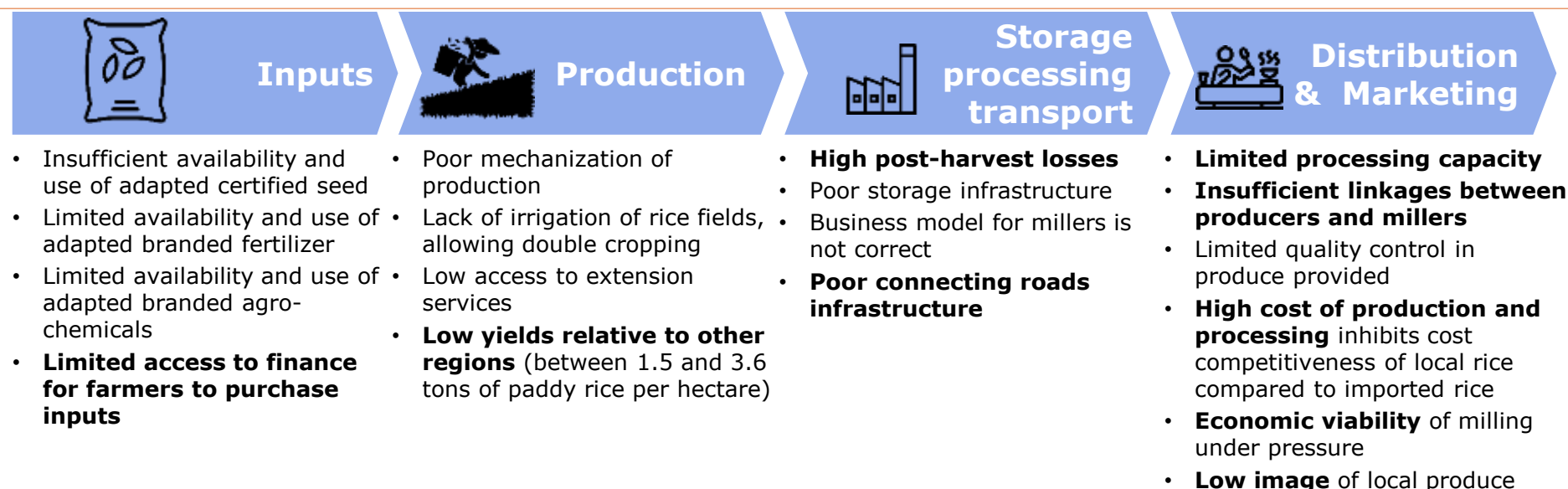




West African Rice Corridors:  
Unlocking regional market potential  
for rice self-sufficiency in West Africa

 **intervalle**  
genève SA

Underpinning import dependency are challenges across the domestic rice value chain, characterized by low yields, weak processing and poor value chain linkages

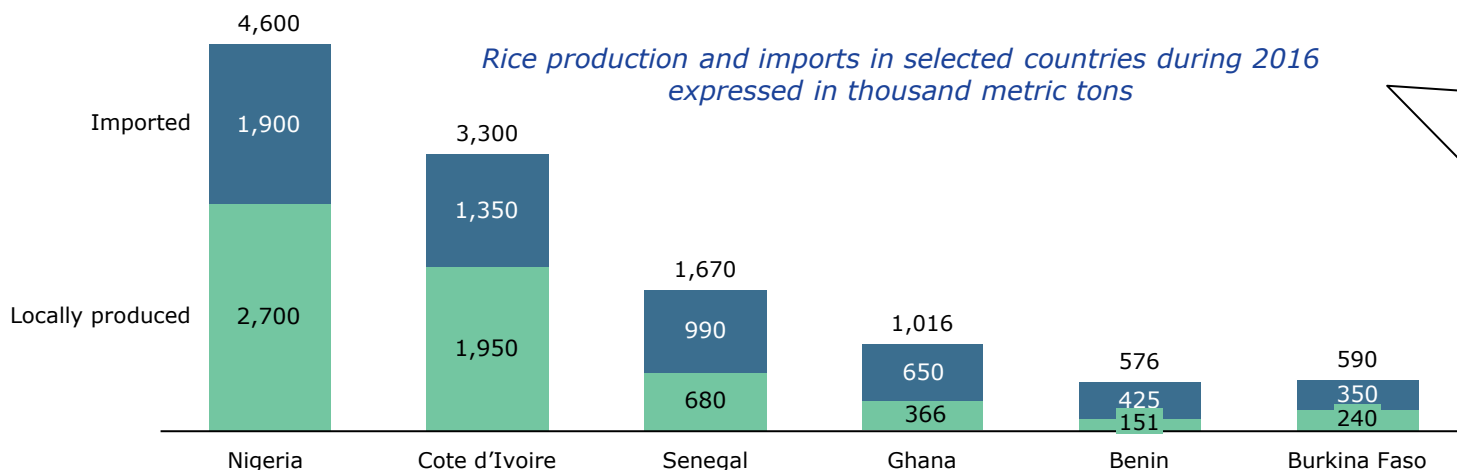


**Cross-cutting challenges**

- Poor linkages between value chain actors and governance structures
- Limited investments on agricultural research, technology dissemination and adoption
- Limited credit and financing capabilities at each segment of the value chain and therefore overall financing

