Pre-feasibility field study:
Potential to boost agriculture production in the Tasikmalaya area

Final report

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Government of the Sultanate of Oman

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Executive summary

The scope of this study is to determine the potential for exports of agriculture commodities and products from the Tasikmalaya region through the proposed new port of Cikalong. The focus is at current and potential future volumes after investment and modernisation in Tasikmalaya. As the study will show, the potential is there although current volumes are still limited. What applies to Tasikmalaya can potentially be applied to neighbouring Kabupaten, further contributing to South West Java’s export potential. Due to a substantial lack of modernisation in all aspects of Indonesian agriculture and its food value chain, Indonesia as a nation is still deficit for rice. Therefore, for now, only certain quantities of Basmati (equivalent) rice and/or organic rice can be exported and/or will be permitted to be exported by the Indonesian Government. However, exemptions can be given as is expected in the case of Tasikmalaya due to the formal support of the Central and Provincial Government for its modernisation as one of Indonesia’s poorest yet promising regions with a high level of underemployment and child malnutrition (46%).

As a result of the country’s current overall deficit and its limitation for rice imports, the price that local rice farmers get for their produce is currently more than double the world market price. Besides that, local rice farmers are capable of producing rice at a much lower cost than at world prices. In January 2018, the Indonesian Government announces it will import rice in the first quarter of that year. Unless the rice is used for strategic reserves only, the import is expected to harm incomes of local rice farmers as imported rice is cheaper than locally produced rice (https://www.cnnindonesia.com/ekonomi/20180115195141-92-269101/impor-beras-bikin-harga-gabah-dan-beras-makin-tertekan). The cost price of rice in Tasikmalaya is between Rps 1,500 and 2,000 (0.112-0.149 $)/kg. So, in theory, at world market prices these farmers can make a profit when exporting. But due to the nationwide deficit the price they receive at local market level is between Rps 10,000 and 11,000 (0.748-0.822 $)/kg., making the local market more attractive than the export market. The incentive for farmers to export rice only occurs when cheap imports will enter the country at large-scale, or when a better price is made through specialty products such as Basmati and organic produce. These quantities are projected in the table below as potential high-value export products.

Indonesia produces large quantities of fruit and vegetables, mainly by small-scale farmers, and mainly for the local market. The fruit and vegetables value chains lack the logistics required for volume and quality consistency for export. Under current circumstances – highly appreciated in high value markets like Japan, Singapore and Hong Kong – mangosteen and chili peppers were found to have the highest potential due to their special features and relatively well coordinated value chain. These products are therefore also projected as potential export products. Other sectors with potential but still in need to be developed are bamboo and tea. Bamboo produced in the region can well be processed into floor and wall material for which a large and growing global market exists. However, to take this opportunity, investments in commercial production, technology, sourcing and processing is required. Tea production, collection and processing is another sector with high potential. However, as fruits and vegetables and derived agri-food products these too require initial investment in commercial processing to achieve marketable volumes. All of these products have the potential of being potential export products. Other products, such as strawberries, bananas, mango’s and other exotic fruits, will require high investments in large-scale commercial production of large, uniform, and good quality volumes. Currently production is done by small scale farmers.

High potential for port development is envisaged by focusing on importing commodities, such as wheat, soya and cattle, for which the country is structurally deficit. Supplies to the large urban centres of Bandung and Tasikmalaya can be much easier realized through a nearby and uncongested port at Cikalong. Cattle imports have been projected, imports of the other commodities, such as maize, soy and wheat, require additional research in the feasibility phase. A summary of potential
exports of researched agri-produce, calculated in number of containers per week from the
Tasikmalaya region, is provided below. This table excludes exports of fruits and vegetables (such as
bananas, mangos) that may be reached through substantial investments in commercial production.

<table>
<thead>
<tr>
<th>Export agri-products:</th>
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<th>year3</th>
<th>year4</th>
<th>year5</th>
<th>year6</th>
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<td>0.00</td>
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<td>2.5</td>
<td>2.9</td>
<td>3.3</td>
<td>3.7</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
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<tr>
<td>mangosteen*</td>
<td>18</td>
<td>33</td>
<td>39</td>
<td>44</td>
<td>50</td>
<td>58</td>
<td>56</td>
<td>56</td>
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<tr>
<td>chilli</td>
<td>56</td>
<td>111</td>
<td>167</td>
<td>222</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
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<tr>
<td>tea</td>
<td>167</td>
<td>333</td>
<td>500</td>
<td>667</td>
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<td>833</td>
<td>833</td>
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<tr>
<td>bamboo</td>
<td>333</td>
<td>667</td>
<td>1.000</td>
<td>1.333</td>
<td>1.667</td>
<td>1.667</td>
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<td>1.667</td>
<td>1.667</td>
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</tr>
<tr>
<td>* refer to rice, chilli</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total containers/week</td>
<td>12</td>
<td>22</td>
<td>33</td>
<td>44</td>
<td>63</td>
<td>71</td>
<td>79</td>
<td>87</td>
<td>95</td>
<td>103</td>
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</tbody>
</table>

Imports of commodities could stimulate the development of an agro-industrial complex at or nearby
the port. This could combine cattle imports with breeding and fattening facilities, and with
slaughterhouse development. It could also include grain storage and processing (milling), livestock
feed processing, and poultry farming and processing. Such integrated complex would serve the
urban centres and the communities nearby, and would provide work and income for the rural
community near the prospected port.

To reach commercial production of high volumes for export of the agri-products in the table above,
large investments are required. Most production currently comes from small-scale farmers. Besides
professionalization, also land consolidation to enable commercialisation will be needed. Various
high-level roundtables and meetings have been held during the past years, based on thorough
research. As shown in the figure below, prior research found that through ‘modernization’ of
agriculture and a modest production shift in the Tasikmalaya area and neighbouring Kabupaten from
rice to other crops (vegetables, fruits, soy bean, maize), the full required imports of The Government
of the Sultanate of Oman can be produced, including that of poultry.

For prior research and conclusions on integrated solutions to commercialize agriculture production
in the Tasikmalaya area the consultants therefore also refer to the following reports and documents:
“Cikalong Port: a holistic integrated agri-infra modernisation project (2017)”; “Task holistically
integrated agri-infra multi-stakeholder project (2017)”, “Q and A Tasik project (2017)”, and “Task
joint brains holistically integrated agri-infra modernization (2017) [figure above]”.

![Diagram showing Oman required food import and Tasikmalaya food production](image-url)
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1. Introduction

1.1 Background

During a meeting with a high-level delegation from the Sultanate of Oman on 20 November 2017 in Jakarta, Indonesian Minister of Transportation Budi Karya formally confirmed that the Indonesian Government will allow a potential new Port of Cikalong in Tasikmalaya, South West Java, to become a ‘Special Port’. This Special Port will aim to rapidly facilitate the export of agriculture produce, which will come from future surplus production through modernization of the present agriculture production system. The Special Port – that later can grow into a General Port – will be operated by a Special Purpose Company (SPC); its owners will be the various investors in and users of the agri-infra project. The modernized agricultural production system project will have various angles and various project partners. The Tasikmalaya area will serve as the pilot area to boost agriculture production, as it is situated close to the Cikalong port area. The Asian Infrastructure Investment Bank (AIIB) supports the project of a new Port of Cikalong. Transportation Minister Budi Karya is providing a unique regulatory opportunity to make this a reality. Maritime Affairs Director of the Infrastructure of Shipping, Fishery, and Tourism Dr. Eng. Rahman Hidayat wants to make Tasik’s potential new Cikalong Port a demonstration project to many other South Javanese locations. Bandung Mayor Ridwan has indicated that the city’s substantial industrial estates will turn their industrial traffic Southward as soon as Cikalong Port is realised. “Indonesia will become the world’s 4th largest economy by 2050, but that development starts here, in Tasik,” said The Jakarta Post Editor-in-Chief Endy Bayuni on 4th November 2016 during a multi-stakeholder conference in Tasikmalaya’s Pendopo. Indeed, by the time that Cikalong Port is built, Tasikmalaya’s agri-food production will have reached its first maturity including substantial cargos of safe (or even organic) Basmati rice – the staple food of choice in Oman and in the Gulf.

The port may become a hub both for Oman’s long-term food security and for the Omani Port of Sohar’s function of safe food hub for the entire Gulf. Oman and other Gulf states can thus become key investors in both the port and agriculture development projects. Farmers participating in producing produce for export to Oman and the Gulf will benefit through a usufrect approach. Usufruct contracts allow farmers to lease their land to produce for export (income), to provide labour to produce the crops for export (income), and to receive part of the harvest for own consumption and limited local trade (food). This approach is explained in detail later in this report. The Government of the Sultanate of Oman has requested that their potential involvement in this project is preceded by a comprehensive agri pre-feasibility study. Pioneers Consulting delivered this pre-feasibility.

1.2 Approach

The consultants carried out desk research from the Netherlands which was followed by one week of field research in the project area (the Tasikmalaya agriculture production area) where the rice, fruit, vegetable sectors are well represented. Discussions and interviews were held with relevant farmers, processors, government officials, and knowledge providers. Interviews were documented and worked out into this report. Based on outcomes of the expert interviews, and on prior desk research, this report provides conclusions and recommendation on the research questions. The report also includes conclusions on a new research area: that of the potential of commodity imports. Text in each chapter reflects the facts, figures and views of those experts that were interviewed. The report provides an objective and realistic advice to the client. The report can be used for defining further focus and next steps. Annex 1 and 2 provide an overview of the visited areas and key experts that were interviewed.
1.3 Research question

Desk and field research carried out by the consultants were aimed at gaining insights in the overall research question of this study: “What is the feasibility of increasing rice, fruit, and vegetable production for export in the Tasikmalaya project area?”.

Specific guiding questions that were used during interviews with various experts in the rice, fruit, and vegetable value chains were the following:

- What is the feasibility of increasing production in the area?
- How can this be achieved?
- What key bottlenecks need to be dealt with?
- By how much can production grow?
- At what estimated costs to do so?
- How would this contribute to the ambition of exporting large volumes of high quality produce from the project area to Oman?

