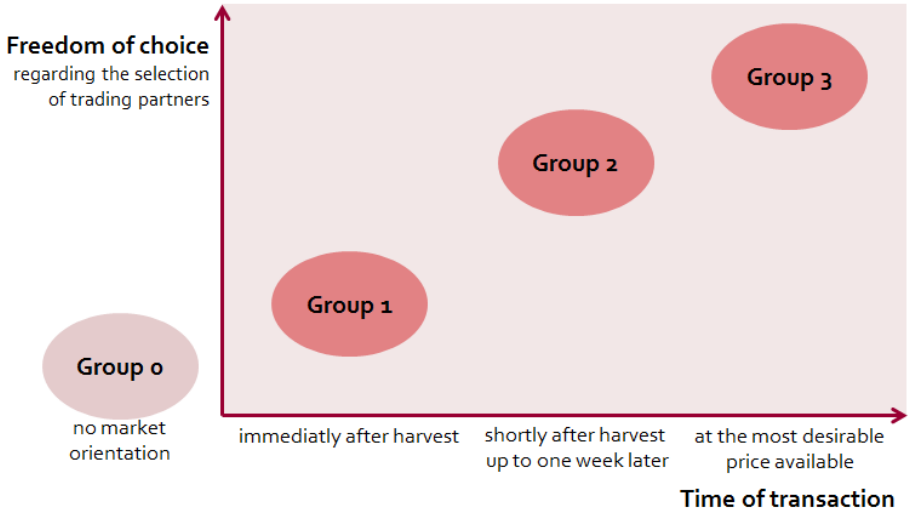

Figure 12: Classification of farm households

Source: own illustration

The total rice area farmed in the sample averages 2.3 ha and ranges from 0.2 to 10 ha (see Table 4). More than half of the farm households interviewed have access to irrigation, while about 40% use a rain-fed production system.

Table 4: Distribution of farm households interviewed by rice cropping area

Number of farm households by rice cropping area (ha)						
<1	**1 - 2**	**2.1 - 3**	**3.1 - 4**	**4.1 - 5**	**>5**	**2.3 (Avg.)**
7	24	13	6	3	3	56 (Total)

Source: own data based on interviews with farm households in four municipalities

6.1 Livelihood assets relevant to market access

The next section discusses the livelihood assets that play an important role in smallholders' access to rice markets. The assets are grouped according to human, social, financial, natural and physical capitals. In order to gain an accurate understanding of the asset endowment of specific groups, differences between the groups of marketing options are described below.

Human capital

Human capital refers to the "skills, knowledge, ability to labor and good health that together enable people to pursue different livelihood strategies" (DFID 1999). Within the scope of this study, special focus is placed on the access to information and knowledge, entrepreneurial skills and participation in training sessions.

Information on weather conditions, farm practices and current market prices is assessed for all farm households across the sample. Common formalized information channels are radio shows, TV and the exchange with Agricultural Extension Workers (AEW). Only two farm households indicated that they use the internet as a source of information. Furthermore, all kinds of information are transmitted informally by word-of-mouth among fellow farmers, friends and relatives. Price information is mostly assessed by canvassing prices at the local market and in the vicinity. Farm households in group 1 are likely to depend on information from the buying party and informal channels. Only a few farmers from groups 2 and 3 indicated that they contact the Department of Trade and Industries (DTI) or the NFA for price information.

Some farm households act as entrepreneurs and see their farms as a business in order to earn profit. They take calculated risks to improve their business and to gain more profits. The survey revealed that entrepreneurial skills[38] are important to improve marketing options. Bookkeeping and management skills are predominant in group 3. Furthermore, incidents of recent mechanization and profit-oriented seed selection are most likely among the farm households of this group. Less than half of the interviewed farm households pertaining to groups 1 and 2 possess similar entrepreneurial skills. Therefore, the entrepreneurial skills of farmers in group 3 are more developed than in groups 1 and 2.

38 This study considers the uptake of new seed varieties and adoption of farm technologies such as recent mechanization, willingness to explore new marketing channels, such as niche markets and management capabilities (book-keeping) as a proxy for entrepreneurial skills.

More than half of the farm households interviewed reported that they regularly participate in training sessions (several times a year). Most farmers have attended training sessions on farm-related topics such as input selection and application, or adapted rice farming practices (see Table 5). 50% of the sample indicated that they were able to increase their yields by applying the new knowledge. Training attendance is widespread among all groups. However, members of group 2 attended more diversified and specialized training sessions that contribute towards improving market access by dealing with topics such as the financial management of farms, marketing strategies and access to finance and loans.

Table 5: Attendance of training sessions by farmers

	Number of farmers attending training sessions	Total number of farmers
Group 0	2	5
Group 1	18	20
Group 2	14	18
Group 3	10	13
Total	44	56

Source: own data based on interviews with farm households in four municipalities

In the Philippines labor is of great importance for rice production (see Chapter 2). All farmers across the sample employ additional workers for activities such as land preparation, transplanting/seeding, the application of herbicides and pesticides, harvest and to haul the palay to the roadside. Labor costs range from 150 to 350 PHP per day and can also be paid in-kind. Neighborly help and family members working on the farm are most common among group 0 and 1.

Social capital

Social capital denotes the "social resources upon which people draw in pursuit of their livelihood objectives" (DFID 1999) that are developed through networks, group memberships and relationships of trust.

The interviews with smallholder rice farmers show that social networks are of great importance. Networks among farm households, neighbors and friends are important to share information on farming practices and palay or rice prices. Furthermore, they can help to overcome food insecurities through rice borrowing, foster an exchange of seed varieties for rice production and provide labor support

during harvest time. Farm households of all groups stated that they rely on their networks.

Most of the farm households interviewed reported to have long-term relationships with other value chain actors such as their trading partner or processing facilities' operators. Many farm households expressed that these long-term relationships, so-called *suki*, are built on trust, reliance and friendship. Farm households from groups 1 and 2 appear to be more involved in long-term relationships with other value chain intermediaries than farm households pertaining to group 3. This is often brought about by pre-buying arrangements with actors providing finance.

Financial capital

Financial capital refers to both available financial stocks and regular cash inflows (DFID 1999). The majority of farm households interviewed have access to multiple sources of cash income from farming and non-farming activities. Farm income is mostly based on rice, corn, vegetable and fruit production or livestock husbandry. About half of all farm households interviewed have livestock and earn money from raising chicken or pigs. More than two thirds of those interviewed also cultivate vegetables and fruit and sell their produce. Five farm households make additional money from renting farm machinery to other farmers.

Non-farm income is generated by running a *sari-sari store*, a tricycle or a restaurant, for example. More than half of the interviewees engage in additional jobs, receive pensions or have savings from previous jobs. More than a third of the farm households interviewed reported to receiving remittances[39] from family members working in other cities, provinces and abroad. Study findings reveal that the prevalence of remittances is highest among groups 2 and 3. Only 25% of the farm households pertaining to group 1 have access to remittances.

Farm households rely on loans from formal credit institutions, cash-advances from informal moneylenders or other earnings and savings in order to cover production costs (see Table 6). Self-financing is prevalent in group 3. Almost 80% of these farm households finance their production from savings or other income sources. Some combine this with a loan from formal or informal sources. Both groups 1 and 2 engage in loan-based financing from both formal and informal credits.

39 Remittances are funds transferred from migrants to their home country.

Table 6: Sources of financial capital accessed by farm households [40]				
	Number of farm households by source of finance			
	Formal credit provider	Informal credit provider	Self-financing	Total
Group 0	-	2 (40%)	3	5
Group 1	6	12 (60%)	6	20
Group 2	3	8 (40%)	6	17
Group 3	3	4 (30%)	10	13
Total	**12**	**26 (46%)**	**25**	**56 (100%)**
Source: own data based on interviews with farm households in four municipalities				

The main formal loan providers are the Land Bank of the Philippines, the Life Bank Foundation, Progressive Bank and rural banks (see Chapter 5.1.2). These formal finance institutions offer credits at interest rates of 1.5 to 4% per month. Most banks require collateral either in the form of possessions or a land title. Instead of asking for collateral some banks conduct a cash flow analysis for the client. Farm households in group 3 are most likely to provide acceptable collateral and thus have better access to formal loans.

46% of all households interviewed depend on informal credits from traditional money lenders, traders or input suppliers. These are granted at high interest rates of 5 to 10% per month. Unlike banks and other financial institutions, informal financers provide timely loans that do not require collateral, which is the case with banks. 60% of group 1 and 40% of group 2 depend on informal lenders. Only 30% of group 3 access informal credits in addition to their financial capital. In times of low cash flow, some farm households rely on *utangs* that have developed over a long period of time.

Natural capital

Access to water and land are essential for smallholders' productive capacities. The farm households interviewed perceive water access as a limiting asset, with more than half having access to irrigation or supplementary pumping systems. However, many farm households experience water insufficiency throughout the year, often resulting in harvest losses.

40 Multiple sources to finance production are possible.

Smallholders' access to land is essential for their livelihood situation. Lease arrangements reduce farm households' marketable volume, as they have to pay a lease fee. Prevailing tenure arrangements are based on in-kind payments, meaning that the harvest is shared with the land owner. The interviews revealed that smallholders have to hand over 25 to 50% of their harvest to landowners. Caretakers[41] only keep 10% for themselves. Lease arrangements are more likely to occur among farm households in group 1 (80%). More than half of the farm households interviewed in groups 2 and 3 are land owners with additional lease arrangements.

Physical capital

Access to production machinery enhances the ability of farm households to generate a higher yield. Most farm households experience limited access to machinery and lack appropriate equipment for land preparation. About half of the farm households interviewed own manual hand-tractors or carabaos[42]. The other half relies on renting farm equipment either from individuals, service providers or cooperatives. Farm households in group 1 are the most likely to rent machinery and tools, whereas those in groups 2 and 3 are more likely to own machinery.

Access to post-harvest facilities such as threshers as well as drying, storing and milling facilities influences the ability of smallholders to enter more profitable markets. Processing steps vary when small quantities of palay are processed for smallholders' own consumption or higher quantities are processed for selling. Most farmers engage in sun drying and use a bamboo mat in an open area (see Box 9). Individual farmers in groups 2 and 3 indicated that for high quantities (about 50 sacks) a paved public space, such as a multi-purpose court at the *barangay* hall, is used before selling the palay. Furthermore, most farmers have a small paved area in their house to dry about five sacks of palay for their own consumption. Some farmers have access to mechanical drying facilities at FOs or at milling facilities and pay a fee of about 20 PHP per sack for drying. Farmers have reported that there is a high demand for drying facilities during peak season. Farm households have also pointed out that there is a limited density of drying facilities. Members of all groups dry palay, especially when it is meant for their own consumption, yet only a few members of group 2 and most of group 3 engage in drying for marketing purposes.

41 Caretakers cultivate and manage the agricultural land of its owners. All necessary production inputs are provided by the land owner who is also the decision maker. The caretaker gets paid in-kind for his work.

42 Domestic water buffalo.

Box 9: Drying techniques

Sun drying of palay at the roadside

Photo: K. Riesinger

This drying technique is mostly used for small quantities of palay intended for own consumption.

Flatbed dryer

Photo: C. Plastrotmann

This mechanical dryer is used for higher volumes of palay. Some models operate on rice hull. Only some millers and FOs own a flatbed dryer.