**An integrated approach is required to lower cost of production, increase yields, connection to market in order to create a positive business case for all supply chain actors and make locally produced rice externally competitive with foreign origin rice subsidized twice (during production and at shipment ) and benefitting from protection through various mechanisms**

While selected areas of West Africa has the right climate/soil, water availability and both political commitment and investment friendly climate to produce its own rice, most countries rely on imports for the majority of their rice consumption requirements

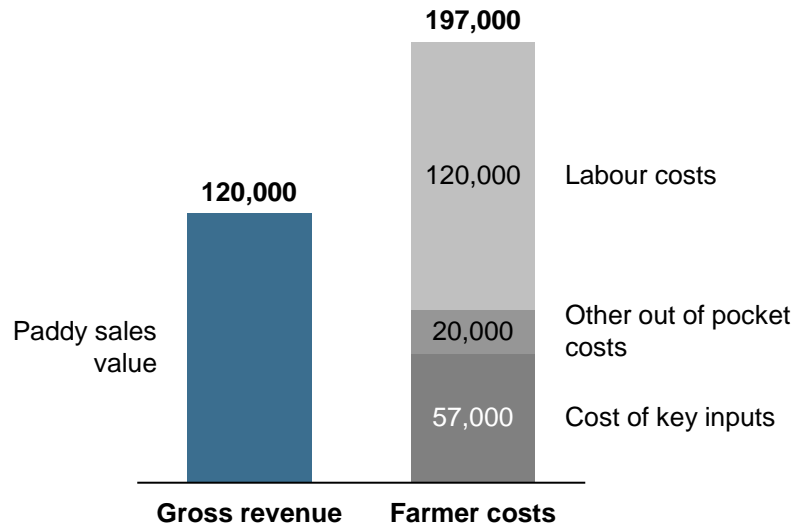


The West African region as a whole imported over 7.7 million MT of rice in 2016, representing over 40% of its total rice consumption needs in 2016

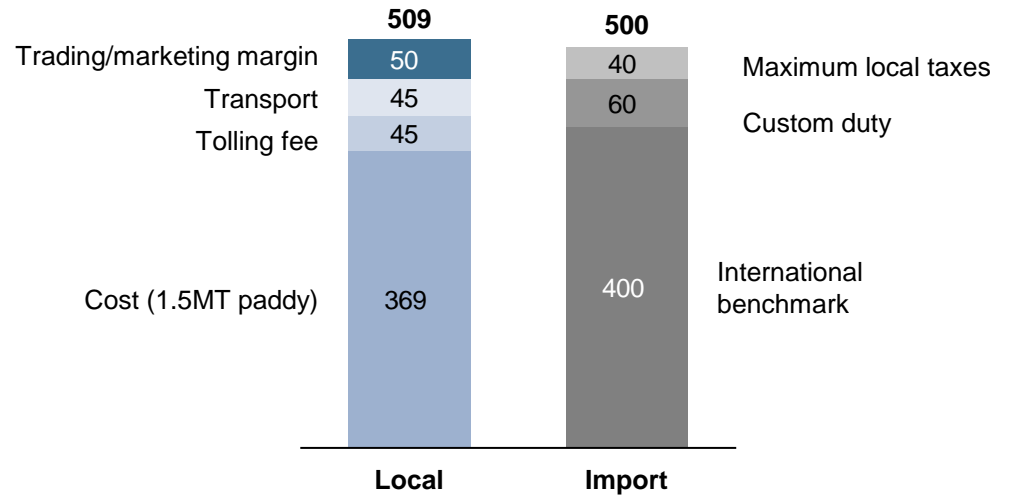
| SENEGAL   | COTE D'IVOIRE  | GHANA   | BURKINA FASO   |
|---|--|---|--|
| Présidentiel déclaration to self sufficiency in 2014. Presidential and Government support to the project since 2015 | Présidentiel déclaration for rice self sufficiency in 2014 Presidential and Government support to the project since 2017 | Présidentiel déclaration for rice self sufficiency in 2017. Presidential and Government support to the Intervalle project since Q4 2017 | Présidentiel déclaration for rice self sufficiency in 2017 Presidential and Government support to the Intervalle project since Q2 2017 |
| PPP « Developement de la chaine de valeur riz de la région du fleuve Sénégal »                                      | PPP « developement durable de la riziculture et de lutte contre la pauvreté dans le denguele et le bafing »              | PPP « Planting for food and jobs -the rice chapter »  | PPP« Developpement pole de croissance du grand ouest »   |
| AFDB for 10'000 hectares Studies completed for 10'000 hectares PPF 1 million usd                                    | BOAD for 1''000 hectares Studies completed for 10'000 hectares   | On going launch process   | Development phase  |

