



Australian Government

**Australian Centre for
International Agricultural Research**

Eastern Indonesia-Agribusiness Development Opportunities (EI-ADO)

Beef Value Chain Study

Executive Summary



Locations: East Java, West Nusa Tenggara (NTB) and East Nusa Tenggara (NTT)

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Executive Summary Beef

Background on AIPD-Rural / EI-ADO

The goal of AIPD-Rural is a 30 percent increase in incomes for more than 1,000,000 male and female smallholder farmers by 2022.

The objective is in increased competitiveness of poor male and female farmers, realised through:

- Increased productivity;
- Improved business performance;
- A growing share of an expanding market; and
- The continuous adoption of innovations that contribute to productivity, performance, and market growth.

The expected outcomes are:

- Improved farmer practices;
- Increased access to input and output markets; and
- Improved business enabling environment at the sub national level.

The strategy to be used is to address the systemic growth constraints in rural agricultural sectors that are most relevant to small farmers in the districts in which the Program operates.

The Program is to take a market-led approach of working with on- and off-farm market stakeholders (public and private sector) to stimulate both increased access to and the sustained delivery of public and private inputs and services that are likely to increase the incomes of poor farmers.

Background on beef

In consultations with government and industry stakeholders to select commodities for EI-ADO, beef was ranked as the commodity with greatest potential for poverty reduction and market development in NTB and NTT, and second in EJ.

Analysis for this report confirms this potential and proposes ways for the GoA to assist the full range of Indonesian stakeholders to facilitate industry and rural development at scale.

It does so through an integrated strategy based around:

- Integration with major GoI programs with cattle producers and groups to address the major constraints to industry development, which are on the production-side;
- Extending these programs to include components of on farm planning, business development, finance and cattle marketing; and
- Support for private cattle and beef companies (traders, feedlots and butchers) with potential to expand their operations and increase linkages with cattle producers and groups.

This strategy will:

- Address the major constraint to industry development at early stages of the beef chain;

- Support the policy objectives and programs of the GoI and integrate Australia's long-standing cattle research program into Indonesia's official program;
- Provide the source of scale, impact and sustainability for AIPD-Rural; and
- Have direct impacts on 25,000 farmers through income increases of approximately 100 percent, and indirectly impact on 100,000 farmers through with smaller income effects. This does not include off-farm impacts in the inputs and downstream sectors of the beef chain.

Socio-economic and policy settings

- There are at least 1.5 million cattle producers in the three provinces of EJ, NTB and NTT. There are at least another 50,000 people that work in the cattle trading, slaughter and beef retail industries combined (excluding actors in other sectors that are not able to be estimated).
- Women conduct most of the activity the early stages of the chain (cattle production) and late stages (boning and retail).
- The industry is governed by a tapestry of socio-economic structures, including: owner-keeper relationships, company-farmer relationships, producer groups, ceremonies and trading-butcher-retailer networks that form close-knit, family communities in rural and peri-urban areas.
- The GoI has applied enormous policy commitment and resources to the beef industry under its Beef Self-Sufficiency Program (e.g. IDR1.5 trillion for 2013 for central government alone), which acts as a flagship for a large range of inter-related policy measures (trade, slaughter, cattle distribution, funding, subsidies).
- Socio-economic and policy settings play a pervasive role in the industry and must be taken into account in conceiving and designing the project. The settings are sometimes thought to pose an obstacle to industry development, but can also provide important integrative roles and opportunities for industry development and GoA programs including EI-ADO.

Macro settings

- Macro indicators show modest changes in domestic production and consumption over the last decade. More recently, however, policies associated with Indonesia's Beef Self-sufficiency Program (trade and cattle distribution programs) have reduced supply, reflected especially in increasing prices.
- High cattle and beef prices in Indonesia in international and regional terms generated large increases in cattle and beef imports over the early 2000s to peak in 2009 after which time trade restrictions reduced import quota to about one-quarter these levels in 2012.
- Import restrictions were introduced concurrently with very large GoI programs to stimulate domestic cattle breeding (cow-calf production), through cattle "rescue" and re-distribution programs for at least 1,000 groups between 2010 and 2012.
- Together, import restrictions and government programs have increased competition for both slaughter and breeder cattle in EI. This results in:
 - Upward pressure on cattle prices that, if relayed back to farm level, will mean higher farm-gate prices for cattle producers;