Rice grown for farmers' own consumption is stored in a small storing space in their respective houses. Bigger storage facilities, so-called *bodegas,* can be rented at milling facilities, FOs or privately. Storing arrangements are often linked to a latter milling service, whereas farmers only pay for milling. Private *bodegas* have a capacity of up to 400 sacks. Only farm households in group 3 stated that they have access to storage facilities for their marketable surplus. Farm households in groups 0, 1 and 2 store small quantities for their own consumption in their houses.

For milling, farm households contact a roaming miller, who comes to mill the palay, or transport the rice to a nearby *kono* (small milling facility) to custom-mill small quantities intended for farmers' own consumption. They are charged a fee ranging from 2 to 5 PHP per kg. Members of all groups have access to small milling facilities. Individual farmers have their palay custom-milled privately or by multi-stage rice mills at FOs. Compared to the systems at *barangay* level, these commercial milling systems provide a superior milling quality and the processed rice is more likely to achieve a higher price.

The geographical proximity and accessibility of roads is relevant for their participation at local markets. About half of all the farmers interviewed stated that their rice fields do not have direct road access. These farmers have to hire labor to haul the harvest to the nearest gravel or tarmac road (up to 1.5 km), where it can be picked up by a truck, tricycle or a *jeepney*[43] for further transportation (see Box 10). About 75% of all interviewees stated that the nearest roads are of good to medium quality.

The availability and accessibility of transportation infrastructure differs among *barangays*. The quality of roads does not correlate with the groups. In each group only 2-3 farm households have indicated that they possess means of transportation, such as tricycles or motorbikes.

43 The most popular means of transportation in the Philippines. *Jeepneys* have their origins in World War II Military Jeeps but their chassis have been remodeled and resized to accommodate from 20 to 30 passengers.

Box 10: Means of transportation

Transportation by tricycle

Photo: A. Poppe

Small quantities of palay up to 20 sacks can be transported by tricycle.

Farmers usually rent tricycles to transport their produce for processing or marketing.

Tranportation by truck

Photo: A. Poppe

Trucks can transport high volumes up to 150-200 sacks of palay or milled rice.

In most cases trucks are owned or rented by traders, millers or farmer organizations.

6.2 Livelihood strategies

This chapter illustrates the diversity of livelihood strategies of farm households in Iloilo Province, before focussing on those relevant to market access. However, the livelihood strategies of farm households should not be treated as a single and unique pathway. Instead, the adaptation of strategies can be seen as a dynamic process based on specific asset endowment.

6.2.1 Strategies related to production and processing

The following livelihood strategies are relevant to the majority of the interviewed farm households. They demonstrate how farm households in Iloilo Province secure their living. Some of the identified strategies can have an impact on the way farmers eventually market their produce as production and processing is a basis for marketing.

Diversification of income sources: All farm households diversify their income sources to reduce their vulnerability to external shocks and to achieve a sustainable income stream. The majority generates income from both farming- and non-farming activities. The diversification of income sources can help farm households to finance their rice production. Furthermore, when rice crop losses occur due to bad weather conditions or pests, farm households can rely on non-farm income sources to cover on-going expenses.

Rice sufficiency: The majority of smallholders retain portions of their produce for their own consumption. Only 20% of all farm households interviewed need to buy additional rice to cover their needs. While members of group 3 demonstrate a high rice sufficiency, 25 to 30% of groups 1 and 2 engage in additional rice buying during lean season.

Rice processing for own consumption: All farm households are aware of the rice processing steps. The majority retains part of the harvest for their own consumption and engages in rice processing. Depending on the availability of assets, processing steps may vary.

Case Study: Edwin C. (m), 55 years, from Ajuy

Edwin owns a tricycle and transports his fresh palay to a nearby mill. He pays 12 PHP per sack to sun-dry his palay at the mill and then he stores it at the mill. He does not have to pay any storage fees because storage is free when the palay is milled there. He stores the palay until he needs milled rice for his own consumption or for his *sari-sari store*. The milling fee is 2 PHP per kg.

Only 25% of the farm households interviewed perform processing steps in order to receive a better price. Mostly farm households in groups 2 and 3 stated that they use post-harvest facilities before selling their palay. Among these, most farm households engage in drying activities.

Coping with shocks and insecurities: Farm households face various external shocks during rice production: extreme weather events; the delayed onset of rainy season; low probability of rain and unexpected heavy rainfall; poor access to irrigation; as well as limited availability of irrigation water and pests, which can lead to crop failures. Some of the farm households and institutions interviewed have developed strategies to cope with these challenges.

In order to cope with climate variability, a few farm households plant flood and drought-resistant varieties that are recommended by PhilRice or the AEWs. Some farmers also delay the planting schedule when rainfall is absent. A few farm households have adjusted their planting schedule to the availability of irrigation water. Many households interviewed select a short duration (growing period) during dry season. One farm household reported harvesting three crops per year due to the selection of short duration varieties. Others use methods such as ratooning[44] to cultivate a third rice crop with low input costs.

Strategies for reducing production costs and financial capital needs: The reduction of production costs can increase smallholders' competiveness in the rice value chain. The effective use of scarce resources by adapting improved farming practices can increase the ability to overcome financial shortages.

Palay production costs include fixed costs (i.e., irrigation fees, land rental, etc.) as well as variable costs (i.e., seed, fertilizer, labor, etc.). Production costs can be reduced through mechanization as well as by reducing cash expenses for variable costs. Low external-input farming reduces the use of external inputs such as pesticides, herbicides and synthetic fertilizers and replaces them with internal inputs. Several farm households use adapted land-preparation practices, i.e. ratooning, water and land management, fertilizer management and rice straw utilization. Furthermore, farmers have developed strategies to reduce production costs and capital needs by applying cost-effective seed selection or production.

Collective action: Limited production volumes; high transaction costs to access inputs and market outputs; as well as little bargaining power; constrain smallhold-

44 Rice ratooning is a crop management method that allows rice plants to regrow for one or two subsequent crops.. At harvest, the roots and lower part of the plant remain uncut. Benefits are that the crop duration is shorter and the costs for land preparation and planting are reduced.

ers' capacities to market their produce. Collective action is a potential strategy to address inefficiencies and barriers to market access. By acting collectively the smallholders interviewed stated that they are in a better position to reduce transaction costs, to obtain market information, to secure access to new technologies and to tap into more profitable markets. This can enable them to compete with bigger farmers.

Collective action can take place in both formal and informal farmer organizations (FO) (see Chapter 5.1.3). More than half of the farmers interviewed are active in such groups (see Table 7).

Table 7: Participation of farm households in farmer organizations

	Number of farm households participating in FOs			Total Number of interviewees
	Informal farmer groups	Formal farmer organizations	Total	
Group 0	1	1	2	5
Group 1	3	13	16	20
Group 2	3	7	10	19
Group 3	n.d.	7	7	13

Source: own data based on interviews with farm households in four municipalities

Participation in formal FOs is highest in group 1, whereas only half of the farm households in groups 2 and 3 are active in formal groupings. Only a few farmers are active in informal groups.

Most farmers consider collective action to be an opportunity to increase their profit share and decrease additional costs. Despite these advantages, farmers are aware of the challenges and constraints of formal FOs such as mismanagement, conflicts and poor organization. Informal FOs, on the other hand, are challenged by issues of trust, reliability and problems related to synchronized production.

6.2.2 Strategies to access markets

As mentioned before, farm households develop their livelihood strategies according to their asset base and the context-specific setting. Within the scope of this study, farm households have been grouped according to their access to the rice market. The members of a group exhibit similar strategies to market their palay and/or rice. However, their market opportunities can change based on internal

and external framing conditions. This implies that inter-group mobility is possible, but not self-evident. Common livelihood strategies are identified below, according to the accessibility of the rice market.

Farm households with no market orientation (group 0)

Five out of the 56 farm households interviewed do not sell their rice yield to generate income. These farm households do not produce enough to market in a profitable manner or do not have the ambition to do so. The rice produce is meant for their own consumption and farm households usually finance their rice production from other income sources.

Storing palay can be identified as an in-kind saving mechanism. When these households are in urgent need of money for farm inputs or other purposes, they sell small quantities to friends and relatives.

Farm households with severely constrained marketing options (group 1)

20 farm households face severely constrained marketing options. They sell their palay individually and immediately after harvest to financers and traders. Selling options are restricted by credit arrangements, age and family bonds.

Case Study: Carlito A. (m), 73 years old, from Ajuy

A financer helps Carlito to manage his production. The financer provides all inputs (fertilizer, pesticides, herbicides and labor) and gives any support needed. At harvest time, Carlito is bound to repay his debt with 90% of his palay. He keeps 10% for his own consumption. This financing arrangement has developed over time and is based on trust. Carlito favors this arrangement as he is limited by his age and does not want to worry about financing.

The rice yield is used to cover land tenure and debt repayment costs. Furthermore, a proportion is kept for their own consumption. Only a few farm households generate a financial profit from rice production.

All interviewees sell their palay to one buyer. In 80% of the cases these buyers also finance production costs. In return, farm households are obliged to sell them their harvest in order to clear their debt. In some cases farm households agreed to lower the palay price instead of paying interest for the credit.

Market participation: These farm households do not usually actively canvass the price because they are bound to sell to the financer who dictates the price. Nevertheless, they are aware of the prices their fellow farmers receive for their

harvest. Farm households in group 1 are often risk-averse: for example, two interviewees state that they prefer to sell immediately rather than engaging in further value-adding activities. One farmer explains that he does not want to dry the palay, in spite of free access to a drying facility at a farmer's association. He fears that the harvest will deteriorate. In addition, the scope of action is limited by the continuous debt situation.

Future prospects: As a future prospect, one third of the farm households interviewed want to continue rice farming. Some aspire to expanding their farm business and increasing their yield. Two want to stop farming as soon as their children can provide income for a living. With regard to selling practices, only two farm households want to sell their palay collectively in order to generate a higher price. Some want to end the interlocked relationship with the financer in order to sell to other buyers.

Farm households with limited marketing options (group 2)

Farm households that market their rice with limited options sell their palay individually. More than half of the farm households in group 2 dry their palay before selling it, the rest sells immediately after harvest. Farm households in group 2 have the opportunity to choose their preferred trading partner, whether an agent, a trader, a miller or FO.

Case Study: Amelia C. (f), 46 years old, from Pototan

Amelia produces a low quantity of rice. For production financing she takes out private loans with friends and is charged 5-10 % interest per month. She has to sell her produce right after harvest in order to pay back the loan.

She usually sells to differing small traders. Before harvest, she searches for a trader to set up a harvesting arrangement. She usually takes a sample of palay to various traders and chooses the trader based on the highest price. At harvest time, the trader helps to harvest. He provides sacks, laborers and sends a truck to pick up the palay before buying his proportion.

Part of the harvest is kept for her own consumption. During lean months, she sells the milled rice she does not need herself to neighbors. However, the quality of her rice is not good because it is only milled by a mobile miller. She cannot retain more rice to sell directly, because her storage capacity is low.

Amelia will continue farming and wants to improve her drying and storing practices.

More than half of the farm households affiliated with this group finance their production through earnings from other farm activities, savings from the previous

cropping and remittances. They are not obligated to sell to one trading partner but can sell for the best price. If a loan is granted by a trader, the farm household pays back the loan and can sell the rest of the produce to other trading partners.

Case Study: Simon C. (m), 60 years old, from Oton

Simon sells his palay collectively to get a higher price. He aggregates the produce together with 3-4 farmers and sells immediately after harvest to agents who organize the pick-up. He alone contributes 150 sacks.

In order to sell collectively the farmers synchronize their production cycle and harvest time. The setback in this case is that laborers are scarce. However, quantity counts more than quality with regard to price setting.