As a result of these challenges, the business case for traditional, rain-fed production is marginal to negative

Farmer income and cost of rain-fed rice farm in Cote d'Ivoire, CFA per hectare



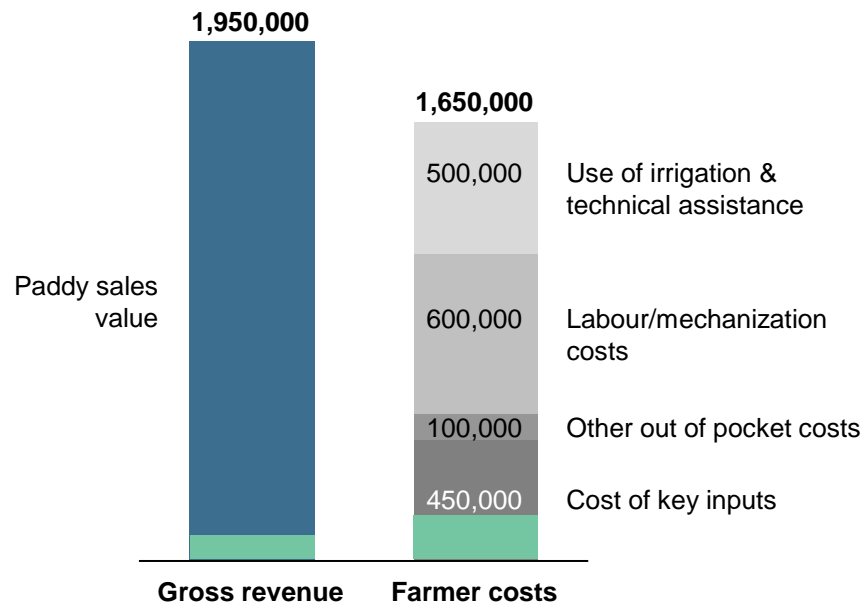
Cost comparison for rain-fed rice production in Cote d'Ivoire vs imports per ton, USD per MT



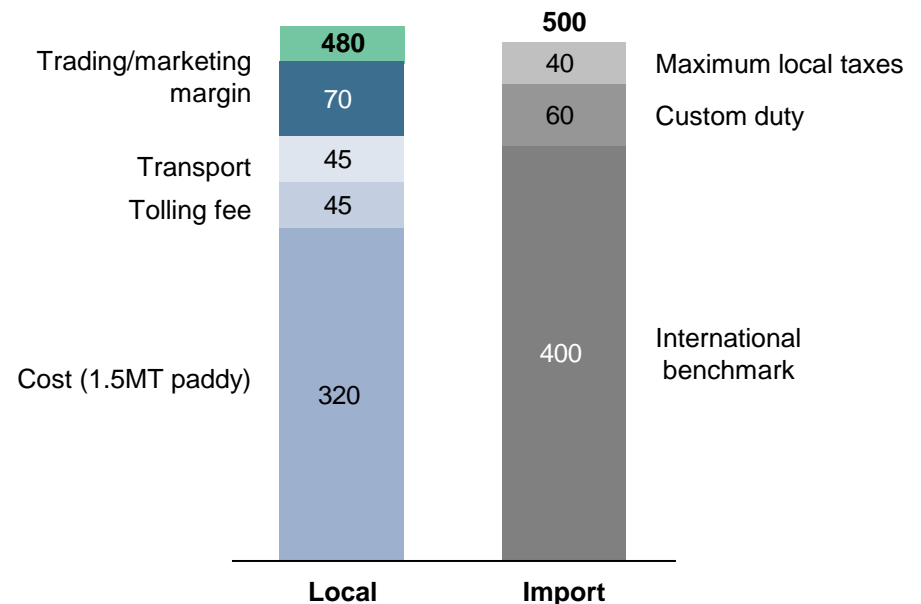
- When labour costs are accounted for, returns on rice production are negative, explaining why farmers would turn away from paddy production, except where farmers produce for family-level food security
- In addition to being cost competitive, imported rice gains an extra competitive edge by having better quality control, consistency, certainty of supply over locally produced rice – even though West Africa imports the brokers and residual quality of rice produced in South East Asia

The business case for irrigated production, however, is clearly positive – rain-fed rice outcompetes imported rice and margins to value chain actors grow

Farmer income and cost of irrigated rice farm in Cote d'Ivoire, CFA per hectare per annum (2 crop cycles)



Cost comparison for irrigated rice production in Cote d'Ivoire vs imports per ton, USD per MT