In some cases, the study takes into account that the result of this pre-feasibility study can also apply to neighbouring Kabupaten, implying a potential substantial extension or bulking of harvests.

2. Rice export potential

2.1 Overview of sector potential and bottlenecks

Indicative information from desk research looked at means to increase productivity of rice, and focused on SRI (System of Rice Intensification). SRI, as already practiced by several farmers in Tasikmalaya (for example the Cooperative managed by Ms Emily Sutanto, leading to high quality certified organic rice export to Japan, the US and the European Union. (see: https://www.youtube.com/watch?v=0jtXFAtpwtQ&feature=player_embedded&app=desktop)

SRI can result in 50% more production with relatively less inputs over time. It is a global development that increases optimisation, yet it is labour and knowledge intensive and without assistance farmers may be sceptical about it. The focus of applying SRI is on the irrigation infrastructure while using less water. It results in production growth while being able to reduce on inputs – such as on seed, chemicals and water. The application enables to reduce water run-off, compost application, and single seeding. This report estimates that full implementation of SRI in Tasikmalaya will take around four years. Tasikmalaya has succeeded in attracting the world’s leading high tech agri-production companies such as Koppert from The Netherlands, which is already active in the Sultanate of Oman, to run experimental farms in Tasikmalaya as of 2018. Several other Members of the IBMA (producers of Low Risk Bio-pesticides) have been invited to set up test fields in Tasikmalaya. IBMA is planning their next global meeting in Jakarta and Tasikmalaya in June 2018. (see: https://www.nationalgeographic.com/magazine/2017/09/holland-agriculture-sustainable-farming/)

Indonesia produces around 70 million tons (T) of rice annually. The Indonesian government import agency Bulog imports approximately 2 million T annually to keep up strategic reserves. Bulog has the monopoly for imports and safeguards price stability. They keep a permanent stock of around 2 million T. Bulog follows a two-way strategy: firstly, to improve production by technical assistance and fertilizer subsidies, and secondly to curb consumption under the motto ‘one day without rice’.

In the Tasikmalaya area, total rice production is estimated to be 900,000 T, which is produced on 50,000 hectares of land. This is mostly locally consumed or locally sold. The current production ratio is around 18 T of rice per hectare at 3 crops per year (or around 6 T per hectare per harvest season).
Besides an already existing surplus (see next chapter), an additional surplus for export could be generated by implementing SRI, creating an additional 30% over the 900,000 T, or 300,000 T of surplus. Additional investments in post-harvest facilities (storage and drying/milling) for this 300,000 T surplus will be based on a required capacity for 100,000 T per crop. Post-harvest costs are estimated to be about $ 90 per T, while the production costs are estimated at $ 150 per T. This brings the total cost price for this surplus rice at $ 240 per T. The world market price is around $ 400 per T. This means that by introducing SRI in the region the 300,000 T surplus will have a value of around $ 100 million. It should be noted that world market prices are expected to grow substantially in view of water shortages and groundwater pollution in major production countries such as China. As of 1 January 2018, India’s Basmati rice will be banned from the European Union and the UK due to substantial overuse of pesticides (tri-cyclazole). The ban may last several years, opening up a window of opportunity for other (Basmati) rice producers, including from Tasikmalaya.

The field study revealed that the price received by the Tasikmalaya farmers is in the range of Rps 10,000-Rps 11,000 (0.748-0.823 $) per kg. This is more than twice that of the world market price. This can be explained by strong internal market demand combined with limited supply, and/or by the tendency to inflate production figures. The incentive for Tasikmalaya farmers to export mainstream rice is therefore almost reduced to nothing, as they currently operate in a comfortable local value chain. The incentive for farmers to export mainly occurs when a better (world market) price is available, which is the case for specialty products such as Basmati and organic produce. These options are discussed below.

2.2. Potential for Basmati rice export

Production
Indonesia is a net importer of rice. Rice is a strategic crop; the market demand is not always leading the supply or price. There is no or very little domestic demand for Basmati rice. According to the Tasikmalaya Agricultural Office, the Tasikmalaya area currently accounts for 300,000 T surplus in rice production per year (without the SRI surplus discussed above). This surplus is currently taken up by the national market, and can, in theory, be exported. It translates in approximately 17,000 ha. of rice production area. However, exporting local rice is not very attractive for farmers, which is the result of market distortions – a system of subsidies and the import ban on rice. The hectares of surplus local rice production can be allocated to production of Basmati rice. A rice miller that was interviewed operates with a milling capacity of 500 kg/hr., or 100 T/season. At three seasons per year this comes to 300 T/year. His milling capacity allows to mill for 150 farmers per season, which equals to approximately 50 ha. This year, the miller also started to test-produce Basmati rice. He received the seed from the Rice Research Centre in Bandung. Costs of Basmati rice production per ha. is 7 mln Rps (524 $), or roughly 1 mln Rps (74.8 $)/T. The results of this domestic market activity so far are somewhat disappointing: Basmati rice results in a yield of 2.5-3 T/ha. of a relatively poor quality, whereas local mainstream rice does 6-8 T/ha. Milled Basmati rice can be sold to the niche expat market in Jakarta, at 30,000 Rps (2.244 $)/kg., while the local rice is sold at 10-11,000 Rps (0.748-0.823 $)/kg.

Tasikmalaya agro-scientists confirm that the picture as described here is representative for the region. Basmati rice development in Java is at its early stages, needs time to be developed and accepted in the world market – unless a major investor/buyer stimulates rapid progress. The high price paid for the Basmati rice (by Lantabura International company in Jakarta) makes it attractive to produce for the local niche market. However, this is a very small market mostly supplying expatriates. Therefore, the local market must be expanded with an international market. Areas where improvements need to be made are the following. The current botanical characteristics are still not equalling the real basmati. The grains are too thin and shattering takes place. Integrated
Pest Management (IPM) practices need to be improved dramatically and soil fertility issues need to be improved. Production levels must equal those of mainstream rice. This can be accomplished eventually, but requires considerable long term (field) research in cooperation with the value chain players – unless this is better funded. In addition, the milling machinery must be adjusted (or new machine installed) to reduce breaking of the grain during milling. This is a short-term challenge however. When these bottlenecks can (gradually, or if well-funded, more rapidly) be solved, the Basmati or equivalent rice production per ha. (in volume) can reach the level of local rice production. For the purpose of this study, we estimate that in around 4 years bottlenecks can be overcome and exportable volumes can be grown if there is adequate funding available. Having considered the situation in Tasikmalaya and its holistically integrated agri-infra modernisation plan, the Asian Infrastructure Investment Bank has confirmed its interest to fund the required investment both in the agri and infra parts of this project.

Markets and prices
The world market price for local rice is approximately US$ 400/T * 13,000, which equals to 5,200,000 Rps/T, while the world market price for Basmati rice is approximately US$ 1,000/T * 13,000, equalling 13,000,000 Rps/T (source: Rice News). With local rice being sold in the domestic market for 10,000 Rps (0.748 $)/kg, or 10,000,000 Rps (748 $)/T., the world market price for exported Basmati rice is slightly higher. Production costs in Tasikmalaya are relatively low at 1-1.5 mln Rps (75-112 $)/T. This favours the Tasikmalaya local rice farmers compared to farmers in other countries. These relatively low production costs will favour potential Basmati(equivalent) rice production and export. Tasikmalaya’s annual production of 300,000 T local rice can gradually (or swifter with adequate investment) become production of Basmati (equivalent) rice. With the above-mentioned miller’s capacity in mind, this means that a combined effort of 1,000 millers will be required to serve 150,000 Basmati rice farmers, on in total 50,000 ha of land. When technical issues are solved exports of basmati rice could be an attractive proposition pricewise. The global markets for basmati rice are almost unlimited. Demand is high, current supply restricted to India and Pakistan and that is reflected in the higher price compared to mainstream rice. Currently mainstream rice US$ 400/ton and basmati US$ 1,000-$1,100/ton. Entering that market seems to be very attractive. However, Basmati is actually a brand name and the source is part of that brand. Price levels are directly related to the source and characteristics. So, the moment Tasikmalaya manages to equal the characteristics to the original Basmati, still time is needed to get broad market acceptance as a source – unless there is a major investor/buyer. Arranging special contacts with specific countries as Oman can at the one hand immediately satisfy Oman and possibly Gulf markets while speeding up the level of global acceptance. Finally, it should be noted that if the shift to Basmati (equivalent) rice is realized among all current Tasikmalaya rice farmers, the local market distortion may become even greater: the price for available rice may rise, possibly resulting in even higher domestic prices versus world market prices. This may cause the Indonesian Central Government to further adapt its system of controls on rice distribution/imports while assisting further nation-wide agricultural modernisation.

Upscaling production
Production volume of Basmati (equivalent) rice is expected to increase when the main challenges are researched and solved. Basmati (equivalent) rice production and exporting will be possible only if it can be produced at the same cost as local rice, and if higher yields can be achieved by solving the challenges described above. Only then will farmers shift from local to Basmati (equivalent) rice production. This will require new investments in primary production and processing. The follow up feasibility study will need to show where and how such improvements and investments need to be done. Another issue which needs to be worked on is the branding of the local basmati variety. Even if the characteristics equal those of the original Basmati rice, the price in the market will only rise from mainstream level over time. It is estimated that with all the efforts mentioned commercial production of a Basmati equivalent rice can commence after four years. With market acceptance
included (next chapter) a gradual increase in exports is advised. Of course, this is different when there is one group of investors/buyers that actually will benefit of the initially low prices – and when prices rise, trade in their products will become very attractive.

**Patenting Basmati rice, market acceptance**

Basmati rice is a variety of long, slender-grained aromatic rice indigenous to the India-Pakistan subcontinent. World market prices are quoted for this product whereby the origin is important. Even if a similar rice variety is produced for export in Tasikmalaya it will take time to get the same acceptance as the Pakistan and Indian sourced varieties. Tasikmalaya sourced similar (as Basmati) rice will need time to be accepted by the market as being Basmati rice. Phyto-sanitary issues as currently with Indian sourced Basmati may help the Indonesian case. So too will direct contracts with Oman, recognizing Basmati rice from Tasikmalaya as having the same quality and features as Basmati rice from India and Pakistan. PA Asia currently looks at a strategy on the patenting aspects of Basmati rice to be produced in and exported from Tasikmalaya (see box below).