Good relationships with trading partners are important to secure a good price. However, some farmers reported that they have experienced buyers who manipulated weighing scales and thus created mistrust.

Market participation: Two thirds of the farm households interviewed canvass the price. They ask neighbors, relatives and fellow farm households. Proactive farm households ask various traders for prices based on a sample. Yet, farm households usually have little say in negotiations as buyers dictate the price.

Three farm households in group 2 describe their way of spending money as "hand-to-mouth living" and do not have the chance to save money to engage in further value adding activities.

Future prospects: With regard to future prospects, most farm households want to continue to farm and expand their business. Four interviewees want to engage in organic farming, four others in further value adding activities such as drying and *palay* storing. Two farm households, however, want to quit farming as it is too expensive and labor intensive.

Farm households with marketing options (group 3)

Farm households with marketing options also sell their produce individually. They often sell during lean season when the price is high and usually engage in value adding processing steps, such as drying, storing and milling. Possible trading partners are agents, traders, FOs, millers, retailers and consumers. Almost 40% of this group sells milled rice and not only palay.

Case Study: Sandro S. (m), 81 years old, from Oton

Sandro does not produce the required quantity to sell his harvest at the local town markets. Instead he has his palay custom-milled and sells the milled rice at his own *sari-sari store*. If his harvest is not enough, he also buys palay from fellow farmers. His customers usually pay in cash, some arrange delayed payments.

Production is financed by savings, remittances, income from other sources and loans at low interest rates. Two farm households use the surplus from the first cropping to finance the second and the surplus from the entire cycle to finance the following cycle.

Farm households of this group can sell to various buyers. Some have preferences based on relationships of trust and reliability; in four cases the preferred buyer is a relative or a good friend. Five engage in several processing steps and market their milled rice directly.

The time of sale is not important to these interviewees: if the price is not high enough, they can easily store their palay at a *bodega*. Members of this group also see their palay as an in-kind saving opportunity. Two only sell rice when they need money to cover tuition fees, inputs or other costs.

Market participation: These farm households seek information not only about prices, but also concerning milling and storing fees. They canvass the prices mostly during lean months. The farm households contact the trader, talk to friends or check the current market prices at the local market. As these farm households sell during lean season when demand is high, they can set the price.

On the one hand, these farm households are profit oriented. They know how to manage their farm as a business and seek new opportunities for investment. On the other hand, they are also concerned of the well-being of farm households with fewer opportunities and want to help. Some state that they sell their milled rice at a lower price, so neighbors can afford it.

Future prospects: With regard to future prospects, members of this group want to expand their farms to increase their produce. Five would like to invest in post-harvest facilities, such as warehouses and mills. More than half of this group are interested in organic farming and would like to plant special rice, such as black, purple or red rice.

6.2.3 Farm gate price analysis

The quality of market access and strategy also correlate with the level of prices obtained. Based on the interviews with farm households and other value chain actors, the study could deduce the following price schemes.

Farm households belonging to group 3 receive the highest price, while households belonging to groups 1 and 2 receive lower prices (see Table 8).

Table 8: Farm gate prices by group				
	Total	**Group 1**	**Group 2**	**Group 3**
Average PHP/kg	16.58	16.34	16.18	17.94
Source: own data based on interviews with farm households in four municipalities				

The correlation between the strategies of market access and farm gate prices becomes more evident when prices are compared according to selling time (see Table 9). Farm households selling immediately after harvest (groups 1 and 2) receive the lowest average price of the sample, while farmers who can wait (group 3) achieve significantly higher average prices. A withholding period of one week leads to a price increase of 8%. For a farm household with an average yield, this can generate an additional income of 4,293 PHP/ha.[45] This underlines the importance of both drying and storing facilities.

Table 9: Farm gate prices by selling time			
	Immediately after harvest	**One week after harvest**	**When the price is good**
Average PHP/kg	16.19	17.50	17.75
Source: own data based on interviews with farm households in four municipalities			

Prices generated according to the marketing sub-channel show that farm households in group 3 that sell to trading partners further downstream, such as millers, receive a higher price than farmers selling to agents or traders (see Table 10). FOs and highly integrated traders (trader/retailer) also pay significantly higher prices. Traders pay the lowest prices. This can be linked to a high prevalence of tied output-credit relationships in this marketing channel hinting at the fact that

45 This study computed an average yield of 3.3 tons/ha. This matches yield data collected by PhilRice (PhilRice 2011), the Philippine Statistics Authority's Bureau of Agricultural Statistics (PSA-BAS 2012) and the West Visayas State University (Alicante, Araquil, Brilion, Gabinete, & Oren 2014). Based on net income data calculated by those studies, an additional income of 4,293 PHP/ha equates to a 28% rise in income to 142%.

from a purely price point of view those relationships are the least beneficial to farm households.[46]

Table 10: Farm gate prices by marketing channel						
	Farmer	**FO**	**Agent**	**Trader**	**Trader/ Retailer**	**Miller**
Average PHP/kg	16.75	18.00	16.40	15.45	18.20	19.12
Source: own data based on interviews with farm households in four municipalities						

6.3 Rice market-related needs and challenges

Addressing relevant difficulties and challenges in rice production and marketing is essential to successfully link farm households to markets. The market-related needs assessment provides an overview of the challenges faced by the farm households interviewed. It was conducted in accordance with the identification of different strategies to access markets. Major differences among the three groups in terms of market orientation can be identified with regard to production financing, access to post-harvest facilities, marketing outlets and the information obtained. As groups 1, 2 and 3 feature deviating strategies to access markets, needs and challenges are group-specific. However, data analysis also revealed that some challenges have been expressed in all groups and are therefore cross-cutting. The key needs of farm households were identified throughout the interviews and are based on the challenges that have been articulated.

Five categories summarize the key needs of rice-based farm households: (1) access to financial capital, (2) access to post-harvest facilities, (3) favorable market linkages, (4) access to information for production and marketing, and (5) access to adequate infrastructure (see Figure 13). The challenges are grouped according to specific needs and will be elaborated on in the further progress of this study.

46 35% of the farm households that indicated that they sell to traders do so due to interlocked transactions. They make up 78% of the total tied output-credit relationships across the sample.

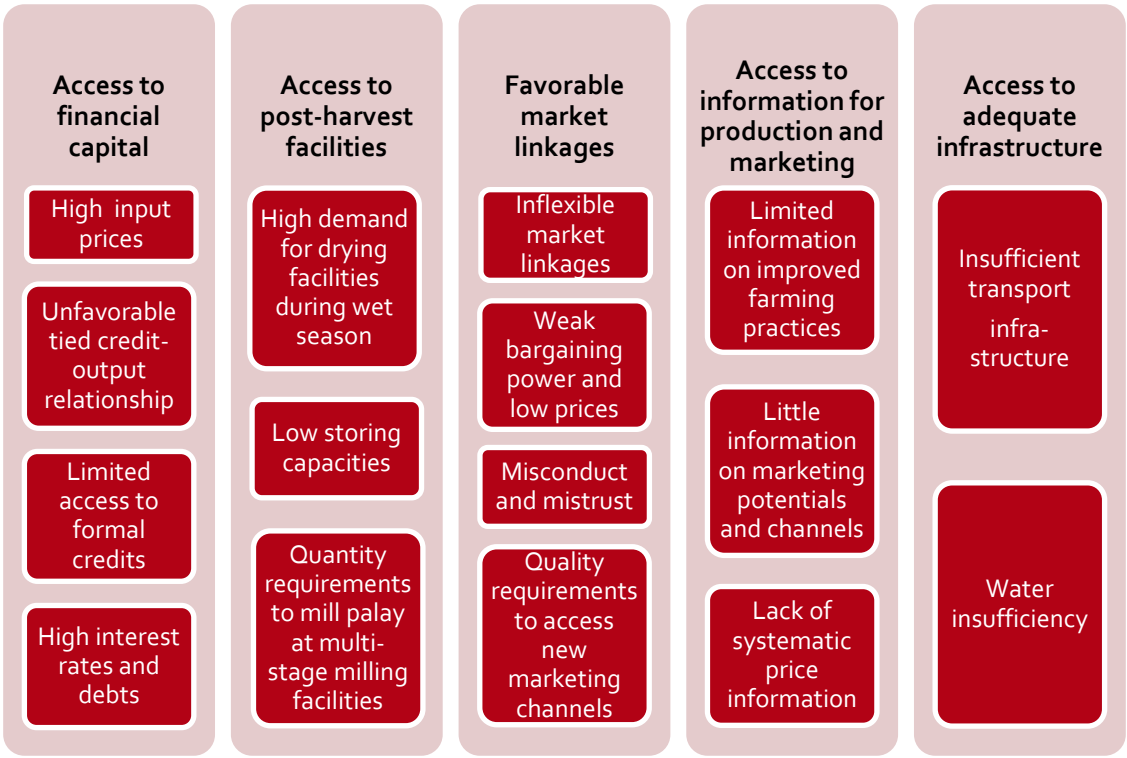

Figure 13: Farm households' market-related needs and challenges

Source: own illustration

(1) Access to financial capital

A key need of the farming households interviewed is the access to financial capital. Increasing prices for farm inputs, fuel and machine rental as well as costs for labor limit the capacity for further investment. Two expenditure peaks were identified during June/July and September/October based on a seasonality calendar (see Chapter 4.2). In these months school tuition fees and electricity bills are due while farm households also need to acquire inputs for rice production. This puts additional pressure on farm households of all groups. Furthermore, the actions of several farm households are constrained by debt.

Farm households belonging to groups 1 and 2 in particular are not able to self-finance their production and depend on loans and cash advances from formal credit institutions or informal financers. Therefore, farm households in groups 1 and 2 are highly dependent on informal credits with interest rates of up to 10% per month. The strategy of group 1 shows that these are often associated with palay tied credit-output relationships, as debt is paid back in-kind. The interviewed farm households characterized these pre-arrangements as unfavorable, because of

their limited options to choose a buying party who offers a better price. They want to become independent of these financial ties.

All farm households perceive loans from formal finance institutions as less accessible due to complex application procedures and formal requirements. Furthermore, a lack of appropriate collateral limits the access of groups 1 and 2 to formal loans. Farm households across the sample stated that high transaction costs, such as paperwork, geographical distance, as well as little trust in banks, reduce their willingness to borrow money from formal credit institutions. Interviews revealed that most farm households in group 0, 1 and 2 expressed the need for improved access to formal loans and credits.

(2) Access to post-harvest facilities

An additional need of farm households in groups 1, 2 and 3 is the access to post-harvest facilities. This is underlined by individual interviews and the "services and opportunities map" (see Chapter 4.2), which was conducted during PRA workshops in two *barangays*. Farm households in all groups state that limited financial capital constrains the implementation of further value-adding activities.

At harvest time, access to threshers and labor is difficult for members of all groups due to a high demand on facilities and a limited availability of labor. Conflicts related to scheduling this machinery are common.

Groups 2 and 3 stated that unfavorable access to drying facilities is a challenge. A delay in drying can cause the harvest to deteriorate and is directly linked to a cut in palay prices. Furthermore, the limited availability of these facilities, especially during wet season, is criticized. Farm households in groups 2 and 3 have expressed the need to install drying facilities in their *barangay* in order to cope with unfavorable weather conditions, such as heavy rainfall, after the harvest. Farm households in group 2 criticize the high costs related to drying as additional labor is needed.

Low storage capacity is considered to be a difficulty by group 2. This group has access to small storage facilities at home and do not access storage facilities at rice mills, warehouse or FOs. Individual farm households in this group stated that additional storage is mostly restricted by a lack of capital.