- Increased difficulties for cattle buyers (butcher, traders, feedlots) to secure cattle to specification at prices that enables viability; and
- Greater domestic trade flows (also subject to local quota and disease restrictions). Inter-regional and inter-island trade is a significant market in volumes and as a proportion of local slaughter in all three EI-ADO provinces.
- These alignments create favourable conditions in which to conduct a beef project in EI that are likely to remain in place through the life of AIPD-Rural, and beyond.
- On the demand side, claims that per capita consumption of beef in Indonesia is increasing rapidly have to be assessed critically.
- Beef is not a luxury item in Indonesia, consumers have few quality preferences (besides cuts and hygiene) and the vast majority of beef is consumed in a highly cooked or transformed form.
- There may be limits to the extent that high cattle prices can be passed on to consumers in the form of high beef prices, which could be expected to increasingly “squeeze” intermediate chain actors (traders, butchers, feedlots).

Industry settings

The settings above have forged industry structures that are present today. Some of the basic characteristics of the industry are:

First, the vast majority of industry activity in EI occurs within rudimentary, low cost structures:

- Low input-low output cattle production systems, where cattle are kept as a part of small integrated farming systems.
- Informal marketing systems in spot markets, and cattle shipped on general cargo boats.
- Low cost, labour-intensive slaughter by individual butchers and their crews in basic service-kill facilities.
- Basic beef retailing at markets with minimal overheads or infrastructure.

Second, the EI beef industry is best depicted as a supply chain rather than a value chain:

- Product flows from the production sector, downstream through the chain. With some notable project-based exceptions, producers receive few inputs, services, or feedback from off-farm sources, inputs suppliers, the extension system or cattle buyers.
- With weak forward and backward linkages, producers make input, production and marketing decisions as largely autonomous actors.
- That is, there is very limited deliberate co-ordination between actors to achieve common objectives of the sort that constitutes a value chain.
- Interventions recommended aim to address this lack of coordination and linkages through the development of value chains, but in a way that conforms with the nature of the commodity, the structure of the chain, and policy and institutional settings.

Third, the cattle production sector should be at the centre of any sub-sector program for the following reasons:

- The sector is the least efficient sector in the industry, and has the greatest potential for increased productivity and income gains;
- Extensive, long-standing research and development projects by Indonesian and Australian agencies have established simple, low cost, integrated measures to increase productivity and incomes;
- The sector has by far the largest number of low income participants, where the project can have large impacts;
- High demand for cattle due to underlying supply-demand alignments provides opportunities for cattle producers in EI into the foreseeable future (regardless of policy settings);
- Cattle supply is the most immediate constraint to industry development and for downstream actors; and
- The sector is the focus of Gol policy.

Areas for possible intervention

With the industry structures in mind, this section outlines areas that are – and are not – priority areas for upgrading through project interventions.

Any squeeze between cattle and beef price alignments are likely to impact strongly and adversely on intermediate chain actors with higher cost structures. A number of projects plan to develop mechanised slaughter facilities, sometimes integrated downstream (beef retail) and upstream (feedlot, contract fattening, feed activities). Because of the integrative function of these lead firms, the projects could notionally be of interest to AIPD-Rural. However this requires that the projects secure higher-value beef markets, which are largely absent, and therefore pose risky investment targets. However, some recommendations on a potential marketing strategy are provided in Section **Error! Reference source not found..**

Investments in infrastructure (cattle markets, holding yards, ports, shipping, slaughter facilities, wet markets) have the potential to reduce costs in the chain, improve food safety and hygiene levels, and improve animal welfare. Infrastructure investment is however not regarded as a high-order potential investment area for AIPD-Rural. The Gol is addressing cattle and beef infrastructure as a public service, and there do not appear to be clear pathways or interest for private sector co-investment in the sector. Interviewees (traders, butchers, local government) did not identify infrastructure as a major constraint to their operations.