Comparison to rain-fed

- A production system based on use of irrigation facilities and improved inputs leads to improved yields and production volumes that enables smallholder farmers and commercial farms to earn positive returns on their investments
- Further, Irrigation allows two water controlled crop cycles per year compared to one cycle per year for rain-fed production

Assumptions: Yields averages 7.5 t/ha, paddy price assumed CFA 130 / kg, Conversion rate 3:2, 2 crop cycles per annum

## How can local rice production be competitive?

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### Production

- Full water control irrigation to allow targeted yields of 10 mt paddy/ha/crop cycle with double crop cycles and allows rotation crop such as cotton and a third crop cycle with vegetable/sesame
- Inputs and mechanisation are adapted and available

### Well managed, onsite storage/mill

- On-site well managed and adapted storage/mill reduces costs and risks including side selling
- Co-ownership/participation of farmers organisations builds loyalty and boosts farmer income
- Professional management leads to significantly higher quality and consistency, allowing for targeting higher margin market segments

### Top-tier brand launched

- The imaging of locally produced rice should be totally redone, from “the poor man’s food in rural areas” to “the preferred brand for local taste” combination branded white rice of 25% broken, 100% broken and whole grain with some allowance for fragrant and fortified rice.
- Marketing should also select carefully chosen large scale off-takers, retail chains and resellers
- The local rice value chain distribution system is well organized and attractive to all actors

### Training & ICT system

- All actors of the value chain need to share the vision and are organized and trained
- A well designed digital-supported system of knowledge/information dissemination and collection, risk management and platform revenue sharing

### Public & private sector financing

- Most of programmes based on private financing of irrigation infrastructure on commercial terms have failed as can be financed on concessional terms in partnership with public sector windows
- Once the business model is correct and accepted by all parties including Government and Farmers organisations, the Private sector blended finance will be used from farm to fork

Rationale: The rice situation across West Africa affects both nutrition and food security requiring a bold, comprehensive and multi stakeholder private-sector led approach to address to ensure success in partnership with Governments

**Mission**

**Improve food security in West Africa, and decrease market risk associated with large scale imports of rice by increasing rice self-sufficiency whilst safeguarding health and nutritional impacts, as well as social and environmental impacts**

**Key goals**

- Reduce Senegal rice imports by 75% by producing 800,000 MT of milled rice per annum
- Reduce Ivorian rice imports by 75% by producing 1,000,000 MT of milled rice per annum
- Reduce Ghana rice imports by 75% by producing 600,000 MT of milled rice per annum
- Reduce imports in a 4th country (Burkina Faso ) by producing 400,000 MT of milled rice per annum
- Develop a self-financing, replicable and profitable model that can be scaled to other countries and crops meeting investors , communities and Government expectations

**Strategic approaches**

**Public Private Partnership**



- Governments to secure financing for the development of public infrastructure needed to facilitate agricultural development
- Private sector partners including financial, strategic and technical partners

**Modern irrigation and technology solutions**



- Strong diffusion and adaptation of technology across value chain
- Adaptation of climate & environmentally smart practices with technology and date a the center

**Strong, win-win relationship with producers**



- Model premised on strong partnerships with smallholder producers and land owners through an out-grower scheme and commercial farming

**Alliance of partnerships across value-chain**



- Strategic partnership across actors of the value chain for efficient and integrated management of production, harvesting, processing, distribution
- Profitable and transparent project management company implementing a scalable and replicable model

Context: The project is strongly anchored in the need to break West Africa's high dependence on imported rice in order to improve food security for millions

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### Current situation

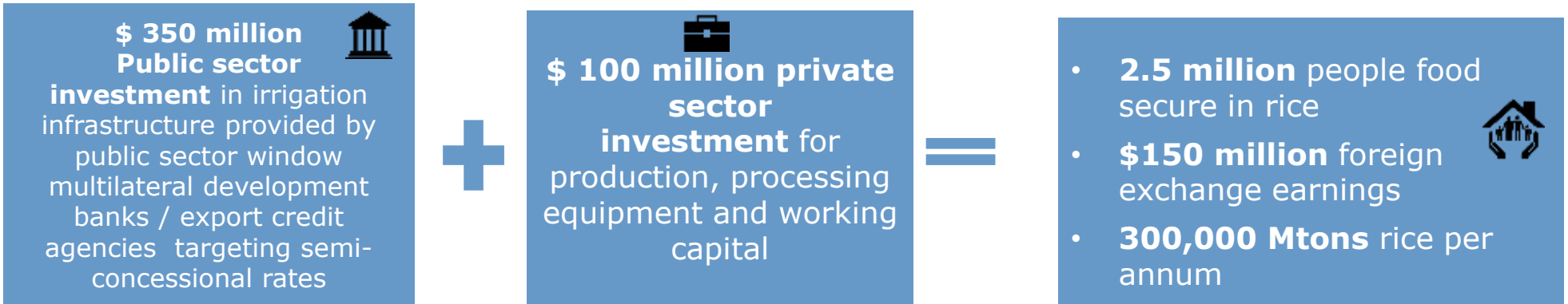
- **Food security is a critical issue throughout the region**, and many of the countries rely heavily on rice imports to maintain adequate food supplies of their primary food crop: rice
- **In 2015/16 imports made up 45 percent of rice supplies**, according to USDA's Production, Supply and Distribution (P&SD) database – and 60 percent of supply to individual countries like Senegal
- **Agricultural productivity is low**. USDA/PSD estimates show rice yields of 2.11 metric tons per hectare on a rough basis for 2015/16. USDA 2016 Baseline projections show slow growth in yields over the next decade
- **At the same time, food demand for rice continues to expand, driven by population and income growth**. Under current policies and production practices, **production will not be able to keep up with demand, and dependence on imports will grow to 52 percent** of consumption for the region by 2025/26