The challenges faced by groups 1 and 2 with regard to drying and storage facilities lead to their inability to access multi-stage milling facilities that process rice with a good milling quality. To improve their business venture, members of group 3 would like to own milling facilities.

(3) Favorable market linkages

The farm households interviewed indicated a need for better linkages to downstream value chain intermediaries to improve market access. Farm households in group 1 are forced to sell their produce right after harvest. Due to their dependency on informal credits they are financially tied to a single marketing outlet and market linkages are inflexible. The bargaining power of farm households in group 1 and of some in group 2 is constrained by their selling arrangements. The price is set by the trader and farmers often receive low prices for their produce.

Farm households belonging to all groups indicated that the misconduct and mistrust of actors can pose a threat to profit margins. For example, as weighing scales are provided by the buying party, some farm households across the sample feel betrayed when scales are not accurate. In order to seek new trading partners, farm households of all groups want to know whether a new partner can be trusted.

Across the sample, farm households would like to seek new trading parties. Households in group 1 are unhappy with the inflexibility of current arrangements while households belonging to group 3 want to increase their profit margins. Individual farmers in group 3 expressed their desire to sell to institutionalized buyers, such as hospitals or universities. Individual farm households in groups 1, 2 and 3 would like to sell to FOs or the NFA. However, many farm households are unable to meet the required quality and quantity standards. For example, institutionalized buyers need to be regularly supplied with milled rice and are consequently interested in buying from FOs. Selling to the NFA is constrained as the NFA only buys dried rice and minimum requirements with regard to quantity are in place (see Chapter 5.1.2).

(4) Access to information for production and marketing

The farm households interviewed expressed a need for information on rice production and marketing strategies. This has been identified as a key need among farm households in groups 1 and 2. Farm households stated that they have limited access to information on rice production and potential marketing channels. Farm households in group 2 regularly find themselves in a situation in which they do not know where to sell their palay. Members of group 1 want to gain additional knowledge regarding the effective application of fertilizer and pest control, while farm households belonging to group 2 demonstrated an interest in information on potential new trading partners. Farm households with improved market access (group 3) stated a lower need for external information.

Systematic information on prices is considered to be a challenge among the entire sample. Price information is mostly limited to information obtained in the vicinity, from trading partners and at the closest wet market. However, farm households associated to group 1 state that even if they are aware of palay price fluctuations, they are not able to negotiate due to their selling agreements with financers.

Moreover, a focus group discussion revealed that farm households need information on machinery availability and corresponding fees (e.g. threshers, dryers, custom milling facilities and others).

(5) Access to adequate infrastructure

Farm households expressed a need for an improved rural road infrastructure. Farm households experience difficulties transporting their produce to local markets, resulting in high transaction and marketing costs. Paying workers to haul the harvest from the rice fields to the nearby road is an additional input cost. Farm households' satisfaction with the existing road infrastructure is location-specific, not group-specific. During rainy seasons in particular, roads and fields are not accessible. This means that hauling charges are higher and buyers cannot access the nearest road to pick up the harvest, which can result in harvest losses. In Santa Barbara and Ajuy, the need for an improved road system has been expressed.

Another key challenge for farm households is their access to a sufficient and functioning water supply. During the dry season in particular, more than half of the households interviewed experience severe water stress that limits production potentials. In spite of scheduled irrigation systems, these are often deficient due to a lack of maintenance and limited water availability.

Many farm households expressed the need for more governmental support. They formulate a demand for policies and agencies to provide assistance to farm households in need.

The previous section of this study has shown that each group articulates both group-specific and cross-cutting needs (see Table 11 for an overview). These needs, as well as specific asset endowment and livelihood strategies, have been taken into account together with key insights from the rice value chain in Iloilo Province to identify intervention areas to improve the market access of smallholder rice producers.

Table 11: Overview of group-specific needs

	Group 0	Group 1	Group 2	Group 3
Access to financial capital		Independence from unfavorable, informal financial ties		
	Improved access to loans from formal finance institutions			
Access to post-harvest facilities	Sufficient availability of threshers and labor at harvest time			
		Drying facilities at *barangay* level at a low price		Opportunities to invest in private milling facilities
			Storage space at a low price	
Favorable market linkages		Identification of new liable trading partners		
		Capability to negotiate prices		
Access to information for production and marketing	Systematic and trustworthy price information			
		Information on marketing channels		
		Information on the availability of post-harvest machinery and their fees		
		Information on rice production	Information on marketing strategies	
Access to adequate infrastructure	Improved rural road infrastructure			
	Functioning water supply			

Source: own illustration

7 Intervention areas to improve market access

The rice value chain in Iloilo Province offers a wide range of marketing outlets and services for farmers (see Chapter 5). Actors interact directly with farm households at every step of the value chain, ranging from harvest linkages to distribution linkages. Furthermore, there are currently marketing-related support services, which include formal credits, post-harvest facilities and transportation. However, neither the variety of marketing outlets nor the marketing-related support services are equally accessible to all farm households (see Chapter 6). This is linked to their asset endowment and resulting marketing strategies.

In order to improve market access in accordance with this study's typology, farm households need to be empowered to improve their marketing practices. Therefore, the ability of these households to freely choose from the existing range of marketing opportunities and to freely decide the time of transaction needs to be increased. In a long-term perspective, this improves bargaining power and eventually leads to higher prices and thus increased incomes (see Chapter 6).

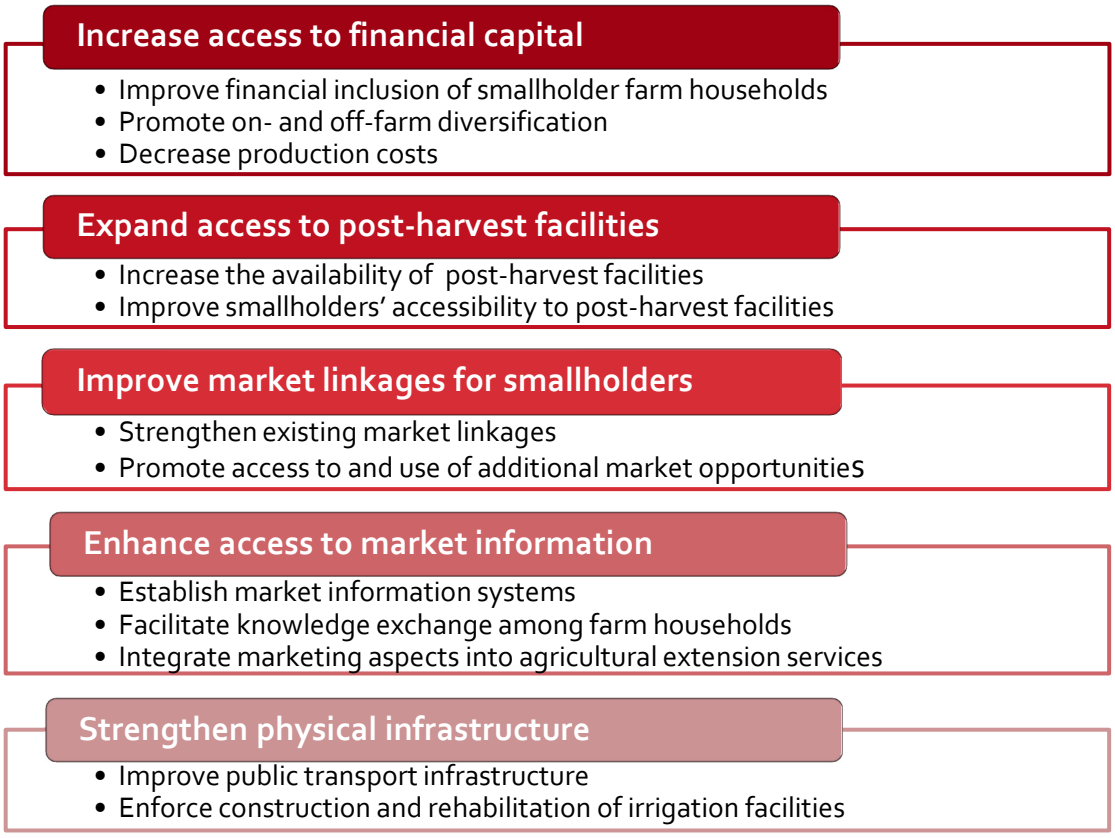

Figure 14: Intervention areas and potential entry points for action

Source: own illustration

Considering market access as a continuum, ranging from farm households with no market orientation (group 0) to farm households with severely constrained (group 1) and limited marketing options (group 2) to farm households with marketing options (group 3), recommendations need to consider determinants that inhibit inter-group mobility. In addition, constraints for farm households in group 3 need to be considered to initiate further improvements. By looking at the identified, market-related needs (see Chapter 6.3), the following intervention areas and entry points can be identified (see Figure 14)

7.1 Increase access to financial capital

The needs assessment of farm households revealed that a major constraint on expanding agricultural market relationships is the lack of investment and working capital (see Chapter 6.4). As many farm households are held in tied credit-output relationships, access to financial services with more favorable conditions may increase their ability to freely choose their trading partner. As a result, three possible entry points have been identified:

Improve financial inclusion of smallholder farm households

The study revealed that financial services provided by formal financial institutions do not sufficiently meet the needs of smallholder farmers. This lack of financial services often hinders their attempts to make productivity-enhancing investments and to compensate their financial needs between periods of cash in-flow and scarcity.

Two interrelated activities are suggested in order to improve financial inclusion, one on the demand side and the other on the supply side. On the supply side, formalized credit institutions need to revise their existing product portfolios in order to customize credit products to the needs and realities of smallholders. Small-scale farmers rarely possess the physical or financial assets that financial institutions commonly accept as collateral. In order to increase accessibility, formal credit providers need to reduce these requirements and seek smallholder-friendly forms of collateral. Furthermore, formal loan arrangements need to consider challenges linked to agricultural production such as irregular cash flow associated to seasonality and production losses due to external risks such as floods, droughts and plant diseases.

On the demand side, the bankability of farmers needs to be strengthened through external technical assistance and capacity building. Skills in financial lit-

eracy and awareness of the existing credit programs are necessary to improve access to formal finance institutions.

As a result, financial inclusion will enable farm households to dissolve their tied credit-output relationships (groups 1 and 2) and increase smallholder farmers' working capital for further investments (groups 2 and 3).

Promote on- and off-farm livelihood diversification

Farm households relying on rice production as a main source of income experience irregular household cash flow due to the agricultural production cycle. Income diversification can help households to cope with this challenge as it decreases economic dependencies and multiplies marketing and income opportunities. Furthermore, product diversification enhances the resilience of farm households to systemic risks, such as plant diseases and climate impacts. Thus, the support of livelihood programs that focus on on-farm and off-farm diversification has been identified as a promising approach.

In order to support smallholder farm diversification, external support, especially public and private extension services, should focus on diffusing integrated farming practices and cultivating high-value crops, using idle farmland for production during rice off-season. Furthermore, external assistance should promote information on income diversification and create opportunities for farmers in the rural non-farm economy.

Additional income sources through livelihood and farm diversification are beneficial to farm households across all groups in order to increase their ability to prevent cash flow squeezes, especially during months of rice production.