At first sight, the “lead firm approach” appears highly applicable as a way of addressing problems of low levels of chain integration, poor services for farmers and productivity. The approach is relevant but must be applied in a nuanced way that takes into account the characteristics of beef as a commodity and an industry in EI.

In particular, large multinational or national firms in EI that lead industry integration in sectors like dairy, poultry, cropping and horticulture are either missing or lack incentives to provide services to farmers on a scale that will lead to significant productivity and income effects.

On the inputs side (breeding, feed, animal health):

- Inputs are sourced predominantly from within household and farming systems, and the inputs that are sourced off-farm (genetic material, vet products) are small cost items for farmers.
- Unlike dairy and poultry, there are no feed companies for small-holder beef cattle in EJ.

- The manufacture of artificial insemination (AI) and veterinary products is a public service of the state (but some distribution and AI agents can be quasi-private).
- Even where there is uptake of external inputs (e.g. AI in EJ), external input suppliers have limited incentives to provide embedded services to farmers on a scale that will lead to significant productivity effects.
- There are, however, opportunities to develop linkages between farmers/groups and small scale input distributors (agents) at a local level. For example changes in fee structures where AI agents are paid on the basis of a successful pregnancy (rather than attempt) would increase incentives for AI agents to communicate more closely with farmers (oestrus detection) and deliver quality semen in a timely way.

On the outputs side:

- Slaughter is done predominantly on service kill basis, where slaughterhouses provide facilities primarily as a public service for individual, small-scale butchers that hold ownership of product (i.e. buy cattle and sell beef). This means that unlike some countries (e.g. China), slaughterhouses do not enter into contracts with or provide services to producers, while individual butchers buy at spot markets with few formal links with producers.
- Other downstream actors in EI (butchers, traders and feedlots) have few formal backward linkages to farmer level.

There are, however, opportunities to facilitate relationships between producers and buyers, who have incentives to participate:

- The ability to source cattle to specification, reduce purchase risks (carcass yields, liver fluke etc.) at the right price (e.g. to buy good value cattle) is a major – or indeed *the* major – component of the operations of butchers, traders, feedlots.
- Butchers and feedlots generally run efficient and well-established slaughter and feeding operations, but the knowledge and resources required to find and buy cattle is an important source of profit and risk for them.
- Cattle search, assembly and holding costs make up a significant proportion of costs, risks and time for buyers.
- Cattle supply-demand-price alignments may mean that buyers will have to become increasingly pro-active to secure supply to specification.
- While there are few formal linkages between buyers and producers, the incentives to develop these links are in place and may be able to be facilitated by the project, through participation in the next section “Integration of Gol and GoA cattle production projects and programs”.

There are several opportunities for direct cooperation with private sector actors in EI, though at relatively modest scale and impact on farmers.

- An already well explored area of cooperation is with cattle trading agencies in NTT that enter into contract fattening arrangements with small-holders (TLM and PUSKUD). AusAID has piloted activities with TLM cattle program and is in a position to ascertain the efficacy of continuing or scaling up this program under AIPD-Rural.
- There is an integrated beef company/feedlot (Wahyu Utama) in EJ that has contractual, finance and services links fattening households.

- There are between 10 and 12 feedlots in EJ that run small (500 head per year) but reportedly efficient and profitable feeding operations. While they do not have the formal relationships with farmers of Wahyu Utama, they have potential for growth and development which will increase demand for feeder cattle from farmers.
- There are several large cattle traders in NTB and NTT that coordinate contracts, finance and cattle purchases from farmers for the inter-regional cattle trade. This is a concentrated sector (a limited number of large traders) and organised through associations. There is potential to develop more extensive and closer links between these traders and farmer groups.
- There is a small slaughter company (Aldia) in Kupang that has integrated beef retail and distribution chain that could be developed with more formal links to farmers.

Integration of GoI and GoA cattle production projects and programs

While it is possible to identify opportunities for investment with the private sector, potential impacts and gains are much higher through integration with major GoI programs with cattle producers and groups. Cattle programs have been run in Indonesia for many years but under the latest Beef Self-Sufficiency Program have been scaled up to form very large programs.