<table>
<thead>
<tr>
<th>Year</th>
<th>Exportable Q/Tons</th>
<th>Exportable containers</th>
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<tr>
<td>Year 1-4</td>
<td>0</td>
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<tr>
<td>Year 5</td>
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<tr>
<td>Year 7</td>
<td>30,000</td>
<td>1,250</td>
</tr>
<tr>
<td>Year 8</td>
<td>40,000</td>
<td>1,667</td>
</tr>
<tr>
<td>Year 9-20</td>
<td>50,000</td>
<td>2,083</td>
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</tbody>
</table>

Figure 1: Exportable volumes of Basmati/’Tasmati’ (T per annum) from Tasikmalaya area. Note that this can be expanded with other Southern Javanese Kabupaten.
2.3 Potential for certified organic rice export

For certified and 100% organic rice production (either Basmati or other varieties), a closed farming system is required to achieve international certification. Certified organic rice has the potential and government permission for exports. To achieve this on a large scale in Tasikmalaya may require cooperation with other Kabupaten to achieve the required volume rather soon. Main issue in certified organic rice production is the scarcity of land, as organic production needs more land per unit of production and additional costs for making compost and (hand weeding) combined with a limited gate price compensation for their product. For export the added issue of certification (at a cost) becomes relevant also.

One farmer that was interviewed produces his organic rice at a 5 ha. plot, using a ‘low input system’. To secure sufficient organic fertilizer, the rice production is combined with cattle for dairy production (8 cows and followers), which was provided for by the Government. Grading is currently done manually, equipment may be needed once production grows. The farmer struggles with production due to the increased workload in fertilization, disease control, weed control, and other farming activities. Organic rice sells at a 30% higher price than normal local rice. According to most this 30% (gate) price increase does not cover the extra expenses.

Certification (IMO, Swiss) of his rice is in the hands of the exporter. The market for organic rice is good since there are very few producers. The Tasikmalaya and national government stimulates farmers to produce organic rice. At this moment, an estimated 5% (or 3,500 ha.) is under organic production, and the Tasikmalaya government aims to increase this to 25,000 ha. in 2020 in the Tasikmalaya region. The Ministries of Agriculture, Environment, and Village Development work together in achieving this. In the Tasikmalaya region, three villages (one that of the interviewed farmer) have been selected to serve as pilot areas to produce organic rice. Besides these pilots, villages are stimulated to establish a company (‘village company’) for farmers to work together and find new potential to ‘do business’. The question of those interviewed is whether farmers have the skills to do so. It may be relevant to at least partially integrate the efforts of various Ministries with a potential holistically integrated agri-infra project.

Concluding on organic rice export in a port development context
It is advised to aim for ‘healthy agriculture’ production, with focus on creating an improved environmental situation, rather than trying to achieve a total shift towards certified organic production.

Nevertheless, a modest export of organic rice is envisaged. We estimate that one 20-foot container of 30 cubic meter can take 800 kgs/cubic meter, so contains 24 tons rice equals to 500 tons. When including production from other Kabupaten this volume will increase.

<table>
<thead>
<tr>
<th>Year</th>
<th>Exportable Q/Tons</th>
<th>Exportable containers</th>
</tr>
</thead>
<tbody>
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<td>Year 1</td>
<td>500</td>
<td>21</td>
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<td>Year 2</td>
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<tr>
<td>Year 6-19</td>
<td>1,000</td>
<td>42</td>
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Figure 2: Exportable volumes of organic rice (T per annum)
3. Fruit and vegetable export potential

3.1 Overview of sector potential and bottlenecks

General trend
Overall, there is a large global free trade in the fruit sector, and unfortunately, Indonesia only has a very low and declining market share in this trade. At national level, there is some export in pineapple, mangosteen and bananas, and there may be potential for mango, orange and durian. The main reason for the country’s declining exports is the fact that it is produced by small scale farmers with a low technology level, resulting in poor quality, poor quantity, and poor logistic channels. The country, including the Tasikmalaya area, lack the much-needed larger commercial production units such as plantations. These are required to enter export of fruit by producing high quantities, of high quality, and by using sound agri-logistics. In the country, as well as in the Tasikmalaya area, cold store facilities and supporting cold chain operations are lagging far behind. Poor infrastructure creates high transportation costs. Quality fruits and vegetables on the high-end markets in Jakarta (for example modern retail, hotels, restaurants) are mostly imported. Malaysia, China and Thailand are key players in supplying these markets internationally. Structured and sustained investment, for instance through a group of investors/buyers, can overcome these obstacles.

Fruits: mangosteen
An example that fruit export is entirely possible is exactly in the Tasikmalaya region. Mangosteen is a positive exception with a potential for even larger export than currently already realised. It has a well-organized value chain to support existing export of the products. The local mangosteen farmers are aware of the international quality requirements and are known to adhere to this. The local market is also very well established. For fruit, good local markets often are a stepping stone towards export growth. Mangosteen therefore has most likely potential to expand and increase growth for the export market. Although snake fruit was seen as a potential export product as well, field visits showed this potential currently to be unrealistic: current production levels are declining sharply due to low local market prices, planted trees produce a variety that is not in high demand, and no organized value chain exists to promote (currently non-existing) exports of the product.

Horticulture: chili pepper
For commercial vegetable production, the Bandung-Bogor area may show potential due to its high altitudes. In the Tasikmalaya region commercial vegetable production is close to non-existent. The sector shows low, scattered means of production that require substantial policy attention and investment to modernize. Climate in the Tasikmalaya region does not favour production of high-value vegetables for export. However, chili pepper showed good potential for export, with a relatively well-organized value chain to support higher niche markets in urban centres as Jakarta and therefore potential for exports of the product, which do currently not yet exist.

3.2 Potential for mangosteen export

Production
The Tasikmalaya region is one of Indonesia’s key production areas for mangosteen fruits. The October-November period is the main harvest season although this varies. Outside this period smaller volumes are produced. It is a crop that is produced with good quality by local farmers. Currently 3,800 ha. is planted with mangosteen trees in the Tasikmalaya region. Costs of mangosteen production are low, roughly 15,000 Rps/ha. High altitude results in better quality but lower production volumes; while low altitude gives lower quality and higher production volumes. Other production areas in the country are in Sumatra and Bali. On one hectare, a farmer produces mangosteen with 100 trees. After planting trees, it takes a long period of eight years to harvest, and...
calculation of export potential is in this report therefore based on hectares of trees that are
currently producing the fruit, not on trees to be planted (potential production). The current
production, based on an average yield over the past 5 years, is between 25,000-30,000 T/yr., of
which 60% (roughly 20,000 T) is exportable. The farmers only expand step by step as trees take 8
years to start production. Tasikmalaya’s mangosteen production and export is centralized around
the village of Puspaiahang. The village and surrounding area has managed to use this name as a
currently well-known brand name for Tasikmalaya’s mangosteen exports. The village is asked by
traders to supply its professional sorters when collecting the fruit in other production areas as well.

Prices
The local quality selling price is 25,000 Rps (1.87 $)/kg., while that of the export quality selling price
is 43,000 Rps (3.217 $)/kg (today’s price). This can rise to 60,000 Rps (4.49 $)/kg in the high market
demand seasons, such as during the Chinese New Year. On average the export price ranges between
30,000-50,000 Rps (2.245-3.742 $)/kg. Annual production levels per ha. also fluctuate (from 1,300 to
3,000 kg/ha.), which is caused by differences in sun hours and rainfall. As an effect, Tasikmalaya
production season also fluctuates, from the period October-December to the period January-March.

Markets
As a result of fluctuating production seasons, the export market window changes as well, which is a
complicating factor for export. The export markets for Tasikmalaya’s mangosteen are: Thailand,
China, Taiwan, U.S, France, U.K., and Netherlands. 90% of shipments are done by sea, and only 10%
by air. Of the current Tasikmalaya total production, and based on selection on quality, 40% is
destined for the local market and 60% for the export market. Shelf life is an important issue and can
be maximum 2-3 weeks if properly stored, which means that efficient cold store solutions are
required. Direct access to the end market is a problem for Tasikmalaya farmers. The changing
production window is a serious challenge. A window in the period December-January, covers the
Chinese New Year when prices are highest. Summarizing: volatility in the gate price for the famers is
caused by changing production levels as well as changing harvest/ market windows.

Upscaling production
According to the Tasikmalaya Agriculture Office, the ‘potential horticulture area’ that can be
developed in the Tasikmalaya region, including for mangosteen, is 26,000 hectares. Currently only
3,800 is planted with mangosteen. This means that theoretically the potential for further
development of the product is 22,200 ha. But for mangosteen production the time between planting
tree and first harvest takes eight years. When production starts in year 8 the harvest is only 5
kg/tree; from year 8-10 this grows to 10 kg/tree; from year 10-15 to 20-50kg/tree per year; and
finally, from year 15-20 a good harvest of 100kg/tree can be achieved. This means that mangosteen
production development is a lengthy process. For this report, the consultant therefore only
calculates with current existing production levels. Costs of developing new mangosteen production
are as follows: in year 1 costs include seed (50,000 Rps (3.742 $)) and labour (5,000 Rps (0.374 $))
per tree, and variable costs of 10,000 Rps (0.748 $)/ha in years 1-5. From year 6 onwards,
production costs are low, at 15,000 Rps (1.122 $)/ha.