Decrease production costs

The high cost of inputs, particularly of labor and fertilizer, are a major constraint to smallholder rice production in the Philippines. The effective utilization of scarce resources through improved farming practices can increase the working capital of farm households. A reduction of production costs can be achieved, for example, by adapted farm practices such as low external input farming[47] or an adoption of cost-saving technology (i.e. farm mechanization). External assistance should promote these farming practices in order to contribute towards a long-term reduction of production costs. Extension services should foster the provision

47 Low external-input farming reduces the use of external inputs like pesticides, herbicides and synthetic fertilizers as much as possible and replaces them with internal inputs.

of information on investment costs and their mid- to long-term economic returns, in order to raise awareness of economical and productivity benefits.

Farm households across all groups could benefit from a reduction of production costs as it would enable them to access more working capital to invest in productivity-increase and post-harvest facilities.

7.2 Expand access to post-harvest facilities

The market price analysis revealed that farm households that engage in further downstream value chain activities, such as drying, storing and milling, are able to enter more profitable markets (see Chapter 6.2.3). Thus, access to post-harvest facilities is a key determinant for market access as it is critical to households' ability to decide on the selling time. Based on the assessment of farm households' needs, access and availability of post-harvest facilities are considered to be a key challenge (see Chapter 6.3). The following two entry points have been identified in order to cater to the needs of smallholder rice producers:

Increase the availability of post-harvest facilities

The study revealed that some areas are characterized by an insufficient coverage of post-harvest facilities. An improved post-harvest infrastructure can be achieved through an intensified mobilization of public and private investments to set up drying and storage facilities for collective use. Therefore, support should focus on the improvement of FOs' post-harvest capacities. External assistance in the form of training modules needs to strengthen the capacity of FOs to apply for and successfully acquire publicly funded post-harvest facilities.

Smallholders can profit from the availability of appropriate post-harvest facilities and thus increase their market position. Particularly farm households in groups 2 and 3 will be able to perform further value adding steps.

Improve smallholders' accessibility to post-harvest facilities

The study indicated that even where post-harvest facilities exist, they are not equally accessible by all potential customers. Facilities such as privately owned mills often have exclusive, long-term relationships with customers. Thus, walk-in customers and small-scale farmers are considered to be less favorable business partners. The creation of a quota model for storage, drying and milling facilities could help to guarantee equal access for all potential users. External incentives could enforce facilities to commit to implementing the quota-model system. Fur-

thermore, affordable fees and quantity requirements adapted to the reality of smallholder farmers' rice production should be fostered among post-harvest facilities.

The lack of information on fees and quantity requirements for the various processing steps has been identified as a challenge (see Chapter 6.3). Interventions, such as information dissemination through public scheduling, for example, could ensure that post-harvest facilities make information available concerning their conditions, fees and availability, as well as profit-potential.

Equal access and use of post-harvest facilities would enable farm households in groups 2 and 3 to perform further value-adding steps, resulting in a higher quality product and thereby increasing the market value of their product.

7.3 Improve market linkages

The linkage between farm households and their value chain intermediaries and in turn farmers' ability to choose from a range of intermediaries at different levels of the value chain, determines the quality of market access. In this regard, two possible entry points have been identified:

Strengthen existing market linkages

The value chain analysis has outlined that smallholder farmers' market potential is currently constrained by numerous factors. Therefore, i) enhanced bargaining power, ii) collective action and iii) improved intra-value chain coordination are considered to be key determinants to improve their market potential:

i) Enhanced bargaining power

Many farm households are price takers and as such are unable to engage in open negotiations with their buying parties. Fair price building mechanisms would enable farm households to reap higher profits and to improve their livelihood situation. For example, the provision of quality infrastructure, such as calibrated weighing scales and moisture-content measuring kits to farm households could help to base price negotiations on objective determinants.

ii) Collective action

The study revealed that individual smallholders face severe challenges when marketing their produce as a result of high transaction costs in the value chain. Power imbalances, information asymmetries and financial constraints prevent

an equal distribution of added value across the actors in the value chain. FOs are considered to be promising stakeholders to overcome the above-mentioned marketing barriers. By means of collective action, FOs put smallholders in a better position to reduce transaction costs (e.g. through economies of scale), obtain necessary market information, secure access to new technologies and tap into more profitable markets, allowing them to compete with larger-scale farmers. However, this can only happen when smallholders start to receive comprehensive and committed support in the form of capacity-building programs that target FOs' internal management. Focusing on aspects such as leadership and governance would increase FOs' accountability to their members. Furthermore, FOs need to be strengthened in terms of their quality, competitiveness and range of market-related services.

iii) Intra-value chain coordination

Another aspect focuses on a systemic consideration of the value chain. While actors are often aware of the different functions and challenges of other actors, collaboration and activity coordination within the chain is limited to its sub-systems. However, value chains only prosper if all actors consider themselves to be part of an inter-linked system and work together on new business models and solutions for systemic challenges. Therefore, coordination among value chain actors should be encouraged through the introduction of a code of conduct for all stakeholders, for example. This can increase reliability and trust building as a basis for further collaboration.

Optimizing existing market linkages is a promising entry point for FO interventions, as well as for farm households of groups 2 and 3, because it allows them to increase their profit margin.

Promote access to and use of additional market opportunities

The existing potential of niche markets, in the form of by-products and special rice varieties, is not yet being systematically taken advantage of. Only a few actors venture into the production and marketing of special rice varieties. Connecting smallholder farmers to formal buyers more directly within high-revenue niche markets can contribute towards increasing smallholders' market position. Farm households will shift from farm-gate selling into an undifferentiated commodity market to selling a high-value differentiated product.

Sustaining relationships with formal buyers from high-revenue markets or institutional buyers such as supermarkets, hotels or restaurants, private companies, and/or public institutions can be built through FOs. The aggregation of produce

can contribute towards a shift from selling small quantities to single marketing outlets to larger scale buyers. Therefore, strengthening the service delivery capacities of FOs is a key entry point for intervention by governmental and non-governmental agencies.

However, in order to gain a more comprehensive insight into the specific requirements of more formalized marketing channels, further research into relevant quality and quantity standards, as well as consumer preferences would be beneficial. Training sessions and public/private support should then incorporate the obtained information and support farmers to adapt their production system to the given standards, thus increasing their productivity and competiveness. External stakeholders should foster the facilitation of intra-value chain exchange, as it has the potential to contribute to information exchange and the establishment of new market linkages.

The interventions presented above target farm households in groups 2 and 3. A product diversification and establishment of new market linkages would help to move away from farm-gate selling with itinerant buyers to more profitable, formalized markets.

7.4 Enhance access to market information

The market needs assessment of smallholder farm households revealed that access to market information is still a key challenge (see Chapter 6.3). Access to market news, information on prices, quantities, market conditions, and business contacts can be seen as a means of increasing the efficiency of marketing systems and prompting improved price building.

Establish market information systems

At present, access to market information is mostly limited to information obtained in the vicinity and at the closest market. Access to timely and accurate price information has the potential to strengthen farm households' bargaining power. Such information can be provided by the government itself or by the private sector. However, sustainability and commercial utility should be prime considerations when designing an information service. This implies further detailed research on the marketing system itself and on the needs of those involved.

Facilitate knowledge exchange among farm households

Regular exchanges between farm households can circulate information and knowledge on strategies for both farming and marketing practices. The study has shown that experiences and strategies are most effectively shared through face-to-face interaction (peer-learning), for example exchange platforms, training sessions and workshops. Therefore, this type of exchange platform should be promoted through governmental and non-governmental agencies.

Integrate marketing aspects into agricultural extension services

In order to improve smallholders' market access, agricultural extension workers (AEW) should include and enforce the dissemination of marketing-related knowledge on topics such as farm management and entrepreneurial skills and include the possibility and potential of engaging in further value adding steps. Thus, agricultural extension services need to be strengthened and receive training sessions on new issues concerning the rice value chain.

These options target farm households in groups 0, 1, 2 and 3 as well as farmer organizations. Improved market information would enable beneficiaries to improve their market orientation, schedule their harvests at the most profitable times, and strengthen the negotiation power of smallholder farmers with their respective buyers.

7.5 Strengthen physical infrastructure

The livelihood analysis has identified a range of structural insufficiencies that hinder the production and marketing of rice. In order to resolve these issues, the following entry points for interventions have been identified:

Improve public transport infrastructure

The development of farm-to-market roads can increase smallholders' access to markets and avoid inefficiencies in the transport and logistics sector. Furthermore, they also decrease transportation costs, resulting in a higher competitiveness of the produce on the market. Thus, the construction and rehabilitation of farm-to-market roads is considered to be a key entry point. High-priority investments in road infrastructure and market logistics need to be fostered by public and private stakeholders in close consultation with local authorities.

Enforce construction and rehabilitation of irrigation facilities

Smallholder farm households depend on sustainable and equal access to irrigation water. Therefore, governmental and non-governmental support should enforce the construction and rehabilitation of irrigation facilities and promote an expansion of irrigation facilities to formerly rain-fed agricultural land.

These interventions target all farmers in groups 0, 1, 2 and 3 alike, as the provision of sufficient infrastructure would foster an enabling environment for the entire rural population.

This chapter identifies a set of potential entry points for intervention designed to increase the market access of smallholder farm households with a varying degree of market access. Apart from group-specific recommendations, as formulated in this study, it is advisable to formulate specific recommendations related to gender and marginalized groups. Understanding their specific potentials and challenges with regard to more favorable market access therefore continues to be an important area for further investigation.

The sustainable success of the suggested interventions would require long-term commitment and support by a diverse set of public and private actors. Yet, the capacities and resources of implementers vary and thus interventions need to be adapted to their specific potentials. The following chapter will provide an overview of potential interventions for the Better Rice Initiative Asia (BRIA).

8 Better market linkages in Iloilo Province

Based on the results of the study, this final chapter comprises the recommendations for BRIA-Philippines, enabling BRIA to make their second project component "Better Market Linkages" operational. However, before outlining specific recommendations, it is necessary to assess the current monitoring indicator based on this study's findings.

In its current state, indicator 3[48] bases improved marketing exclusively on a 20% increase in long-term agreements. Firstly, it appears that with its capacities BRIA could achieve more, especially when considering the baseline for this indicator (Kleffmann Group 2014). Secondly, improved marketing requires more than just reliable marketing outlets, as the study could not identify any real gaps in market access. In general, farmers have no difficulties in finding a buyer for their produce. Furthermore, long-term agreements should not solely be understood in the sense of contract farming, as pointed out by the baseline study (Kleffmann Group 2014) and the Terms of Reference for this study. Long-term contractual arrangements do not appear to be important features of smallholder rice farmers' marketing practices in Iloilo Province. Lastly, targeted marketing arrangements should not only focus on farmer-retailer relationships. Smallholder rice farmers in Iloilo Province have linkages with a diverse set of actors, as pointed out in Chapter 5.1. Improved market access is not bound to a specific type of trading partner but rather determined by the freedom to choose, thus no predetermined linkage should receive any preferential treatment.

Apart from reviewing the indicator, the identified intervention areas and entry points have been selected and operationalized according to a criteria-based process. The project duration, the component's objectives and BRIA's level of operation have been taken into account.

Thus, the study team recommends addressing (1) individual farmers, (2) farmer organizations and (3) the entire value chain to implement BRIA's second component "Better Market Linkages". In order to achieve the promotion of market-

48 Project monitoring indicator 3: 40% of 8,000 instructed farmers confirmed an enhanced knowledge of the local rice market and its marketing channels and long-term agreements between instructed farmers and retailers increased by 20%, considering risk management options and micro insurance (Baseline 2013, biannual assessment, indic. fulfilled by end of the project).

oriented rice production, entrepreneurship and market linkages[49] three sub-objectives need to be achieved:

- Enable farmers to pro-actively improve their marketing practices;
- Strengthen farmer organizations (FOs) as a favorable market linkage for smallholder rice farmers; and
- Enhance collaborative action within the rice value chain to seize existing potentials.