- For example, one program conducted by Dinas Livestock in NTB between 2010 and 2012 distributed cattle to 221 groups, with funding of IDR160 billion, which may amount to 20,000 head.
- There are at least 10 other central government agencies that run cattle distribution programs, many local government and NGO programs, and many national and provincial level corporations that use cattle in corporate responsibility programs.
- Most programs purchase and then distribute cows or heifers to farmers who are necessarily organised in groups, who then have obligations to return a specified number of offspring before they can take over ownership of the cow (e.g. 2 calves in 5 years). Some programs offer increasingly favourable terms for farmers.
- Economic analysis shows that participating producers have low returns until obligations are met, after which cattle production becomes an attractive opportunity (which explains why so many farmers apply for the program and so many producer groups are formed to be eligible for the programs).
- After some failures, the more progressive programs and agencies have designed programs to:
 - Ensure that the programs not just distribute cattle, but that address problems in the broader production system (pens, feed, water, AI and health services, compost/biogas etc.), and;
 - Offer support for farmers and groups through links with technical extension officers, and on the ground staff (OTGS) that live locally and help the farmers and groups. Staff are funded under the program for the first year and then expected to become self-funding.
- The primary recommendation of this report is that AIPD-Rural integrate project activities with these GoI cattle programs in order to:
 - Leverage up on the very large human, financial, logistic, knowledge resources provided under the programs;
 - As the major source of impact, scale and sustainability for AIPD-Rural;

- Demonstrate support for the programs of Gol; and
- Improve and extend the programs, especially through the development of farm management skills and business linkages with up- and downstream actors.

It is also important to note that Australia has a long history of cattle research and development projects in Indonesia. The projects have established simple, effective measures to increase productivity and incomes. However, these programs have been undertaken largely independently from official government (administrative and extension) systems and have not been integrated or taken up at scale. Integration of Gol and GoA cattle development program provides a unique opportunity to do this to reach mutual, common benefits and goals.

Importantly, the proposed project design also extends previous production-side research and development programs through the development of farm management, finance and business skills, and off-farm business linkages. Business aspects complement production aspects of the systems and indeed are a necessary component of an overall sustainable, integrated, commercialisation program. This is best achieved through a series of direct, local, integrated initiatives.

Proposed project design

The focus of the project is on early stages of the chain (cattle production and marketing) through a series of connected and inter-related components.

Long-standing research and development projects conducted by Indonesian and Australian agencies have established cattle production systems that are integrated into broader farming and social systems, where simple, low cost changes in production and management practices have large productivity and incomes effects. These systems are ready to be scaled out though with adaption to fit with Gol programs. Cattle production interventions in the project would focus on:

- Key physiological needs of cattle especially: increased quantity and/or quality of feed at critical periods of the calving and growing cycle; the establishment of “feed banks” including tree forages and the utilisation of crop residues; adequate access to drinking water; and sanitary pens and forms of animal control. Breed improvement and seasonal mating are of lower order priorities, but timely detection and delivery of AI is important in EJ, and bull management is important in NTB and NTT.
- These simple interventions have the potential to increase productivity, including mortalities, calving intervals (“one calf one year”) and calf growth, weaning rates and ages, growth rates, and turnoff rates and ages.
- Budget simulations suggest that low productivity household cattle production systems generate marginal or negative in net returns, but that that moving from “low” to “high” productivity systems can double returns to both cow-calf production and cattle fattening.

Extension, communication and adaption with households are, of course, necessary if any of the technical and production-side measures are to be taken up. In particular, cattle producers in EI are risk-averse to new technologies and systems – even if they are simple, low-cost and promise to generate economic and social benefits. Cattle development programs and schemes conducted by the Gol (and advocated in this report) alleviate some of this risk, but understanding and addressing attitudes to risk should be a primary consideration in any program undertaken.

Proposed interventions are much more likely to be taken up if households are actively engaged in understanding and planning on how production systems fit into their available resources (land, labour, capital) and objectives (incomes, risk, social). These vary group-by-group and household-by-

household. The project therefore proposes to provide direct assistance and training in developing farm management and planning, not just on technical aspects, but also business aspects of farm management. Methods adopted by AusAID's ACCESS program (Australian Community Development and Civil Society Strengthening Scheme) especially related to business development and finance and marketing are directly relevant here.