Concluding on mangosteen export in a port development context
Current export production is up to 20,000 T per year. Increasing these volumes is a very slow but is
done by the farmers step by step. Current production can be expanded. Yet even if investments in
such expansion can start immediately it will take eight years before any production increase of
mangosteen can be reached. We estimate that one 20-foot container of 30 cubic meter can take 600
kgs/cubic meter, so contains 18 tons mangosteen. So, 500 tons equals 28 containers.
Production
The Tasikmalaya region is one of Indonesia’s many chili pepper production areas. Total current production in the region is about 1020 hectares, which should translate to 14,560 T of red chillies. It is produced by private individual farmers working in groups and selling their produce to middlemen. Most chili peppers are grown like that in Indonesia. One hectare red chili pepper holds about 18,000 plants. Each plant bears about 0.8 kg peppers, resulting in 14 T fresh product sales per hectare. The plants are grown under plastic ground cover to keep moisture in the soil and prevent weeds from growing. The seeds are planted in polybags and after 20 days been put in the field. After 100 days, the first crop can be harvested. Harvest is done 12 times, after which the plant is destroyed. The farmers rotate with one season of cabbage production, after which the peppers are re-planted again. The whole chili pepper production cycle takes about 184 days. The farm produces all year round. The cost price of producing chili peppers is 100 mln. Rps (7,480 $)/ha.

Markets and prices
The district of Taraju has about 150-200 hectares of chili pepper production in total. The farm that was visited operates on 5 hectares. It is part of the 5-villages farmer group structure, with 11 farmer groups in total. The total production for the chili pepper production villages in Taraju is about 2,450 tons per year. The current gate price is 9,000 Rps (0.673 $)/kg. for green and 16,000-17,000 Rps (1.197-1.272 $)/kg for the red chili peppers. Calculated per hectare, a farmer sells its red chili produce for 230 mln. Rps/ha. With the production cost of 100 mln./ha., it generates a profit of 122 mln. Rps/ha. (or around US$ 9,500).

The produce is transported by the farmer to a collection point, where it is put in 35 kg boxes and transported to Jakarta to be sold in the main market. The overall quality is seen as good enough for export, although it currently lacks certification. An estimated 2,000-3,000 T/month of fresh chili pepper can be exported by container in a few years, while continuing to serve the Jakarta market as well. The area under cultivation has the potential to be scaled. The production is evenly divided over the months so no real production peaks exist. Farms and production will however need to be certified.

Upscaling production
To realize the potential upscaling, technical skills need to be improved. Currently rotation practices are too tight, and it should include more different crops such as legume or pulses, and leafy vegetables. The current 2-crops rotation is not good enough and it is advised for peppers to have a 1:4 or 1:5 rotation on the same spot, to avoid nematodes as well as fungi and bacterial diseases to develop. Through good coordination these challenges could be overcome. Another challenge is certification of the produce for export, required to enter international markets. The Tasikmalaya Agriculture Office is advised to pick up the role of launching a technical assistance program for chili pepper growing to improve long-term viability through rotation and controlled disease control.
Concluding on chili pepper export in a port development context

Fresh chili pepper is a potential export crop if managed well. Proper packing, handling and shipping needs to be viable. Current production can be expanded. An estimated 2000-3000 T/month of fresh chili pepper can be exported by container in a few years. We estimate that one 20-foot container of 30 cubic meter can take 300 kgs/cubic meter, so contains 9 tons chillies. So, 500 tons equals 56 containers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume exported</th>
<th>Number of containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>500 ton</td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>1,000 ton</td>
<td>111</td>
</tr>
<tr>
<td>3</td>
<td>1,500 ton</td>
<td>167</td>
</tr>
<tr>
<td>4</td>
<td>2,000 ton</td>
<td>222</td>
</tr>
<tr>
<td>5-10</td>
<td>2,500 ton</td>
<td>278</td>
</tr>
</tbody>
</table>

Figure 4: Exportable volumes of chili peppers (T per annum)

3.4 Potential for tea export

Plantations

Total land under tea production in Tasikmalaya is about 11,000 hectares. There are two main production actors: private and government plantations, and small-scale farmers. During the field research the private Sinar Inesco company was visited, which operates two tea plantations in the Tasikmalaya region: the Sambawa plantation of 750 ha. and the Satria plantation of 450 ha. This brings the total production area to 1200 ha., with an average production of dry tea of 1500 kg./ha./year. The company has another six plantations in Java, far from the Tasikmalaya region. About 30% of total product is destined for exports. The production unit visited felt that the new port could be used for exports of this produce. However, it was overlooked that further processing and blending of the dry tea is done in Jakarta.

An expert-visit to the marketing office of Sinar Inesco in Jakarta, proved that for this logistic reason the company has no interest in exporting from Cikalon. Consolidation takes place in Jakarta, and tea will be distributed and exported from there. This is the position of many industries, even in Tasikmalaya, because of their existing sometimes privileged positions in Jakarta’s heavily burdened transport networks. It must be assumed that – as soon as there is an alternative and professionally operated port in Tasikmalaya with lots of space all users of port infrastructure will reconsider their logistical options.

Small-scale farmers

Another 9,800 ha. under tea production in Tasikmalaya is produced by small-scale farmers. The Taraju sub-district has in total 4 villages and 15 farmer groups that produce tea. Each village has about 100-150 hectares for tea production. One of these 15 groups, which was visited at Raksa Tani, has its own tea factory. The production is estimated at 700 kg dry tea/ha./month. The group has 30 tea farmer members. Around 40% of the production is fully processed and packed, the rest is dried and send to the larger factories. Production per group is about 1 T fresh tea/day, or 250 kg. finished dried tea/day. Consolidation of this tea and processing it at a joint plant (which requires investment) would result in exportable volumes of good quality tea. The Raksa Tani group currently has tea outlets, including high quality branded and packaged tea products. A joint operation with the other groups under its wings is seen as feasible. Currently dried tea from all other groups is sent to Sukabumi (90%) and Surabaya (10%), where it is processed/blended by tea processing companies, who then sell to large tea companies such as Walini, Sosro, 2 Tang, Gopek, and Poci.
**Required investment**
The farmers groups have scope for export if an investment can be made in a consolidated tea factory, which also means the different farmer groups need to work together. It is estimated that for the 9,800 T to come available for export, an investment in a fully equipped factory needs to be made. Roughly, the financing required would be as follows: 3,000 mln. Rps (US$ 225,000) for building; 14,000 mln. Rps (US$ 1 mln.) for machinery and equipment; and 125 mln. Rps (US$ 9,500) for wages. This brings the total investment to roughly 17,000 mln. Rps (US$ 1.27 mln.).

**Concluding on tea export in a port development context**
Tea produced by small farmers can be exported. It is envisaged that it is taken up gradually and that further survey is needed in the viability of a separate tea factory with the aim to export (to Oman). It is expected that the uptake of the ungraded dried tea is done up gradually. An estimated 5,000 ton/month of processed tea can eventually be exported by container in a few years. We anticipate a gradual increase as projected below. We estimate that one 20-foot container of 30 cubic meter can take 200 kgs/cubic meter, contains 6 tons tea. So, 1000 tons equals 167 containers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume exported</th>
<th>Number of containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>1,000 ton</td>
<td>167</td>
</tr>
<tr>
<td>Year 2</td>
<td>2,000 ton</td>
<td>333</td>
</tr>
<tr>
<td>Year 3</td>
<td>3,000 ton</td>
<td>500</td>
</tr>
<tr>
<td>Year 4</td>
<td>4,000 ton</td>
<td>667</td>
</tr>
<tr>
<td>Year 5-10</td>
<td>5,000 ton</td>
<td>833</td>
</tr>
</tbody>
</table>

Figure 5: Exportable volumes of tea (T per annum)

### 3.5 Potential for bamboo export

**General context**
Bamboo is one of the non-timber forest products that have potential to substitute wood. With the advancement of technology, bamboo can be made into several products like building material, bamboo floors and walls and textiles. In addition, it is used for tooth pick, sate sticks, chop sticks and a wide variety of handicrafts and furniture. Some varieties are eaten as a vegetable. It is widely seen as an extremely versatile product with large potential globally, and with a broad availability in Tasikmalaya. With the depleting global available forest potential, bamboo will play an increasingly important role. However, people in Tasikmalaya are generally not aware of the value of bamboo, while in fact it is growing everywhere. Bamboo can be multiplied easily and matures within a year, so grows very fast. However, most people prefer growing Alblesia trees, which currently has a better market than bamboo.

**Production**
Production potential is almost limitless in the region. It is estimated that even without an established formal market 3.7 million stems are readily available. In case of a commercial demand, this quantity can be increased with little effort by the farmers. Suitable varieties can easily replace the less useful varieties. It can be grown under contract as well as by establishing private or Government plantations. The varieties which grow in the region and are specifically suitable for industrial use are: Bambu tali, which is used for sticks, chopsticks, toothpicks and sate sticks for local use; and Bambu gombong and Bambu bitung, which are suitable as raw material for floors and walls and other building material. These varieties are widely available and can be multiplied by taking cuttings from the existing widely available suitable stock. However, at the moment, there is no real interest among producers as the (local) market is limited to use for fencing and local building construction. A newly developed bamboo-based industry can be instrumental in creating a large bio-
based industry with huge potential from all angels. Supply of the raw materials can be arranged by contracting farmers to grow the right varieties, as well as by developing commercial plantations. Yet investment in technology is required to make real value-added materials like floor and walls for the construction industry, satisfying the growing domestic demand as well as the growing global demand. Nevertheless, this industry does currently not yet exist in the whole region of West-Java. Meanwhile, upstream, one of the largest bamboo plants producers in the world, Oprins from Belgium, has confirmed its interest to assist a rapid development of bamboo plantations (http://en.oprins.com). The globally active Institute for Bamboo and Rattan in Beijing has agreed to assist with research into the choice for best performing bamboo plants for different purposes, ranging from high grade food (based on bamboo shoots), to confection, to manufactured household products, to sustainable building materials, to bio-energy. The Port near Cikalong intends to construct all facility buildings of (locally produced) bamboo construction materials where technically possible.