### Effects & implications

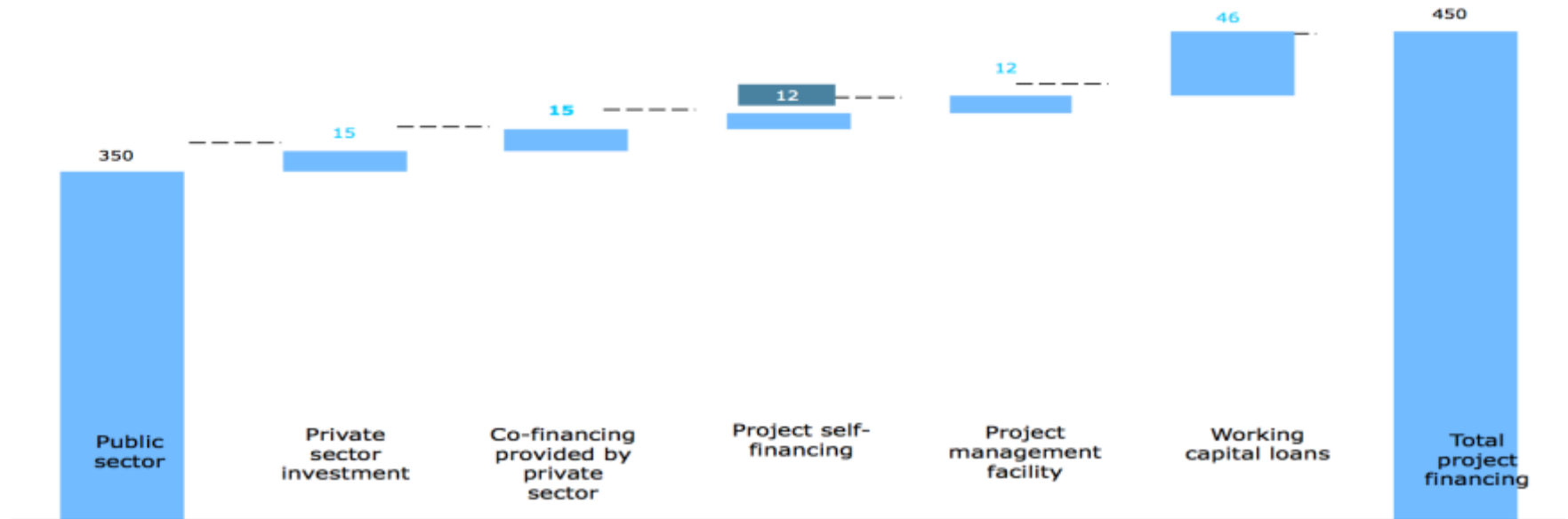
- **Rice imports have reached unsustainable highs in West Africa**: exposure to market risk (availability and price), combined with the high dependence on imports, directly translate into a basic food security risk for tens of millions of people and an unacceptable micro-economic risk in view of the drag on countries balance of payment
- **Irrigation Infrastructure** development will require solid expertise in execution , financing guaranteed par Governments on a sustainable manner , based on land allocation in partnership with current land owners
- **Policies to realize self-sufficiency have at best not reached their full target**, but in most cases have completely failed. **Totally different production methods are required to lower cost of production, significantly increase yields, create a positive and transparent business case** for all supply chain actors and make locally produced rice externally competitive and therefore sustainable



Outcome: **For each 25,000 ha**, the project will attract private and public investments/financing in total of 450 million USD, providing food security in rice for 2.5 million people. While the infrastructure investment by the public sector is the largest cost bucket an estimated cost of 300 to 350 USD for permanent irrigation infrastructure, a further 100 million USD of combined private capital and working capital loans is required



**Project finance funding for 25,000 hectares**  
(USD, millions)



## Beyond the financial returns, the project will also deliver positive impacts on livelihoods and economic development in the region



### Impact on food security

- Exposure to market risk (availability and price), combined with the high dependence on imports, directly translate into a basic food security risk for tens of millions of people, including children
- Project will break dependence on imported rice thereby **providing food security for millions of people across the region**