The BRIA project thereby improves market linkages for individual farmers, facilitates new marketing arrangements for FOs and contributes additional value generation to Iloilo's rice value chain and intra-value chain exchange. The following section summarizes the rationale of each sub-objective and outlines the activities necessary to achieve them.

8.1 Enable farm households to improve marketing practices

The rice value chain in Iloilo offers many marketing channels to smallholder farmers, which are, however, used and accessed to a different degree. Therefore, it is recommended that activities under the "Better Market Linkage" component should increase smallholder farmers' freedom and ability to choose their marketing partners. It should target the availability of and access to information, the capacity to make informed decisions and the ability to address requirements that are market-channel specific.

It is expected that by improving the availability and access to market information, and the capacity to make use of such information, market incentives will work more efficiently. Suggested fields of action include the establishment of community-learning platforms, the incorporation of market-related topics into current capacity-building measures and the facilitation of new marketing arrangements.

- *Peer-learning platforms*: Throughout the interviews, it was expressed that farm households' information and knowledge uptake is most efficient through peer-learning. Farm households trust tangible results rather than abstract information delivered by external actors. Thus, facilitating knowledge and information exchange amongst farm households is the most efficient way to initiate change. Learning platforms in which 15-20 farmers can exchange information

49 According to BRIA's operation plan the second component sets out to ensure that "Market oriented rice production, entrepreneurship and market linkages are promoted" (BRIA Country Concept Philippines).

on their marketing practices and experiences regarding different marketing channels are to be established at inter-*barangay* level with the help of BRIA's current partners. Additional information on potential buyers and the conditions to use post-harvest facilities (fees, requirements, schedules) within the municipality is to be provided through the appropriate information dissemination channels.

- *Marketing training for farmers*: Farm households rarely possess the skills to rigorously evaluate the advantages and disadvantages of different marketing opportunities. This should be addressed by filling the "blind spot" with regard to marketing issues in training sessions. Furthermore, income diversification and access to formalized credit are crucial to improve farm households' freedom to choose among different marketing options. Thus, agricultural marketing and access to financial capital needs to be comprehensively incorporated into capacity-building interventions. BRIA's ToT-modules need to be revised and modified to include topics such as the cost-benefit considerations of different marketing options, post-harvest activities as a value-adding activity and sources of marketing-relevant information, as well as integrated farming. Additionally, information on existing agricultural micro-finance services needs to be provided through new and existing channels.
- *New marketing arrangements*: Interviews revealed that apart from being aware of the potential advantages linked to a specific marketing channel, personal relationships and marketing channel-specific requirements related to quantity and quality still determine whether a transaction takes place. Thus, the organization and implementation of networking events is necessary to facilitate the establishment of personal relationships with new business partners and to initiate collective action. BRIA has to identify ways of bringing farmers together with potential business partners, possibly through AgriFairs, and to raise awareness among farmers with respect to the benefits of collective action (e.g. regarding the procurement of inputs, transportation, post-harvesting steps, marketing).

With regard to the timing of different interventions, peer-learning platforms and marketing capacity-building should be targeted from the start. The facilitation of new marketing arrangements should be implemented later.

8.2 Strengthen farmer organizations as market linkage

Iloilo's FOs have the potential to play a crucial role in smallholder farm households' rice marketing. They can aggregate volume by increasing farm households' currently weak bargaining power and achieving economies of scale, which make operating post-harvest facilities economically viable. They can further serve as a valuable channel to provide information and enable farmers to supply more formalized market channels. However, many of them are currently failing to deliver on this potential and to truly cater to the needs of smallholder farm households. Therefore, it is recommended that activities under BRIA's second component strengthen FOs with regard to their internal management structures, their rice marketing and their consideration of smallholder farm households' needs.

Thus, it is expected that better-managed FOs, which are able to improve their rice marketing and, at the same time, consider all their members' needs, will serve as favorable market linkage for smallholder farm households. Suggested fields of action are: supporting institutions that provide training to FOs; using good-practice learning platforms and incentive systems to cater to smallholder farm households' needs.

- *Support training institutions*: Throughout the interviews, it was mentioned that FOs have been plagued by mismanagement and weak governance structures. This is linked to insufficient delivery of training sessions and possibly to gaps in training materials with regard to financial management, internal governance, leadership training and marketing. Thus, existing institutions that deliver capacity-building measures need to be supported in their service delivery and training materials should be reviewed based on a needs-assessment at the FO level. BRIA should engage with existing local training providers such as the National Irrigation Administration, the Provincial Cooperative Development Office, the Cooperative Development Authority and Municipal Cooperative Officers to improve training delivery. A consultation with these stakeholders should provide a basis for any future support measures for FOs.
- *Good-practice learning platforms*: Some FOs are well managed and provide numerous benefits for their members. Their experiences are invaluable and should be used to showcase good practices and alternatives. Thus, exchange among FOs needs to be facilitated providing incentives for improvements and thereby contributing to a further strengthening of FOs. BRIA has to assess existing exchange platforms to design activities that strengthen good-practice learning. This has to be pursued in collaboration with the abovementioned stakeholders.

- *Incentive systems to cater to smallholders*: Many FOs, particularly multi-purpose cooperatives, consist of a heterogeneous member base, which often means that the interests of smallholder farm households are neglected. Thus, incentive systems for FOs need to be developed to improve their service delivery to farm households. Such an incentive system could be developed to grant post-harvest facilities or access additional support measures. FOs that fulfil certain criteria could then benefit from such measures. One of these criteria should include that a specific share of the FOs' post-harvest facilities is used by smallholder farm households. This could be propagated with national partners or linked to a provision of post-harvest facilities by BRIA itself.

With regard to the timing of different interventions, they can all be implemented simultaneously. Access to capacity-building measures supported by BRIA could be linked to an incentive system giving preferential treatment to the FOs that cater better to smallholder farm households' needs.

8.3 Enhance collaborative action within the rice value chain

While individual business exchanges appear to be running smoothly, vertical coordination that fosters collaborative action within the value chain has room for improvement to seize existing potentials. Hence, market potentials remain untapped and business development is constrained. Therefore, it is recommended that activities under BRIA's second component initiate intra-value chain exchange.

It is expected that improved intra-value chain exchange would increase coordination and collaboration among actors, resulting in efficiency gains, higher resilience and new product development, also benefitting smallholder farm households. Suggested fields of action are the facilitation of participatory value chain development workshops and AgriFairs.

- *Participatory value chain development*: A participatory value chain development workshop conducted within the scope of this study revealed that intra-value chain exchange is weak and information flows are limited. This not only hinders strategy development to tackle upcoming challenges but also constricts product development and the systematic exploitation of new markets (special rice varieties, by-products, organic rice). Thus, a series of workshops at different levels and that include all the relevant stakeholders has to be facilitated. BRIA should use existing participatory value chain development handbooks as a guideline and hire an experienced facilitator for the implementa-

tion.[50] In addition, the Department of Industry and the National Food Authority have to be included in the process. Possible outputs could be: letters of intent; strategy papers or a code of conduct tackling the issues of trust and reliability; trade liberalization in 2017; quality standards; niche markets; consumer preferences, etc.

- *AgriFairs*: Several municipalities host regular agricultural fairs where producer groups present their produce and products to consumers, customers and retailers. These platforms should be used to facilitate the development of personal business relationships by creating a space for farmers and their potential business partners to meet. Thus, rice marketing should be established as a topic at municipal AgriFairs. BRIA should assess the possibility of using existing agricultural fairs as a platform at municipal level. Another possibility is to partner with AgriLINK, an annual series of exhibitions and seminars. Activities should include a mixture of presentations and discussions as well as entertaining elements such as cooking contests or award ceremonies.

With regard to the timing of the different interventions, they should support the overall process of improving market linkages in Iloilo and should therefore be incorporated in the ongoing process. They could also be used as a platform to launch the start of BRIA's second component.

50 The "Participatory Market Chain Approach" based on work by Thomas Bernet is already applied by Lorna Sister to promote value chain development. Practical action's "Participatory Market Systems Development" outlines a similar approach.

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10 Annex

10.1 Study context

The Advisory Service on Agricultural Research for Development (BEAF) has commissioned the Centre for Rural Development (SLE) to conduct a study to identify relevant approaches to improve the market access of smallholder rice producers. As defined in the Terms of References (ToR) BEAF works on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) supporting 17 international agricultural research centers. In the rice sector, BEAF supports the International Rice Research Institute (IRRI), an independent, non-profit, research and educational organization. Among others, IRRI conducts research on improving access to markets and develops innovative technologies for smallholders and extension workers. Study results are aimed at guiding IRRI to further develop approaches and improve information tools to promote market access and market information, according to the needs of smallholder rice producers.

The study results will be directly applied by the Better Rice Initiative Asia (BRIA) in the Philippines. BRIA is a public-private partnership project under the German Food Partnership (GFP) and is implemented by the German Agency for International Cooperation (GIZ). BRIA's project countries are Indonesia, Philippines, Thailand and Vietnam. The project's overall aim is to improve smallholder rice farmers' income and market access and to contribute to enhanced food security. BRIA Philippines' project activities are concentrated in three geographical areas: Iloilo Province, Aurora Province and Southern Leyte. Study results will be implemented in BRIA's component on "Better Market Linkage", fulfilling the need to facilitate specific interventions and thereby contributing towards the project's goals in the selected intervention municipalities.