**Concluding on bamboo export in a port development context**

The proposed bamboo floor and walls industry can make use of the prospective port development through exporting the product by sea freight. An estimation is provided below on the exportable containers if this is realized. In these calculations one 20-foot container of 30 cubic meter can take 1,000 kgs/cubic meter, so contains 30 tons bamboo flooring. So, 10,000 tons equals 333 containers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume exported</th>
<th>Number of containers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>10,000 ton</td>
<td>333</td>
</tr>
<tr>
<td>Year 2</td>
<td>20,000 ton</td>
<td>667</td>
</tr>
<tr>
<td>Year 3</td>
<td>30,000 ton</td>
<td>1,000</td>
</tr>
<tr>
<td>Year 4</td>
<td>40,000 ton</td>
<td>1,333</td>
</tr>
<tr>
<td>Year 5-10</td>
<td>50,000 ton</td>
<td>1,667</td>
</tr>
</tbody>
</table>

Figure 6: Exportable volumes of bamboo floors and walls (T per annum)

4. Concluding on potential exports

4.1 Consolidated exports in a port development context

Concluding on potential consolidated exports, it is expected that from year 1 of the port’s operation container exports can begin. This will be at a rate of 12 containers a week at the start and will increase to almost 5,300 containers in year 10 (or 100 containers per week in that year). Note that the containers for mangosteen and chilies must be reefer container. Indicative ratios (depending on packaging material used) for calculating the number of containers are provided in figure 7 below.

| Ratios used for converting tons to containers, |
| Rice               | 800 kgs per cubic meter |
| Bamboo flooring    | 1,000 kgs per cubic meter |
| Tea                | 200 kgs per cubic meter |
| Chili              | 300 kgs per cubic meter |
| Mangosteen         | 600 kgs per cubic meter |

Figure 7: Ratio’s used to calculate the number of containers

A summary of potential consolidated exports of researched agriculture products with high export potential in the Tasikmalaya, calculated in number of container, is provided below. This table
excludes exports of fruits and vegetables (such as bananas, mangos) that may be reached through substantial investments in commercial production.

<table>
<thead>
<tr>
<th>Export agric products:</th>
<th>year1</th>
<th>year2</th>
<th>year3</th>
<th>year4</th>
<th>year5</th>
<th>year6</th>
<th>year7</th>
<th>year8</th>
<th>year9</th>
<th>year10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basmati rice</td>
<td>-00</td>
<td>-00</td>
<td>-00</td>
<td>-00</td>
<td>417</td>
<td>833</td>
<td>1,250</td>
<td>1,667</td>
<td>2,083</td>
<td>2,500</td>
</tr>
<tr>
<td>Organic rice</td>
<td>21</td>
<td>23</td>
<td>29</td>
<td>33</td>
<td>37</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
<td>42</td>
</tr>
<tr>
<td>Mangoes*</td>
<td>28</td>
<td>33</td>
<td>39</td>
<td>44</td>
<td>50</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
<td>56</td>
</tr>
<tr>
<td>Chili*</td>
<td>56</td>
<td>111</td>
<td>167</td>
<td>222</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
<td>278</td>
</tr>
<tr>
<td>Tea</td>
<td>167</td>
<td>333</td>
<td>500</td>
<td>667</td>
<td>833</td>
<td>833</td>
<td>833</td>
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<td>833</td>
</tr>
<tr>
<td>Bamboo</td>
<td>333</td>
<td>667</td>
<td>1,000</td>
<td>1,333</td>
<td>1,667</td>
<td>1,667</td>
<td>1,667</td>
<td>1,667</td>
<td>1,667</td>
<td>1,667</td>
</tr>
<tr>
<td>* reefer</td>
<td>605</td>
<td>1,169</td>
<td>1,735</td>
<td>2,299</td>
<td>2,828</td>
<td>3,709</td>
<td>4,126</td>
<td>4,543</td>
<td>4,959</td>
<td>5,376</td>
</tr>
<tr>
<td>Total T/annum</td>
<td>12</td>
<td>22</td>
<td>33</td>
<td>44</td>
<td>63</td>
<td>71</td>
<td>79</td>
<td>87</td>
<td>95</td>
<td>103</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Import agric products:</th>
<th>Cattle heads per annum</th>
<th>-00</th>
<th>-00</th>
<th>-00</th>
<th>-00</th>
<th>50,000</th>
<th>50,000</th>
<th>50,000</th>
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<th>50,000</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Total loads (ship)/month</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
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<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Figure 8: Exportable volumes from the Tasikmalaya area, consolidated (T per annum, containers per week).

We can conclude that the prospect of export of agriculture commodities from Tasikmalaya only through the newly developed port of Cikalong is rather limited. As described in this report, there is potential, especially when including value added products such as bamboo flooring and walls. It can also be concluded that the economic justification for the port should come both from the hinterland of greater Bandung with around 9 million inhabitants and large volumes of industrial export and import, and from agri-imports for the whole region. Confining ourselves to agriculture commodities and products, the import of deficit commodities such as wheat, soya, and cattle has a higher potential to justify investments in the port than exports. This conclusion requires further study. The next chapter provides some initial findings on potential imports through Cikalong.

5. Import potential

5.1 Potential for livestock import

Situation analysis

The holding ground of PT Agro-Investra is situated on the road between Tasikmalaya and Bandung. The company is one of two companies importing cattle from Australia in West-Java. PT Agro currently imports 7-8 shipments of 2,000 cattle each through the port of Cilacap, and then trucks the cattle to its holding ground, from where it is gradually distributed to slaughterhouses in Bandung (40%) and Tasikmalaya (60%). The volume of throughput depends on Government import licences and supply of local cattle. The Government has plans to encourage local cattle production and is currently squeezing the market to encourage local farmers to breed more cattle. The meat price is stable, as it is Government-controlled. No large farms produce substantial volumes of cattle yet; most production is done by small farmers. Lack of land in Java is seen as a key issue to develop production. Government companies have little success in commercial production either. With trucking from the current port to the company’s holding ground taking up to ten hours, it sees a port in Cikalong as a very interesting development and improvement for business. The company imported 30,000 heads of cattle some years ago; this is now down to about 16,000. Total import from this company and two others is estimated to be 50,000 heads. Demand in Java (and Indonesia as a whole) is substantially larger than current supply. With the Government purposely limiting import licences for cattle, mostly from Australia, to stimulate local production, investments in feedlots and breeding cattle will be stimulated by Government in the years to come.
For the import of cattle special facilities are needed. They are imported in batches of 2,000 heads per special ship. The current total import of 50,000 heads of cattle would imply an import of one batch of 2,000 heads of cattle every two weeks. It is advised to further investigate these volumes, as well as the possibility of processing the animal closer to the port – to transport processed meat inland rather than life animals. This would also imply investing in cattle holding grounds near the new port of Cikalong.

5.2 Potential for other commodities import

The flour (wheat) milling industry in Indonesia expanded at a rate of 5% in the 2016-2017 period. There are about 31 mills in operation in 2017, with an installed capacity of approximately 11.4 million T (also catering for maize). Currently they operate at 85% capacity, and 3 mills are currently being upgraded. The total installed capacity is expected to reach 14.2 million T. The 2016-2017 wheat imports are estimated at 9.9 million T, and to grow at a 5% rate annually. Wheat cannot be commercially grown in Indonesia. It is slowly displacing rice and corn from the daily diet. By-products of the milling process are used in livestock feeds. The livestock feed industry is also growing rapidly, mainly for production of poultry. If 5% of total wheat imports would be allocated to the Cikalong port, approximately 500,000 T could be imported through the port.

It is further estimated that almost 2.6 million T of soya seed is imported in Indonesia, or about 70% of the total local demand. If the port would be allocated 5%, this would mean that a volume of 130,000 T would be imported through the Cikalong port. Imports of maize (corn) are also increasing rapidly over time. It must be noted that special facilities will need to be built, since wheat, soya seed and maize are mostly handled in bulk. This would require special conveyors and storage silo’s, to handle unloading and storage.

The trend is clear: a growing demand for wheat, soya and maize will increase imports of these products in the near, medium and long-term future. This offers substantial opportunities for the Cikalong port, with handling and milling facilities attached. Importing and handling of wheat, soya and maize can also be at the base of local milling and a serious livestock feed industry.

5.3 Potential for an integrated agribusiness park approach

The consultants see large potential to develop an integrated agribusiness park at or near the Cikalong port facility, combining the imports of cattle, wheat, maize and soya with added value industries such as breeding and fattening cattle, grain storage and milling, livestock feed processing, fisheries and high value fish products, and poultry farming and processing. All these activities can supply the growing urban centres of Bandung and Tasikmalaya in the long-term future and release congestion in Jakarta.

Where economies grow, the demand for animal proteins increases to a dis-proportionally large extend. This is reportedly also the case in Indonesia regarding poultry consumption, already resulting in a rapidly growing poultry industry. It seems very realistic to have a large holding ground for cattle near the Cikalong port, including slaughterhouse facilities. If land is available, breeding and fattening could be developed in line with the Government policies described above. Wheat, soya and maize imports through Cikalong will stimulate the development of a local milling and handling industry. A livestock feed mill could serve the needs for the breeding and fattening units as well as form a base under a poultry industry, including farming and processing. Approximately 70% of the poultry production costs is feed, making an integrated approach more viable. Besides the suggested agribusiness park approach, other expert research concluded on the potential for a modest yet advanced fishing port harbouring modern fishing ships, that can be built near
Cikalong, while further expansion of high grade shrimp production such as in Ecuador with major investments of domestic and foreign companies, such as from PT. Juragan Kapal Indonesia (page 93, Our Joint Brains brochure in the link below) will further enhance the long term viability of Cikalong Port. Modern cold store, deep freezing, packaging (3D printing bio-downgradable) and other logistical facilities will be able to complete a bamboo-based low energy/low emission port facility (see: https://drive.google.com/open?id=13Y4eecPrIViQL3EorSytqT38iqnM6).

An agribusiness park will be feasible if foreseen infrastructure developments take off, namely in the Bandung-Cikalong 4 lanes highway, invested in, managed and operated by the Special Purpose Vehicle with the equity and debt funding of the Asian Infrastructure Investment Bank and others.