As a logical extension of these farm management activities, and as a critical component of cattle production systems, finance also forms a component of the project. Cattle are a major means for households to "save" money to pay for immediate and urgent household needs when required. However, this approach is rarely profit-maximising because: households incur high opportunity costs of capital in cattle kept in the farming system for long periods; cattle are not raised to maximise (input-output) efficiencies; and entering into a forced sale reduces the ability of the household to sell at high prices (timing in market and bargaining position). Means to increase incomes and manage risk through financial management (higher turnover of cattle, group savings through bulls and even formal bank finance) should be explored as part of any cattle project.

The next logical extension of the proposed program is to improve cattle marketing and linkages between cattle groups and buyers. Cattle buyers (butchers, traders, feedlots) are particularly interested in accessing cattle to specification and in sufficient numbers, because it reduces the significant costs and risks associated with cattle search, purchase and quality. The delivery of cattle to specified quality and quantity places extra demands on households (better animal conformation, coordination between households and groups to meet orders) but would be offset by price premiums of 5-10 percent with corresponding income effects. It is recommended that the project actively facilitates links between groups and buyers to understand preferences and to facilitate or broker sales.

Training, support and capacity building

Operationalising the proposed program requires both an integrated approach and the day-to-day presence of project support staff.

There is large scope for the proposed project to integrate with cattle groups that are well-established or that have been established for cattle distribution and corporate responsibility programs. The groups and households will already have had cattle allocated to them under the programs and some will be nearing the end of their "calf return" obligations to own their cows outright.

The management models of the groups vary and need to be tailored to the needs of each group and area. There are numerous already-tried models to choose from. However, the most successful adopt an integrated approach to cattle management (feed, water, housing) and some group activities (e.g. pens, bulls). The integrated village management system has been used successfully in ACIAR projects, but there are variants in many Indonesia programs (village breeding centres, SMD, LM3, kopel).

Another determinant of success is a strong, day-to-day presence of on the ground staff (OTGS) embedded within the groups as used in several programs (SMD, ACIAR, UNRAM and University of Cendana).

Some considerations are:

- The role of OTGS is to provide direct assistance and training to farmers and farmer groups on all aspects of cattle management, including technical and business.

- Several programs already have OTGS that provide technical assistance. The SMD (Graduates Building the Village) program pays the OTGS staff for a year, then the groups are expected to support salary (IDR1.5 million per month).
- It is envisioned that an additional OTGS is provided to assist farmers/groups on farm management, finance and marketing (business).
- OTGS would need to be knowledgeable about cattle, entrepreneurial and be a local. While the project would provide salary and training for the business, OTGS would be encouraged to build a business providing cattle broking services, paid by farmer groups and/or buyers. The development of links and networks between OTGS should be encouraged and facilitated.

As a central component of the proposed project, it would also aim to develop the capacities of OTGS for the benefit of the individuals, farmer communities and government agencies. OTGS will:

- Be recruited by or with agencies that run the cattle programs (government, research, corporate) and provide the agencies with a cohort of young researchers, managers and entrepreneurs.
- Be provided with training, networks and research support to develop capacity.

Australia has a major role to play in resourcing these activities through

- Salary, training, research support for OTGS, their agencies, farmer groups and farmers.
- This may be complemented by the provision of other resources (e.g. weighing scales, forage seeds).

Embedding OTGS within cattle groups is therefore a critical component of increasing the skills, knowledge and technologies of cattle producers and groups and their linkages with both up- and down- stream industry actors. It is proposed that AIPD-Rural directly fund and resource the establishment of these structures, but this would be wound back over the course of the project so that they become self-financing and sustaining. It is expected that successful OTGS in successful groups would earn income from technical, management and financial advice to farmers, from cattle or feed broking or trading, or from services (vet, vet products, AI, finance management).

While stakeholders interviewed on fieldwork were supportive of the proposed strategy, further consultation and refinement is required with the full range of stakeholders including Dinas, Bappeda, BPTPs, universities and industry actors and associations.