10.2 Characteristics of rice production in Iloilo Province

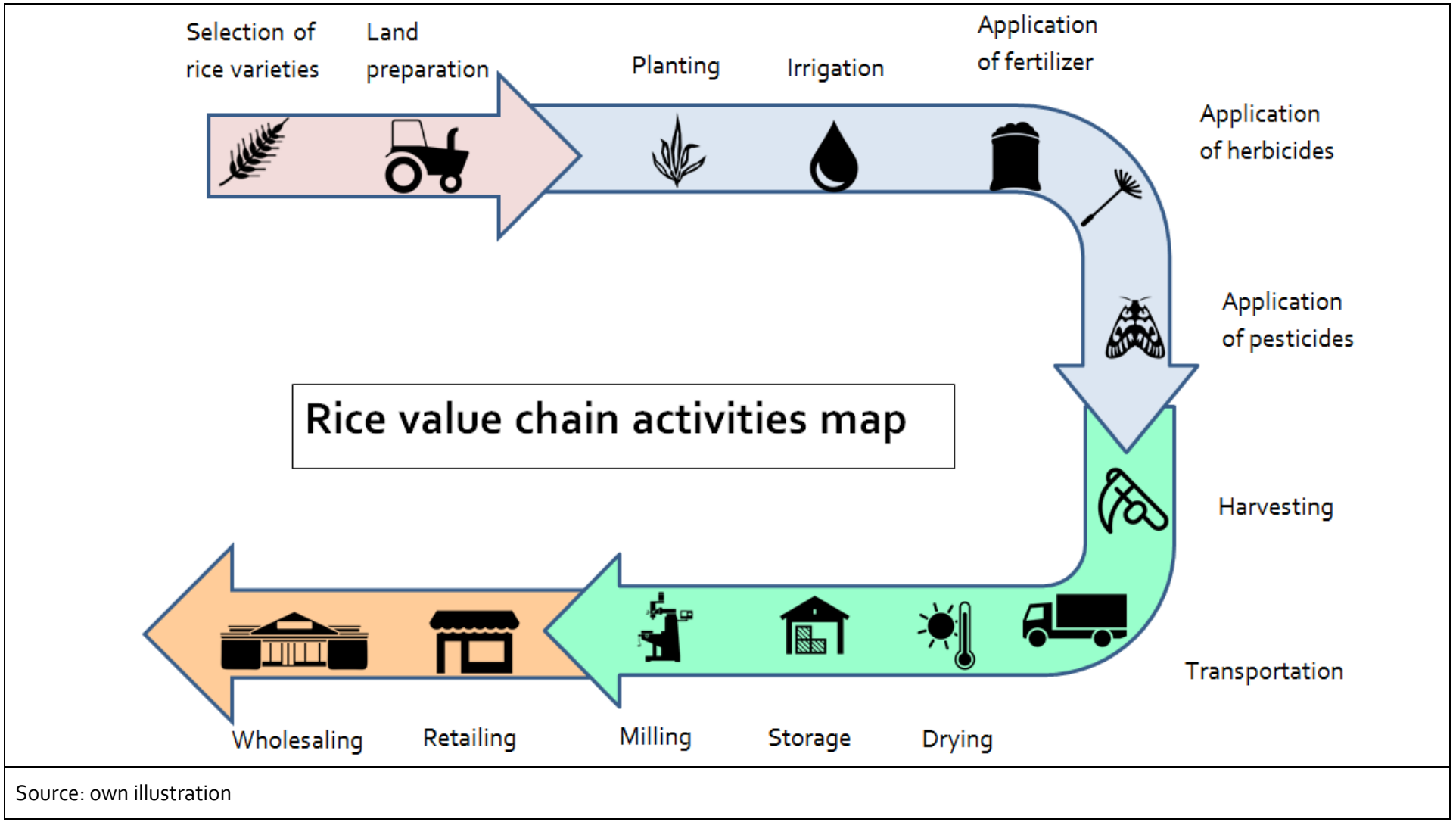
	Farms / Farmers	Average farm size	Area harvested ha	Percentage irrigated area	Percentage rain-fed area	Palay production in t	Avg. yield t / ha
Philippines*	2,150,000	2,1	4,460,000	68	32	18,032,400	3.85
Western Visayas Region**	429,456	1,55	666,917			2,292,201	3.40
Iloilo Province**	150,108	1,93	289,535	43	57	995,402	3.44
BRIA baseline survey***	150	3,40	-	-		-	4.00
Municipalities survey in the study							
Sta. Barbara	2,610	1,62	4,226	15	85	-	-
Mina	1,776	1,45	2,582	71	29	-	-
Oton	3,840	1,47	5,650	60	40	-	-
Pototan	3,490	1,85	6,439	75	25	-	-
Zarraga	1,776	1,45	2,582	71	29	-	-

* Regional Profile Western Visayas 2013 (2012 data) / PAS 2013

** Data for number of farms, avg. farm size and area harvested from 2002 (Agric. Survey 2010); other data 2012 from Overview Production Statistics by Region (PAS 2014)

*** BRIA baseline data (2013) by Kleffmann Group (150 farmers, irrigated rice, size of crop land 1 to 10 ha)

10.3 Rice value chain activities map



Source: own illustration

10.4 Value chain actors

Farmer

Farmers stand at the outset of the rice value chain as they produce and supply palay, the raw material for the rice value chain. As mentioned in chapter 5, most farmers are limited or even severely constrained within their marketing options and sell their produce shortly after harvest. Only a small group of farmers has the means to store their palay and sell it at a later date.

Agent

Agents connect palay or milled rice buyers and sellers. They only deal with the procurement of palay and are not engaged in any processing activities. Farmers sometimes use the services of agents in order to find a buyer. However agents are more frequently contracted on a commission basis by traders or millers to procure the required amounts of palay. Agents are responsible for guaranteeing that the sample and delivered produce are of the same quality. Depending on the arrangement, agents may also organize transportation.

The volume is handled by agents and can differ greatly. Small agents operate locally and might deal with a mere 100 sacks per harvest season, whereas others are engaged in brokering palay in different provinces and handle several hundred thousand sacks per cropping. Apart from palay trading, some agents are also engaged in brokering milled rice and establish contacts between millers and large wholesalers. In any case, agents rely on a wide and well-functioning network. They have to keep their contacts confidential, because the risk of being bypassed represents one of their biggest challenges.

Palay trader

Palay traders buy from farmers and agents, but also from laborers and caretakers who usually get paid in-kind. They usually purchase palay at harvest time because only the bigger traders can afford to procure the more expensive dried palay during lean season. Palay traders usually operate at local levels and accept small amounts of palay, which they gather and then sell to millers in batches of 100-300 sacks. Depending on their storage and financial capacity, palay traders sometimes sun-dry and store palay to ensure a better price. In addition, they often provide *utang* to a selected number of farmers, who repay their loans in-kind at harvest time. Palay traders are well connected to millers and agents, with whom they have longstanding business relationships. Nonetheless, they face challenges due to occasional defaults on loan payments.

Trader (palay and milled rice)

Traders buy palay during harvest time, have it processed using custom-milling services and sell the milled rice to wholesalers/retailers. Traders purchase batches of at least 50 sacks from several farmers and agents. The total volume handled by individual traders can vary significantly, as data collection reveals a range of between 2,500-12,000 sacks and a scope of action from local to provincial level. All traders have established *suki* relationships with at least some of their business partners. Three out of six interviewed traders offer *utang* to trustworthy farmers. However, some traders stopped this practice due to a high loan payment default rate. Each trader has a rather stable set of 5-10 retailers to whom they usually sell their milled rice. Larger traders also procure milled rice from smaller traders to gain on wholesale marketing margins.

Generally speaking, traders are aware of the high profit margin that can be achieved when turning palay procured from the farmer into milled rice and then selling to retailers. Their biggest challenge is the access to capital to expand their business operations either in volume or by investing in storage and drying facilities. Apart from that, some traders consider competition among traders as an important challenge, while others see established and non-varying business relationships as an obstacle.

Miller

Millers process palay into milled rice. Apart from this, 9 out of 11 millers are also engaged in farming and/or trading activities. Millers either buy palay directly from farmers, or they use the service of agents or traders. In some cases, millers provide financial support in the form of *utang* to farmers who sell their produce to them in return. Several millers own trucks for transportation purposes. Depending on the volume handled, millers sell milled rice to wholesalers or retailers in the municipality or even to adjacent provinces and other islands.

Aside from processing and selling self-produced and purchased palay, most rice mills also offer drying, storing and milling services (custom-milling) to traders, large-scale farmers and cooperatives.

There are three different kinds of millers. Big rice mills operate in several municipalities and have sometimes established trading relationships beyond the island of Panay. They usually have one or more milling machines and additional drying and storing facilities. Some rice mills have enough space to sun-dry 1,000 sacks of palay at a time or have a flatbed drier with a capacity to dry several hundred sacks of palay per day. The storage capacities of warehouses owned by the

interviewed millers vary between 2,000 and 60,000 sacks. The total volume handled depends on the capacities of the rice mill, ranging from between 1,000 and 35,000 sacks of palay per cropping. Smaller *kono* mills operate at a local level. Their milling machines can only facilitate one milling phase during the process. In addition to these there are mobile millers who provide custom-milling for farmers and can be called upon when needed. They own a truck with an integrated rice mill that can mill all kinds of rice with a capacity of around 10 sacks of palay.

Millers rely on well-functioning networks and good relationships with farmers, agents, traders and buyers, such as wholesalers and retailers. Most millers have established long relationships with their trading partners. Millers within one municipality often agree upon milling prices. Nonetheless, some millers do not stick to the agreed prices in order to obtain a better market share and competitive advantages over other millers.

Trader/Retailer

In comparison to an exclusive trader, a trader/retailer sells milled rice at their own store. Additionally, seven of the interviewed traders/retailers are engaged in farming. They use custom-milling to process their palay and then sell it at their retail store. However, more than half of the interviewed traders/retailers buy additional palay from farmers.

Most of the traders/retailers have long-lasting relationships with some farmers, to whom they provide production loans. Two trader/retailers facilitate farmers with credits from a bank and a cooperative. Furthermore, some traders have *utang* agreements with some of their customers, allowing them to pay at a later time. The volume handled by trader/retailers within the sample varies between 300 to 30,000 sacks per cropping, with 1,000 to 2,000 sacks being the average. Most traders/retailers would like to scale up their businesses but cannot do so due to financial constraints. Additionally, traders/retailers who provide *utang*, either to farmers or customers, report defaults in repayment.

Wholesaler/Retailer

Wholesalers provide the supply to retailers and supermarkets, while retailers sell milled rice to consumers. However, the sample shows that most actors assume additional activities along the value chain beyond selling to retail stores (see trader/retailer)[51].

51 Further details regarding volume handled cannot be made due to limitations in data collection.

However, wholesalers/retailers usually procure milled rice from several sources. In some cases, retailers use the opportunity to sell rice on a commission basis. Rice retailing is challenged by demand fluctuations linked to the rice-harvesting cycle.

Farmer organizations/cooperatives

Farmer organizations, such as cooperatives, engage in a range of activities along the value chain from palay trading, transportation, storing, milling, and custom-milling to retailing/wholesaling. However, farmer organizations/ cooperatives differ in various respects. Some cooperatives buy the palay from their members and take care of all the processing steps. Other cooperatives offer their members the use of their post-harvest facilities for a fee, enabling them to sell their produce at a later time and at higher prices. Depending on the procurement budget, cooperatives operate only at a local level or within several municipalities.

The total volume handled per cooperative ranges within the sample of between 2,000-45,000 sacks per cropping. Some cooperatives have been able to make use of Department of Agriculture-owned machinery, allowing them to increase their processing capacities. Still, for most cooperatives a lack of capital represents a key challenge. This is mainly attributed to the fact that the majority of the cooperatives provide their members with credit, which is often not paid back. In one case, loan defaults have led to a situation in which the cooperative no longer has the necessary capital to engage in further palay trading. Furthermore, since multi-purpose cooperatives are accessible to non-farmers, traders sometimes use the cooperative's processing facilities and thereby inhibit farmers' access.

10.5 Service providers

Each value chain relies on a range of services, which can greatly enhance a chain's efficiency. Service providers or so-called value chain supporters (VCS) can be public, private or non-profit actors offering production-oriented, marketing-oriented and financial services.

Production-oriented services

Production-oriented services mainly target farmers and include farm supply, irrigation, farmer capacity development and extension services.

The Municipal Agricultural Officer (MAO) together with Agricultural Extension Workers (AEW) form the farmer support at a municipal level. While the MAO has coordinating and planning functions, AEW are in charge of providing individual

consultations and field visits to specific *barangay*s. Apart from that, they are also involved in the implementation of training sessions, notably at farmer field schools. Aside from production-orientated topics, training sessions and field schools have begun to include modules on agricultural marketing. One example is the module *farming as a business* that aims to enhance farmers' entrepreneurial skills. However, depending on the financial resources of the LGU, municipal extension services might face challenges in the form of insufficient staff and lack of operational means.

The Department of Agriculture (DA) is the government agency responsible for the promotion of agricultural development. In order to fulfill its objective to ensure food sufficiency and a decent income for farmers, it undertakes a variety of actions and programs and gives individual advice to farmers on any production-related issue. The DA supports municipal extension services, in the implementation of farmer field schools for example, but also by training so-called Local Farmer Technicians who are trained to share their knowledge within their community. The DA also uses the municipal support service in order to introduce and distribute new rice varieties as well as to occasionally provide subsidized farm inputs directly to farmers.