6. Other aspects

6.1 Proposed usufruct approach

Below follows a description on the usufruct approach as proposed by earlier research (see page 3), which will be at the basis of increasing the agricultural production in the Tasikmalaya project area. Usufruct is defined as ‘the legal right of using and enjoying the fruits or profits of something belonging to another’ (Marriam-Webster). The proposed approach will need further research to be applied to Tasikmalaya. The concept is already used in Duqm, Sultanate of Oman. Research done says that “the potential usufruct approach for the relationship between foreign investors at the one side and local farmers and Kabupaten Tasikmalaya at the other hand is destined to create a long term balanced and fair contract-based division of roles, benefits and income between the investors and farmers.” Based on The Sultanate of Oman experience and research, the proposed usufruct approach can function as follows: “The usufruct multi-year Government supported contract allows multimillion USD foreign investment in soil, integrated pest management, water management, education and training, (bio)packaging, logistics/road/port development for Indonesian actors at the one hand and a majority volume of harvests for the (foreign) investors at the other hand. This division of harvests will be based on independent valuation of investments and harvests. The usufruct agreement will be multiyear and preferably 30-50 years for debt and income for all parties to properly mature. The Indonesian traditional word for a sort of barter trade or lending without interest payments and with pay back in materials rather than money is ‘bagihasil’. This word will contribute better understanding of the usufruct agreement. The usufruct agreement may include the following elements: for the landowners/farmers/authorities: a modest lease of land price; an adequate wage for work on land; a premium selling of ‘the farmers’ part of safe or organic harvests (around 20%) for local Jakarta/Bandung/Surabaya sales; investment in land (water management, equipment, education and training); for the investors: around 80% (depending on independent valuation) of the harvests without any further payment.

The farmers can sell their high-value (safe/organic) products to domestic markets and/or to international markets not covered by the investors to avoid unnecessary and unwanted competition; The farmers are stimulated and assisted to establish or strengthen existing cooperatives; these cooperatives may become shareholders in the Special Purpose Vehicle 2 which concentrates on the entire investment in and management of the agri-modernisation. The cooperatives are the ‘clearing houses’ for work coordination, education and training; they are the on-the-ground contact points for the agri-experts at University Siliwangi/UMTAS (Muhammadiyah’s regional university) who will provide education, advice and assistance to the cooperatives when and where required. The experts at the Universities are connected to an Agri App Group run by (and already agreed to by) Telkomsel – this allows early warning and adequate response against pests’ outbreaks etc. The mechanisation of the agriculture and a cover-all agri-education improvement programme will thin out the too high
numbers of farmers in Tasik (around 80% working in or dependent on agriculture). Those leaving agriculture can find (better paid and higher value) jobs up the food value chain.”

6.2 Next step: environmental impact analysis and CSR (based on social impact analysis)

Currently, the area around Cikalong is rural, with a relatively low population density. Most people live the quiet yet underperforming life of the rural areas, have little knowledge and appreciation for the outside world and accept unnecessary high infant malnutrition, deaths, under-education and underperformance. Nearly all are traditional Muslims and firmly used and attached to their way of living – but somewhat curious about a better life. This is particularly true for the already better equipped farmers’ cooperatives. The prospected construction and functioning of a sea port, including its possible manufacturing and production industries, will have considerable impact on social-cultural-religious aspects of society, as well as on the natural environment. Although the port and accompanying industrialisation will provide jobs and economic prosperity, there will also be negative perceptions that come with it. Next to the required environmental impact analysis a social impact analysis should be carried out before embarking on the actual project. This may well lead to the inclusion of effective Corporate Social Responsibility (CSR) approaches by the investors and investing industries.

6.3 Include small-scale farmer projects: example of palm sugar

As agreed during a high-level roundtable conference in 2017, a new Tasikmalaya App Platform will be launched, supported by Telkomsel, to integrate development of four focal fields: agriculture, infrastructure, and education modernisation, and the combatting of malnutrition. Action-oriented development activities will be coordinated through a holistically integrated multi-stakeholder approach. Each field will be allocated three concrete pilot projects. (see: Our Joint Brains, https://drive.google.com/open?id=13Y4eecPrIiTlNLEYorSytdjTH8iqnM6)

In the light of this initiative, and of the foreseen social impact of the port, agriculture development projects aimed at the rural population will be identified and invested in. These should aim at bringing economic prosperity to large numbers of rural people. The consultants zoomed in on one potential agri-development / organising farmers project. Palm sugar is derived from palm juice of some palm varieties. The juice is tapped from a sprout and collected by the farmer, who boils it until thick and the point where roughly 30% of the original juice is left. It is then processed into small blocks, or grinded into sugar. Besides other uses, it is used as a sweetener in coffee and tea. Its’ industrial use is to sweeten Kecap (soya sauce) into Kecap manis. Good varieties of palm trees can produce up to 50 litres of palm juice per day (with 30% sugar). The Tasikmalaya local Government currently aims to further develop the palm sugar business. Several areas in Tasikmalaya produce it, such as the Calamega village. Here farmers produce about 30 T/month of grinded palm sugar, and 50 T/ month in blocks. The product could develop well if the farmers get access to technical assistance and receive better financial rewards. In the current situation, middle men collect the sugar and farmers receive little financial gains for their product. A project could focus on making palm sugar syrup, a product that apparently has high demand. A processing plant will cost Rps 200 billion (15 mln. $). Besides local consumption, it is also advised to test palm sugar products to an Omani expert as it may have potential for exports to the Gulf market.

In the context of the high-level roundtable conference, further research can be done to develop a concrete pilot project on upscaling palm sugar processing under the Agriculture modernization field of the integrated approach.
Annex 1: Production areas and locations of expert interviews
Annex 2: Expert interview list

- Agriculture Department of Tasikmalaya Regency. With Mr. Mohammad Zen, Head of Department, at Kompleks Gedung Bupati (Gebu) Kabupaten, Tasikmalaya. Present: Mr. Mohammad Zen, Mr. Pepi, Mr. Caca, Mr. Ishak, Mr. Sukayat, Mrs. Nining, Mrs. Asri, Mr. Eman, Mr. Tiya, Mr. Budi. Mr. Unang Atmaja of UNSIL also present.

- Rice miller, at Leuwi Sari Singaparna. With Mr. Hamid, owner (082218661973), members of Farmer group, Kelompok Pusaka Tani.

- Organic Rice Farmer Community, at Cisayong Tasikmalaya. With Chairman H. Aleng, members of Farmer group of Wangun Sari.

- Mangosteen plantation, at Puspahiang. With Chairman Mr. Supena, Farmer group Artha Mukti. Followed by meeting with Mr. Enas Anugrah, mangosteen collector.

- Chili pepper plantation, at Raksasari, Taraju. With Chairman Mr. Aji Mamun, members of Farmer group Pemuda Tani Mekar.

- Tea Plantation Sambawa, at Taraju, owned by Sinar Inesco, With General Manager Mr. Edi, and Production Manager Mr. Andi.

- Tea Farmer Group, at Taraju. With Chairman Mr. Ena, members of Farmer Group Raksa Tani.

- Agriculture Department (Siliwangi University Tasikmalaya), meeting with two agriculture experts.

- Sheep farm LTM (Lumbung Ternak Masyarakat) Aksi Cepat Tanggap, at Cintabodas-Culamega. With Chairman, Mr. Rosman.


- Palm Plantation, at Cikuya-Culamega. With Chairman Mr. Didit wandito, members Farmer group Tani Makmur.

- Handicraft production facility, Mendong K Craft, at Manonjaya Tasikmalaya. With owmer, Mr. Asep Barnas.

- Snakefruit plantation, at Desa Madyasari Dusun Sukaharja Cineam, Tasikmalaya. With Chairman Mr. Maman Ruhiman, members Farmer group Sugih Mukti.

- Livestock feed Citra Agro Buana, at Wado-Sumedang. With PIC Mr. Supriatna.
CV Hans Nijhoff

1. PERSONAL DETAILS

Nationality: Dutch
Current Base: Loosdrecht, Netherlands
Company: Pioneers Consulting VOF
Web: www.pioneers-consulting.com
Email: hans.nijhoff@pioneers-consulting.com
Tel: +31 651 232523

2. PROFESSIONAL SUMMARY

Hans is a private sector development expert. His key focus is on guiding investments in agribusiness that result in maximum development impact. In this context, he has nearly 20 years’ experience in the fields of value chain analysis and development, agribusiness finance and trade development, and agribusiness incubator program design. He has carried out numerous assignments, mainly in East Africa. He recently returned from Tanzania after a three-year posting to establish and roll out an agri-SME business club in six countries. Besides East Africa he held long term positions in Indonesia and Egypt.

Early 2017 he established his own company, Pioneers Consulting. As independent advisor, he works for various clients such as business, government, knowledge institutes, and international development organizations. He has developed strong project formulation, team leader, and rapporteur skills, and is an easy-going colleague with a good sense of humor. Hans holds an MSc in agricultural marketing systems from Cranfield University in the UK.

3. PROFESSIONAL EXPERIENCE

Director, Pioneers Consulting (April 2017 – present)
Various assignments:

- Mapping of new and planned infrastructure developments in Tanzania (road, rail, air and port), and in this context scoping of investment and trade opportunities for Dutch agri-logistic companies. For the Dutch Ministry of Economic affairs. 2017-ongoing

- Technical assistance to the Dutch-funded Potato Sector Development Centre in Tanzania (5-year program). Coordinating the private sector driven B2B activities, with Dutch investors and Tanzanian companies. For Wageningen University, PPO. 2017-ongoing

- Technical assistance in developing an investment proposal for an agri-park and agri-incubator, including due diligence assessments and business strategy development. For the Agricultural Business Initiative (aBi), private sector investment fund, Uganda. 2017

- Technical assistance to develop and hold a training course for professionals from the academia, business and government, on stimulating innovation and entrepreneurship. At Kumasi University, Ghana. For Maastricht School of Management. 2017-ongoing.