### Economic impacts

- Project will enable countries **make substantial forex savings** by switching to local production.. **Dependence on imports also represents a macro-economic risk**
- **Boost to job/self employment creation by providing both direct and indirect jobs** across the value chain, starting from in land development, input and mechanization supplies , production, processing, distribution and marketing



### Financial returns

- Project's emphasis on win-win relationships with all players across value chain will delivery returns for actors; **incomes of smallholder farmers will increase very substantially; commercial farming is profitable**
- **Investors expected to receive strong returns, Government infrastructure financing is financially and economically both viable and sustainable**



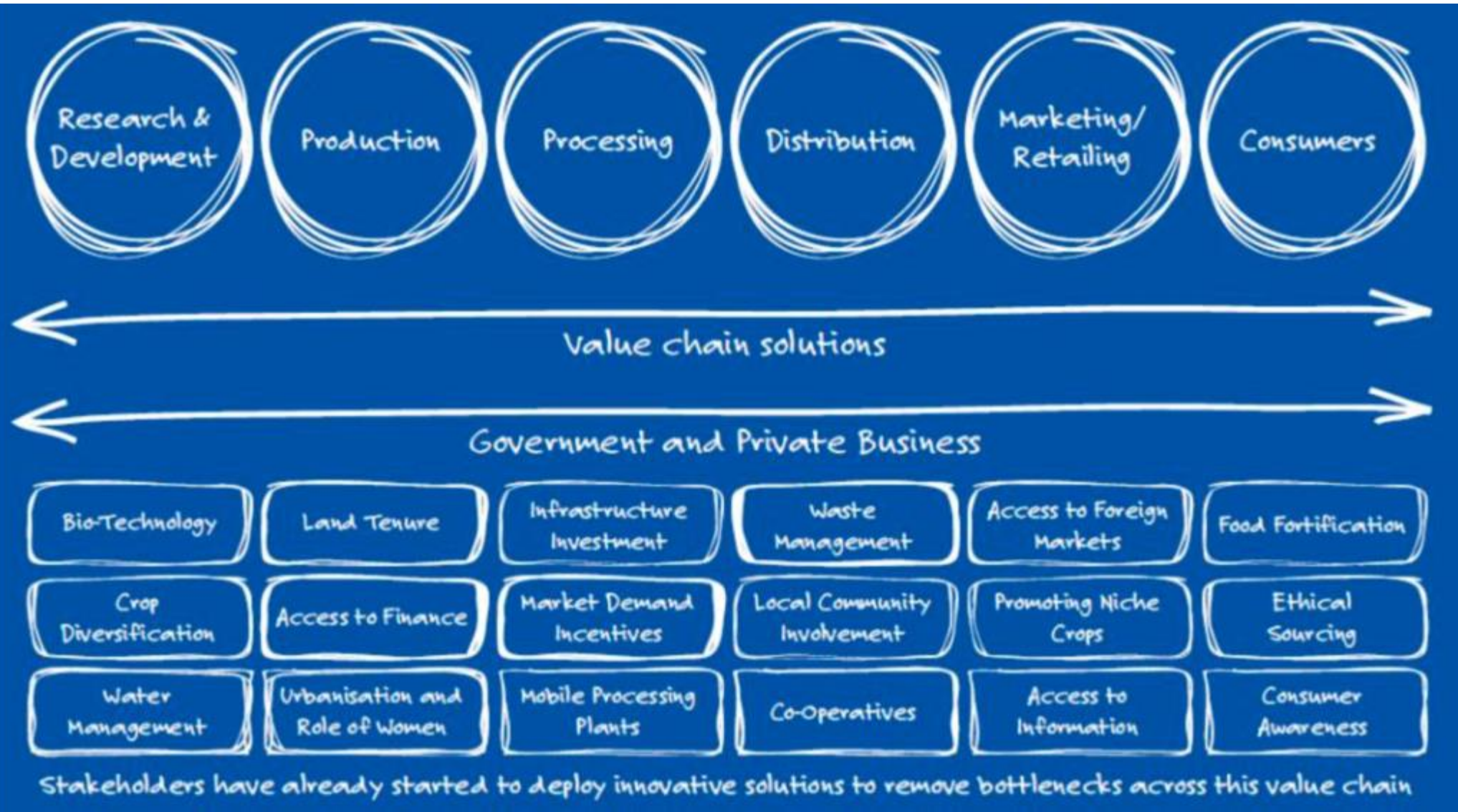
### Rural development

- **Health care:** health supply chain delivery including infrastructures and health universal coverage and nutrition are supported and sustainable
- **Vocational training:** unique opportunities for dual vocational training initiatives supported by massive employment during infrastructure development and thereafter jobs and self employment in all sectors in rural world