The National Irrigation Administration (NIA) is in charge of the management and development of irrigation systems using surface water sources. Farmers pay irrigation service fees to the NIA depending on the size of the irrigated area and the cost of the irrigation system. The NIA works closely with Irrigators' Associations: organizations of farmers who use irrigation services. While the NIA is responsible for the provision of water supply, Irrigators' Associations deal with the distribution of water. The latter includes the elaboration and implementation of irrigation schedules in case of water shortages. Furthermore, many Irrigators' Associations have been provided with subsidized farming- and post-harvest machinery by the DA. Members of the Irrigators' Association can use the machinery by paying their service fees.

Private companies support the value chain by supplying productivity-enhancing technology and related extension services. Chemical input suppliers not only market their seeds, fertilizer, herbicides and pesticides, they also offer training sessions, operate demonstration plots and give advice on production problems that may arise. Around 20% of the farmers interviewed have attended training sessions offered by private companies.

Non-governmental and non-profit organizations often implement community-based projects with a focus on marginalized and typhoon-vulnerable farmer

groups. They offer capacity development (e.g. business development services) and technical support, which comes in the form of farm inputs and farm machinery. In Ajuy, NGOs implemented projects focusing on relief and resilience-building with regard to disaster risk reduction. However, in Sta. Barbara, Pototan and Oton, NGOs are not very active, with the exception of an organization affiliated to the Catholic Church that promotes organic farming.

Marketing-oriented services

Marketing-oriented services target marketing actors and their capabilities, covering the provision of post-harvest facilities, capacity-building for marketing actors and government market interventions.

Apart from production-oriented services, the DA also supports farmers and their cooperatives or associations with highly subsidized post-harvest facilities.[52] Within the Rice Mechanization Program, the DA through the Philippine Center for Postharvest Development and Mechanization (PhilMech) grants combined harvesters, threshers, dryers and warehouses to eligible farmer organizations who only contribute 15% of the total value. Furthermore, the Agribusiness and Marketing Assistance Division (DA-AMAD) implements the provision of Rice Processing Centers (RPC) to cooperatives. Eight RPCs have been granted by the Korean Cooperation through the DA to cooperatives and associations in Iloilo. In order to benefit from these programs farmer organizations have to undergo a lengthy, highly bureaucratic process, making it difficult to take advantage of this potential. However, changes in office can lead to shifts in priority areas, affecting the continuation of former decisions.

Cooperatives are regulated and registered by the Cooperative Development Authority (CDA). Apart from its regulatory services, the CDA together with the Provincial Cooperative Development Office (PCDO) provide technical assistance and training sessions. About 40% of all cooperatives in Iloilo Province use this service and request demand-based training sessions on topics such as values, leadership, management and financial literacy. However, the PCDO faces severe financial and staffing constraints.

Another public service provider engaged in rice marketing is the National Food Authority (NFA). It is responsible for ensuring food security and the stabilization of rice and corn prices by keeping buffer stocks and buying palay and selling milled

52 Support services offered by the DA are generally targeted at farmer cooperatives or associations. The DA sees high potential in grouping farmers together into formal organizations.

rice at fixed prices. It currently only procures 4% of the Philippine rice production. This is linked to the fact that only a few farmers are able to meet the NFA requirements, which include a 14% maximum moisture content, the provision of transport and a minimum amount of 200 sacks. Large-scale farmers, traders or cooperatives are more likely to comply with these standards. Furthermore, the procurement budget of the NFA is limited. Nonetheless, the NFA has a high impact on rice market prices because it imports cheap rice from Thailand and Vietnam, which is distributed by accredited NFA retailers. Additionally, the NFA brings together federations of industry sub-sectors in quarterly meetings where issues regarding the rice market are discussed.

Financial services

Financial services for the rice value chain not only include credit but also insurance. In Iloilo, there are several private banks, cooperatives and the government-owned Landbank of the Philippines, which provide special loans for farm production (see chapter 2).

Formal loan providers and their rural finance services

Landbank of the Philippines

- *Sikat Saka Program*
  This is the credit component of the Food Staples Sufficiency Program (FSSP). It provides members of Irrigators' Associations, who own or till ½ to 5 ha and who have been paying their irrigation service fees, with access to credit at a rate of 15% p.a. It includes crop insurance through the Philippine Crop Insurance Corporation that is currently paid for by the Government.
- *Agricultural Credit Support Project*
  This project is aimed at retail and wholesale borrowers with agri-related projects to enable them to increase production or expand their operations. In addition to providing loans, the project also provides technical and capacity-building assistance.
- *Agrarian Production Credit Progra*
  Cooperatives, farmer organizations and rural banks can borrow at 8.5% p.a. from the Landbank and relend to their members/customers at a maximum interest rate of 15% p.a. This is supported by the Department of Agriculture and the Department of Agrarian Reform.

Rural Bank of Pototan

- Starting 2-3 years ago, the Rural Bank has been offering agricultural credits at around 16% p.a. Land usage titles are required as collateral.

Life Bank Sta. Barbara

- Starting this year, the Life Bank is piloting an agri-microfinance project. Loans have a maximum duration of 3 months at a diminishing interest rate of 1.5 %/month. Instead of collateral, the bank does a cash flow analysis together with the client and requires farmers to take out crop insurance through the PCIC.

The Philippine Crop Insurance Corporation (PCIC) implements the government's agricultural insurance program offering crop insurance to farmers for cases of crop loss due to natural disasters, plant diseases and pest infestation. Several banks and cooperatives have linked the provision of loans to crop insurance through the PCIC. However, farmers seem to be skeptical towards crop insurance as they consider it to be too expensive and the payouts in cases of loss to be insufficient and often delayed.

With regard to credit services, findings suggest that not only farmers, but also other value chain actors tend to prefer informal loan providers such as private individuals, input providers, neighbors and relatives. They appreciate the lower transaction costs resulting from less paperwork, no necessary collateral and a short time between application and loan disposal.

10.6 List of data collection activities

Workshops conducted

Date	Place	Workshop title	Actors	Number of Participants
16.06.2015	Berlin	Participatory Value Chain Mapping	Research Institutions	2
10.08.2015	Iloilo	Participatory Value Chain Mapping	Research Institutions	7
17.08.2015	Santa Barbara	PRA-Workshop: Service and Opportunities Map and Focus Group Interview (Intervention strategies)	Rice-based farm households	18
21.08.2015	Pototan	PRA-Workshop: Seasonality Calendar and Focus Group Interview (Financial needs)	Rice-based farm households	11
31.08.2015	Ajuy	PRA-Workshop: Service and Opportunities Map and Focus Group Interview	Rice-based farm households	9
03.09.2015	Oton	PRA-Workshop: Information Needs Assessment	Rice-based farm households	8
02.09.2015	Iloilo	Participatory Value Chain Mapping	Value Chain Operators & Supporters	36
19.09.2015	Iloilo	Future Lab	CPU Researchers & SLE Study Team	8
16.10.2015	Los Baños	Result Workshop	Value Chain Operators & Supporters	36

Guideline-based interviews conducted

No.	Date	Organization	Position	Interview Partner
1	05.08.2015	Federation of Free Farmers	National Manager	Raul Q. Montemayor
2	05.08.2015	Department of Agriculture	Senior Technical Adviser	Santiago R. Obien
3	06.08.2015	IRRI	Scientist	Alfred A. Schmidley
4	07.08.2015	IRRI	Scientist	Dr. Bryce Blackman
5	07.08.2015	IRRI	Scientist	Rowena Castillo
6	07.08.2015	YARA Fertilizers Philippines Inc.	Input Supplier / BRIA Partner	Tomas Quimbo
7	07.08.2015	UP Los Baños	Scientist	Florencia G. Palis
8	07.08.2015	Bayer Crop Science Inc.	Input Supplier / BRIA Partner	Edward A. Limon, Pamela N. Gutierrez
9	10.08.2015	BRIA-GIZ Project	Project Staff	Arce Chua, Victor Prodigo, Matthias Radeck
10	11.08.2015	Local Government Unit (LGU) Santa Barbara	Municipal Agricultural Officer	Waling Waling J. Terania
11	14.08.2015	Provincial Office, Department of Agriculture (DA)	Local Farmer Technician (LFT)	Rodelyn Caro
12	14.08.2015		Trainer / Consultant BRIA Value Chain Module	Lorna Sister
13	19.08.2015		Organic Farmer	Enrico A. Mora
14	20.08.2015	LGU Pototan	MAO	Renato Jamellarin
15	25.08.2015	Cooperative Development Authority (CDA)		Remia C. Enojas
16	26.08.2015	Department of Agriculture	Agribusiness & Marketing Assistance Section	Allan Umadhay
17	26.08.2015	Department of Agriculture	Regional Technical Director	Manuel Olanday
18	26.08.2015	National Food Authority	Assistant Provincial Manager	Jose Pacificador
19	26.08.2015	Department of Agriculture	Provincial Rice Coordinator	Elias Sandig
20	27.08.2015	Land Bank	Account Officer	Nicanor M. Labanon
21	27.08.2015	SL Agritech	Technical sales representative for Region 6	Jessie Seposo
22	27.08.2015	Rice Seeds Producers Region VI	Operation Manager	Analyn E. Billones

Guideline-based interviews conducted (cont.)

No.	Date	Organization	Position	Interview Partner
23	27.08.2015	LGU Ajuy, Municipal Agric. Office	Senior Agriculture Technologist	Efren G. Cuesta
24	27.08.2015	Taytay Sa Kauswagan, Inc. (TSKI)	Acting Manager FIDA	Ronnie S. Camangon
25	27.08.2015		Organic Farmer	Ruben Salando-on
26	27.08.2015	LGU Ajuy	MAO	BJ Salando-on
27	01.09.2015	Municipal Agric. and Cooperative Office, LGU Oton	Cooperative Specialist II	Maria Rosena M. Jaspe
28	01.09.2015	KOICA	Interim Manager	Jo Melocoton
29	01.09.2015	LGU Oton	MAO	Celsa S. Suarez
30	01.09.2015		Organic Farmer	Joby Arandela
31	02.09.2015	Macabito Irrigators' Association	President	Franz "Japok" Balthasan
32	02.09.2015	National Irrigation Authority (NIA)	Water Resource Facility Technician	Joel Carreon
33	03.09.2015		Natural Farmer (integrated farming)	Franz "Japok" Balthasan
34	03.09.2015	National Food Authority (NFA)	Head	Joemar A. Cagurin
35	03.09.2015	El Toro Enterprises		Rey Sotaridona
36	03.09.2015	Fastbelt Thresher	Secretary	Lene Somodio
37	04.09.2015	NIA Regional Office	OIC Financial and Administration Division Institutional Development Section	Lyn Grace Causing Joy Baviera
38	04.09.2015	LGU Zarraga	Mayor	John Tarroza
39	04.09.2015	Department of Agriculture	Science Research Specialist	Flerida A. Demamoy
40	04.09.2015	Masipag	Regional Program Director	Regina Gaza
41	07.09.2015	Dingle Multi-Purpose Cooperative	Manager	Marilou V. Gonzaga
42	14.09.2015	Prov. Cooperative Devel. Office	Cooperative Development Service	Arturo Caugrejo
43	14.09.2015	Provincial Planning and Development Office	Provincial Government Department Head	Mario N. Nillos
44	14.09.2015	Department of Agriculture	Head of Agric. Marketing Assistance Division	Teresa Solis

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