- Agribusiness development as driver for groundwater preservation. Developing and testing a model that optimizes integration of water preservation and water usage by agriculture and agribusiness companies in Lebanon. For Acacia Water BV. 2017-ongoing.
Program director, Africa Agribusiness Academy, Tanzania, (2012 – 2016)
Based in Tanzania, for Wageningen University. Various tasks:

- Design and implement the 5-year strategy for scaling the AAA private sector program into a leading regional business club network of 350 local agribusiness SME companies
- Establish legal entities in Kenya, Uganda, Tanzania, Malawi, Rwanda, Ethiopia; hire and train local staff, implement financial management, M&E, and reporting systems
- Develop and operate the business development services (BDS) unit to support member SMEs in writing commercial viable business plans, link to network of potential financiers
- Structure SME networking & learning activities through in total 25 zonal business clubs and 6 cross-country sector desks. Organize business trainings, B2Bs, exchange visits
- Plan design and implementation of the M&E system, and report on half-year and annual progress to client, including based on new app-based data gathering
- Establish cross-country sector desks: unique knowledge think tanks and B2B platforms for SMEs from same agri-input, dairy, fruit & vegetables, honey, and poultry sectors
- Coordinate action research on the hypothesis that ‘agribusiness SME growth results in farmer growth’; field interviews (36 companies, 112 farmers), data analysis, reporting
- Annual and mid-term evaluation of progress, on activity and target consistency, outcome targets, planning for sustainability after project, and impact

Private sector development advisor, Wageningen University – Centre for Development Innovation.
Other experience, past 10 years (2012 – 2017)

- Seed potato sector investment study, scoping, trade mission seminar, Tanzania, 2016
- Commercializing food security, maize storage & marketing, Tanzania, 2012-2013
- Dutch-Kenyan seed potato trade partnership, sector development, Kenya, 2011-2013
- Agribusiness BDS mentoring program AECF, Kenya, Tanzania, Uganda, 2011-2012
- Private warehouse business model: rural storage with WRS, Tanzania, 2010-2011
- Conservation tillage business model for rain-fed areas, Tanzania, 2009-2010
- Facilitating rural entrepreneurship processes in VCs, trainings, Zambia, 2010
- Chain-wide learning: concepts and tools for VC development, trainings, Uganda, 2010
- Partnership for SME-driven seed chains, Kenya, Tanzania, Uganda, Malawi, 2010-2012
- Fish compass for exporters to the EU market, Indonesia, Netherlands, 2010-2011
- Africa Agribusiness Academy, pilot phase, Kenya, Tanzania, Uganda, 2009-2011
- Impact evaluation of livestock VC development program, Kenya, 2009
- Success factors for viable contract farming arrangements, Ethiopia, Kenya, 2009
- Warehouse receipts and commodity exchange model, Zambia, Malawi, 2009-2010
- Program strategy planning for VC development, 2008, Kyrgyzstan, Tajikistan, 2008
- Towards engineered trade proposals on agriculture: India’s stand, India, 2008-2010
- Small-scale farmer inclusive PPP arrangements, Kenya, Uganda, Zambia, 2008-2009
• Alternative livelihood strategy development and implementation, Indonesia, 2007-2008
• University consultancy units as outreach centers for development, Vietnam, 2006
• Market access - sustainable markets, various trainings, Asia, Netherlands, 2005-2010

Other professional experience (1997 – 2007)
• Director of disaster-relief project in post-tsunami Aceh: rehabilitation of agriculture production, water supply, and support structure for providing social and medical services. Managing 12 staff. Indonesia, 2005-2007.
• Director of Royal Haskoning Egypt, providing local TA support to Dutch HQ’s water and environmental projects. Acquisition and managing 5 technical staff. Egypt, 2000-2001
• Advisor for the Water and Environment International department, and later member of the Strategic Business Development unit. Royal Haskoning, Netherlands, 1997-2003

4. EDUCATION AND WIDER EXPERIENCE

Academic Qualifications:
• MSc, Agricultural Marketing Systems for Developing Countries, at Cranfield University, Cranfield School of Management, United Kingdom, 1992
• BSc propaedeutic year, Agricultural Marketing & Trade for Developing Countries, at the International Agricultural College, Netherlands, 1990
• Higher National Diploma, Land & Water Management for Developing Countries, at the International Agricultural College, Netherlands, 1989

Country Experience:
• Azerbaijan, Belgium, Egypt, Ethiopia, India, Indonesia, Kenya, Kyrgyzstan, Malawi, Netherlands, Romania, Rwanda, South Africa, Tajikistan, Tanzania, Uganda, Vietnam, Zambia

Languages:
• Dutch, English, (basic French, Spanish)

Publications:
CV Sierk Plaat

1. Family name : Plaat
2. First names : Frans Sierk
3. Date of birth : 14 July 1950
4. Nationality : Dutch
5. Civil status : Married (3 children)

6. Education:

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<tr>
<th>Institution</th>
<th>London University, London, UK, Imperial (Wye) College</th>
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<td>Date: from (month/year)</td>
<td>1982-1983</td>
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<tr>
<td>Subject(s)</td>
<td>Development Economics and Farm Management</td>
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<td>Secondary subject: Production Economics/Agro marketing.</td>
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<th>Deventer State Agriculture College, Deventer, Netherlands</th>
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<tr>
<td>Date (from / to)</td>
<td>1969-1975</td>
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<tr>
<td>Subject(s)</td>
<td>Tropical Agriculture, specialisation in Animal Husbandry.</td>
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<td></td>
<td>Secondary subjects: Farm Economics and Rural Sociology</td>
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<td>Degree(s) or Diploma(s) obtained</td>
<td>HND and B.Sc. degree</td>
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<th>Institution</th>
<th>Agriculture College, “Warmonderhof”, Warmond (now in Dronten),</th>
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<tr>
<td>Date (from / to)</td>
<td>1966-1969</td>
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<tr>
<td>Subject(s)</td>
<td>Specific emphasis was put on the Biological Dynamic (Organic) Farming</td>
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<tr>
<td></td>
<td>methodology. Horticulture and general farming.</td>
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<tr>
<td>Degree(s) or Diploma(s) obtained</td>
<td>Diploma in Agriculture (OND).</td>
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Courses
1968 : Hand and machine milking
1968 : Full driving licence
1976 : Artificial Insemination
1985 : Personal Computer
1986 : Financial Management, De Baak, Noordwijk
1986 : Report Proposal Writing
1986 : Project Appraisal, In House HVA in conjunction with Wageningen University
2008 : Value chain analysis. (agriculture chains MDF)
2010 : Courses in negotiations.
2012/13 : Compliance courses in house Rabobank./ starters credit course

7. Language skills: (increasing competence from 1 to 5)
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<td>Kiswahili</td>
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8. Membership of professional bodies: NEDWORC.
9. Other skills: computer literate. (words, excell, PP etc)
11. Years within the organisation: 1. Professional experience: 46
12. Key qualifications:
   - Project/business management and co-ordination
   - Development of business plans/ bankable reports
   - Financial engineering, due diligence reporting
   - Agricultural Economics, marketing
   - Market, business and strategy development.
   - Knowledge of Asian, Eastern European and African agro business
   - Feasibility studies and investment calculation
   - Farm, range management, Dairy chain management.
   - Development Fruits & Vegetables integrated production systems
   - Training
   - Small farmers development

13. Specific Countries experience:
   **Long term:**
   Tanzania, Nigeria, Vietnam, Romania (total 19 years)
   **Medium term visits > 2 months:**
   Mali, Sierra Leone.
   **Several short visits:**
   Kenya, Uganda, Rwanda, Mozambique, Ethiopia, China, (Hongkong), India, Egypt, Ukraine, Indonesia, Romania, Poland, Liberia, Jordan, Zambia, Saudi Arabia, Iran, Brunei, Canada, Singapore
   **Short visits:**
   South Africa, USA, Ghana, Italy, El Salvador, Honduras, Guatemala, Costa Rica, Bangla Desh, Slovakia, Thailand, Cambodia, Serbia, Turkey, Sudan, Malawi, Serbia, Croatia, Afghanistan, Somaliland.

14. Project experiences and professional experience record

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<tr>
<td>Country</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Position</td>
<td>Analyst African Agriculture. Plaat African Agriculture Advisory</td>
</tr>
</tbody>
</table>
**Date (from / to)** 2007-present (retirement on 01-11-2015)

**Country** Dar es Salaam, Tanzania. From 1/1/2015 in Utrecht, Netherlands

**Position** Senior Analyst African Agriculture. Rabobank International Food & Agriculture advisory


**Date (from / to)** 2007 -2011

**Location** Gorssel (Netherlands), Romania, Afghanistan, Indonesia, P.R.China, Croatia,

**Position** Senior Consultant/ Interim manager/ Director Plaat Agro Consultancy


11.08.08-11.09.09 One year contract as Managing Director for Bonda Nutritia Animala SRL with CEHAVE/ Bonda livestock feeds to set-up green-field operation. Trading food industry by products as livestock feeds. Start-off with brewers grain and brewers yeast to farmers. Recruitment sales managers, setting up company. Commercialization 01.12.2009- 01.01.2010 Business plan in P.R.China for a bio-gas installation with Agro Bio Vision and HuaHuaNiu Dairies in ZhengZhou. (economist) Business plan for a large scale vegetable project in Romania (private client) **Director Gabana ferm SRL Romania**. Partner and Chairman in Dairy cooperative. Initiating EU subsidies FEDAR. From 01.03.2010-31.12.2011. **Partner Schiere, Simiuic & partners** (growth strategies) Agriculture DD for large investor. Romania.

**Date (from / to)** 2005 -2007

**Location** Wageningen, Agromisa Foundation

**Position** Director

**Description** Agromisa Foundation is an organisation involved in the knowledge transfer of agriculture knowledge to small farmers in the third world. This is done by
developing and issuing a number of publications and by developing participatory trainings to several organisations in mostly African countries. Professional visits to Zambia and Kenya. Agromisa has 10 salaried staff (5.5 FTE) and more than 50 volunteers who help developing new projects and assist the staff in doing their work.