## The project combines three types of production that will cooperate with the value chain actors

|  |   |
|--|---|
| <b>Commercial farming</b>                    | <ul style="list-style-type: none"><li>▪ The company operates state of the art commercial farms using modern techniques on areas to account for a maximum of 1/3 of newly developed lands of each programs with blocks of the 2'000 hectares as adjacent as possible and partners with the semi-commercial farms</li><li>▪ Operates as an aggregator for semi-commercial farms and the out-growers in the vicinities , owns also its mills and supports diffusion of good agricultural practices in its area</li><li>▪ Promotes most modern cultivation and full value chain techniques using on most performant and adapted inputs to ensure highest yields including by focus on selected hybrid varieties</li></ul> |
| <b>Semi-commercial farming</b>               | <ul style="list-style-type: none"><li>• Youth mostly from or links with the region, trained and organized in cooperatives, create companies to operate commercial farming using modern techniques on adjacents plots of 100 to 200 hectares for about 1/3 of the newly developed lands</li><li>• These once trained will partner with both the commercial farm company and and win /win relation with the out-growers of their areas</li></ul>  |
| <b>Out-growers farming</b>                   | <ul style="list-style-type: none"><li>• The new development of adapted plots of 1/3 hectares are done in coordination with existing farms which are rehabilitated</li><li>• The independant and small holders farmers in the area are registered ,</li><li>• They have access to good agricultural practices and mechanization</li><li>• They have a market and therefore access to financing</li></ul>   |
| <b>Agro-entrepreneurs of the value chain</b> | <ul style="list-style-type: none"><li>• Youth on positive gender discrimination basis are trained during infrastructure development phase.</li><li>• Operate within a robust value chain to provide the services from farm to fork allowing financing by banks and financials institutions</li><li>• They can be financed as per segments of the value chain</li></ul>  |

# The value chain and the thematics of the interactions



The selected -profit partners sharing the vision with defined R&R as well as interest & commitment

For each segment a lead institution has been identified and committed to participate to the overall program or part

|   |  |   |   |
|---|--|---|---|
| <p><b>IRRIGATION</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in design and execution of massive irrigation infrastructure development</li> <li>▪ Ability to execute quality works in a timely manner with proven track record</li> <li>▪ Capacity to secure adapted financing in partnership with Governments</li> <li>▪ Committed to prioritize massive job creation and vocational training at large</li> </ul> | <p><b>ICT</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in global technology systems</li> <li>▪ Strong and effective focus in west Africa Agriculture value chain</li> <li>▪ Committed to support the design and to co-invest in the global technology and revenue sharing platforms</li> <li>▪ Existing cooperation with phone and mobile money operators in countries</li> </ul>   | <p><b>BANKING</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in financing of agricultural value chains</li> <li>▪ Capacity to lead club deals, structure syndicated bank facilities ,partner with investment funds</li> <li>▪ Effective west africa strategy in partnership with first class local banks</li> <li>▪ Committed to support microfinance institutions and farmers cooperatives</li> </ul>   | <p><b>SOURCING &amp; DISTRIBUTION</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in sourcing and distribution of agricultural goods</li> <li>▪ Strong expertise in risk management and effective focus in west Africa Agriculture value chains</li> <li>▪ Commitment to support the local rice value chain and other related cash and food crops transformation for local and export markets</li> <li>▪ Committed to support national private sectors</li> </ul> |
| <p><b>FERTILIZER</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader fertilizer company</li> <li>▪ Provides adapted top quality fertilizers with proven track record</li> <li>▪ Effective west Africa strategy to support to and partner with national key players and farmers</li> <li>▪ Aligned with national research and policies</li> <li>▪ Committed to co-invest in regional fertilizer plant</li> </ul>           | <p><b>SEED &amp; AGRO CHEMICALS</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in seed and agrochemicals</li> <li>▪ Provides adapted top high yield varieties and agro chemicals with proven track record</li> <li>▪ Effective west Africa strategy to support and partner with national key players and farmers</li> <li>▪ Aligned with national research institutes and national policies</li> <li>▪ Committed to co-invests in seed value chain</li> </ul> | <p><b>MECHANISATION</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in mechanisation and related farming items</li> <li>▪ Ability to secure adapted Export Credit Agencies facilities</li> <li>▪ Existing partnerships to ensure full value chain</li> <li>▪ Commitment to co-invest in local assembly plants</li> <li>▪ Effective long term west Africa strategy to support on long term training, spare parts and maintenance management</li> </ul> | <p><b>MILLING &amp; STORAGE</b></p> <ul style="list-style-type: none"> <li>▪ First class and world leader in milling and related infrastructures</li> <li>▪ Ability to secure adapted Export Credit Agencies facilities</li> <li>▪ Provides adapted west Africa full value chain milling with proven track record</li> <li>▪ Effective west Africa strategy to support on long term training, spare parts and maintenance management</li> </ul>   |

The selected None-profit partners sharing the vision with defined R&R as well as interest & commitment