**Board member of Agri-ProFocus**, the follow-up of the Doornbos committee. The directorship is done in combination with work for Applied Plant Research (WUR)

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<th>Date (from / to)</th>
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<tr>
<td>Location</td>
<td>Lelystad, The Netherlands, Applied Plant Research, Wageningen University</td>
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<tr>
<td>Position</td>
<td>Senior Consultant/ trainer</td>
</tr>
<tr>
<td>Description</td>
<td>Identification missions and co-ordination Fruit and Vegetable program CBI, Kenya, Egypt, Uganda, Ghana and Jordan. Acquisition international projects (Serbia), international training. lectures Lublin, Poland horticulture project, Ukraine open vegetable project, Horticulture chain development project in Romania, training in Uganda, Jordan, Egypt, etc. Tender preparation. Training Certification in Kenya for 20 students from 12 sub-Saharan countries with IAC. Several training activities with IAC Wageningen and Larenstein for foreign students. Aceh ginger project advisor (post Tsunami) (UNDP) incl. 2 visits to the area.</td>
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<tr>
<td>Country</td>
<td>Zambia, Uganda, Kenya, Tanzania, Egypt, Guatemala, Costa Rica, Honduras, El Salvador. Ukraine, Lviv, Indonesia, South Africa, Uganda, Ghana, Italy</td>
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<tr>
<td>Position</td>
<td>Project Director/senior consultant Agriment International BV. Senior Consultant/ Director. Plaat Agro Consultancy. Lecturer Larenstein Agriculture Technical University</td>
</tr>
<tr>
<td>Description</td>
<td>Identification training needs cut flower and young pot plant material projects for CBI. Also PSO Dairy sector Development. Project Director Lviv, Ukraine, Identification missions Fruit and Vegetable program CBI. Establishment own consulting firm in South Africa. Lecturer at Larenstein Technical University Deventer in International Horticulture economics for post degree students.</td>
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<tr>
<td>Country</td>
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<tr>
<td>Position</td>
<td>Area manager Asia – senior consultant CEBECO/ Agriment International</td>
</tr>
<tr>
<td>Description</td>
<td>Responsible for both successful Joint Venture in India (CEBECO India) and representative CEBECO office China. Responsible for commercial projects, seminars, presentations in India, Vietnam, Thailand, Bangladesh, China, Africa, Central America and Brunei as well as acquisition in the same area. Team leader and participant of several feasibility studies. Subjects: mostly horticulture projects including cut flowers and potted plant projects as well as Fruit &amp; Vegetable projects. Feasibility study Horticulture project in Nanyang P.R. China( Flowers &amp; Plants , 1999) Agriculture sector study Dutch Agro-business chains and involvement Dutch Agro business in Indonesia (1999) Vegetable production study India (Pune) Feasibility study (economist) of the establishment of a slaughterhouse in Dhaka, Bangla Desh (1998) and others.</td>
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<tr>
<td>Country</td>
<td>The Netherlands</td>
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<tr>
<td>Position</td>
<td>Director owner Private Company, Plaat Agro Consultancy.</td>
</tr>
<tr>
<td>Description</td>
<td>First task was completion of a Poultry Study in Vietnam for Cebeco International Projects and follow-up. The second task, a large-scale poultry integration in Brunei which had already started and some other projects, like a dairy project in Northern Vietnam.</td>
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<tr>
<td>Country</td>
<td>Vietnam</td>
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<tr>
<td>Position</td>
<td>Project Manager Cebeco International Projects B.V</td>
</tr>
<tr>
<td>Description</td>
<td>Director General at a large scale farming and processing company in Dalat (Dairy, pigs, poultry and vegetable crops), Vietnam. Main sponsor Agravina Ltd. from Hong Kong. The main sponsor scaled the project down during June 1995, thereby finishing my contract. Contracting produce with small holder farmers. (Cabbage for export to Cambodja) During the period I negotiated on behalf of the Joint Venture with the Vietnamese Authorities. Before the scaling down several business plans were prepared for different ventures related to the dairy business as well as vegetable processing and export programs. Part of the plans are executed successfully now. Also supervisory director at flower project Hasfarm Dalat and vegetable export project.</td>
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<td>Country/place</td>
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<tr>
<td>Company</td>
<td>HVA-International for Integrated Dairy Farm/ WAMCO, an affiliate of Friesland Dairy Foods (Now Friesland/Campina)</td>
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<tr>
<td>Position</td>
<td>General Manager</td>
</tr>
<tr>
<td>Description</td>
<td>The company was engaged in growing fodder crops, dairy farming, milk processing (cheese, yoghurt, butter, pasteurised milk), milk collection and marketing (and direct sales) of the products. Two permanent expatriates were employed, while several were engaged on a short-term basis. The organisation had 12 senior Nigerian staff employed (academics) and about 85 junior staff on a permanent basis. The farm had an average production level of more than 6,000 litre’s per cow per lactation, while some were over 10,000 litres. Particular success was booked with a cross breeding program. On the dairy processing side success was booked with the introduction of locally made Gouda Cheese and fruit yoghurt. A new brand (“Farm Fresh”) was successfully introduced during my stay. Public Relations was a relatively important part of the task. A milk collection program was successfully executed. In an economically and socially difficult environment the organisation was and is a success. Reported to the Executive Managing Director of WAMCO. During the stay, a sector dairy study for IDA/WB was conducted in Nigeria.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>1988-1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country/place</td>
<td>Tanzania</td>
</tr>
<tr>
<td>Company</td>
<td>HVA-International for Farmlands Tanzania Ltd</td>
</tr>
<tr>
<td>Position</td>
<td>General Manager</td>
</tr>
</tbody>
</table>
**Description**

A commercial company managing 2 recently privatised sisal companies. On a permanent basis 5 expatriates were employed from different countries and several short term specialists. On a permanent basis about 75 people were employed but in the planting, weeding and harvesting season up to 1000 people on a short term basis. During my stay 2500 hectares of sisal were planted and about 50 hectares of tobacco introduced from bush. All MIS had to be started. No administration was available at all in the beginning. The crops were: Sisal (including processing and grading), tobacco (Burley), maize, pulses and special crops as papaine and dried peppers. The company had to be started from scratch. Land under cultivation about 4000 hectares. Logistical operations were essential part of the business. Contract farming tobacco was set up with small holders. I reported to the Board of Directors.

<table>
<thead>
<tr>
<th>Date</th>
<th>1984-1988</th>
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<tbody>
<tr>
<td>Country/Place</td>
<td>Amsterdam, The Netherlands</td>
</tr>
<tr>
<td>Company</td>
<td>HVA-International</td>
</tr>
<tr>
<td>Position</td>
<td>Team leader, participant, both economist and agriculturist</td>
</tr>
<tr>
<td>Description</td>
<td>Consultant for feasibility studies, project take-overs, project preparation and financial engineering as Team leader and participant. Of the over 20 studies, a few were in South East Asia and on dairy. Frequent travelling to Africa, the Middle East and Far East. (Zambia, Zimbabwe, Nigeria, Liberia, Uganda, Iran, Saudi Arabia, Ethiopia, Indonesia, Thailand etc.) The studies covered a wide range of subjects in the agriculture, horticulture and agro-processing sphere. They ranged from Nation wide sector studies lasting more than half a year to short term studies like the promotion of flower exports from Zimbabwe. The clients were from different backgrounds, both Government and private;</td>
</tr>
</tbody>
</table>

| Date (from / to) | 1984 |
| Country         | Mali |
| Position        | Interim Economist |
| Description     | Interim Economist for DGIS/ Office du Niger in Mali. Lasted about 4 months. The project was involved in large-scale rehabilitation of irrigated paddy fields for small farmer’s use. |

| Date (from / to) | 1981-1982 |
| Country         | Tanzania |
| Position        | Project Credit Officer |
| Description     | DGIS/ IDA/ Tanzania Rural Development Bank. Co-ordinator of a large-scale dairy development program, supported by the World Bank. Loan appraisals, disbursements, repayments and budget preparation and control for 12 large scale dairy farms and 4 processing facilities, also including small scale livestock projects, nation wide. The project consisted of Parastatal companies. The project employed over 15 expatriates, some of them directly employed by The Netherlands and Danish Governments. It was including livestock purchases abroad. My employment was ended on my own request because the WB disbursements were ending. After that I went for further studies to London University; |
Date (from / to) | 1979-1981
--- | ---
Country | Tanzania
Position | Regional Project Officer
Description | DGIS/ Tanzania Rural Development Bank, loan analysis, loan execution, budget control, loan recovery, for small and large-scale livestock projects in the Northern Provinces of Tanzania. (dairy, poultry, ranching, pigs) The project has been successful up to this moment. It has expanded to other provinces and has boosted the dairy industry in Tanzania. It is named as an example of a successful development project by the WB, the main project sponsor, up to now; Livestock purchases for the different projects (pigs, dairy and beef cows, sheep).

Date (from / to) | 1975-1979
--- | ---
Country | Tanzania
Position | Assistant Manager/ Volunteer SNV
Description | Assistant Manager of a large-scale dairy farm in West Kilimanjaro, Tanzania, Organisation of Netherlands Volunteers/ Tanzania Dairy Farming Company. About 1200 hectares and the herd developed from 250 heads to 1000 heads of cattle, grassland management, infrastructure development, workshop, several crops (seed beans, barley, wheat, linseed, sorghum, maize, vegetables, etc.) budget preparation and planning. Involvement in livestock purchases for the project.

15. Personal competencies:
- Operational Manager, action oriented, pragmatic.
- Consultant, sector strategy development.
- Action oriented, commercial, pragmatic, active
- Representative, good networking skills, good communicator
- Strong international orientation
- Analytical, helicopter view, Team worker,
- Loyal, reliable, respectful and accessible
- Able to operate under stress
- Open minded

16. List of recent publications:
- Project identification agriculture projects in Northern Afghanistan for GFA-GTZ (2008)
- Climbing Kilimanjaro. Tanzanian coffee sector shows promising potential. (Rabobank Industrial note) (2013)
- Sweet future for Mozambique Sugar. ( Rabobank Industrial note)(2015)
- Tanzania sugar. (Rabobank Industrial note)2012
- The buzz surrounding Ethiopian coffee. (Rabobank Industrial note)2015
- Feasibility study Kenyan dairy sector. Co-author,(2014)
- Zambian dairy sector. Milk the cow that stands still. (Rabobank industrial note) (2015)
- Zambian Sugar sector (Rabobank Industrial note) (2013)
- Various instruction manuals for agriculture finance for African partner banks Rabobank.
- Business plan for Goat farm in Somaliland (2017) (PUM)
- Business plan for Farmers Association In Kenema Sierra Leone. (2017) PUM
- Marketing plan for the Bangladesh dairy sector (Solidaridat) (2017)
17. Other Relevant Information: references available upon request.
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The Netherlands.
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e-mail: sierkplaat@hotmail.com