For each segment a lead institution has been identified and is committed to support to the overall program or part

|   |   |   |   |
|---|---|---|---|
| <p><b>GOVERNMENTS</b></p>   | <p><b>MULTILATERAL FINANCE INSTITUTIONS</b></p>   | <p><b>COOPERATION AGENCIES</b></p>  | <p><b>REGIONAL AGENCIES</b></p>   |
| <ul style="list-style-type: none"> <li>▪ Ensure long term and committed enabling environment including promotion of local production</li> <li>▪ Supports financing of rice irrigation development financing infrastructure</li> <li>▪ Empowers local governments and local communities</li> <li>▪ Monitors progress and sustainability of financial and economic return of investments</li> </ul>   | <p>Assists Governments in preparation of the projects with PPF and other</p> <p>Participate through public and/or private windows to the financing of segments of the value chain</p> <p>Support and complements the financing of FBO</p>   | <ul style="list-style-type: none"> <li>▪ Work with Governments to support the rolling of their agriculture strategic plans</li> <li>▪ Bring expertise in selected segments of the value chain</li> <li>▪ Cooperate with their private sector active in country</li> <li>▪ Assist in synergies consolidation with other sectors such as education and health</li> </ul>                        | <ul style="list-style-type: none"> <li>▪ Ensure alignment with CAADP</li> <li>▪ Facilitate coordination of alignment of national strategies at regional and continental levels</li> <li>▪ Advocacy toward other regional and continental institutions to ensure support and alignment</li> </ul>                    |
| <p><b>SOCIAL IMPACT CATALYST</b></p>  | <p><b>LEAD AFRICAN FOUNDATION</b></p>   | <p><b>LEAD NGO</b></p>  | <p><b>REGIONAL FBO PLATFORM</b></p>   |
| <ul style="list-style-type: none"> <li>▪ Takes a coordination lead role amongst the donors community</li> <li>▪ Supports FBO to ensure small holders participation and benefit in programs</li> <li>▪ Participate to the preparation and initial rolling of the overall program with a clear exit policy</li> <li>▪ Facilitates synergies in cross sector issues along the rice and other crops value chain and other cross sector</li> </ul> | <ul style="list-style-type: none"> <li>▪ Cooperates with farmers based Organisation to ensure transparency and understanding with private sector and Governments</li> <li>▪ Plays an active role in Advocacy for agricultural development and policy making both at national and regional levels</li> <li>▪ Brokers partnerships with civil societies , Governments and Donors communities in sector such as vocational training , nutrition , malaria</li> </ul> | <ul style="list-style-type: none"> <li>▪ Cooperates with civil societies in each country and at regional level</li> <li>▪ Acts as partner and auxilliary to Governments in supply chain in sectors Agricultural expertise , vocational training and health</li> <li>▪ Participates dialogue and implementation in cross sectors related to youth employment ,diaspora mobilisation</li> </ul> | <ul style="list-style-type: none"> <li>▪ Ensures Coordination of the activities of the National rice FBO unions</li> <li>▪ Advocates at regional level for technical and financial toward Donors and development partners</li> <li>▪ Strengthening of capacities and managerial skills of national FBO'S</li> </ul> |

Context: The project is strongly anchored in the need to break West Africa's high dependence on imported rice in order to improve food security for millions

### Intervalle

- Is the promoter of the project responsible for the design and overall regional development coordination
- Develops relations with public sector and co-executes the program
- supports Government for funding sources preparation to include feasibility studies and infrastructure realization
- Identifies the partners within the key private sector actors of the value chain, both international and national
- Partners with the farmers organizations and civil societies
- Submits the detailed technical and financial offers for private and public partners in line with Government debt policy
- Engages with Government to jointly secure the most adapted funding mechanism for the irrigation infrastructure
- Proposes the structure of the PPP company

### PPP company

- First class management expertise and sufficiently capitalized
- Includes in its shareholding Private international and national sector ,Government(or parastatal company ) and farmers organization
- Acts as a private sector entity with proven commitment for social impact and willingness to collaborate
- Operates the commercial farm , partners with the semi commercial farm and supports the small holders
- Ensure that the three components of successful rice production are met : yield per hectare , cost of production per hectare and sales price
- Ensure transparency with dividends and taxes paid to Government to ensure repayment of infrastructure

Starting in Senegal and Cote d'Ivoire, we will phase in the following four countries over the next seven years

| Year   | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|--|------|------|------|------|------|------|------|
| <b>Senegal</b>                                   |      |      |      |      |      |      |      |
| <b>Phase 1:</b> Ngalenka (1'650 HA)              | █    |      |      |      |      |      |      |
| <b>Scale-up 1:</b> 10,000 HA(Podor)              | ▬    | █    |      |      |      |      |      |
| <b>Scale-up 2:</b> 60,000 HA Senegal river basin |      |      | ▬    | █    |      |      |      |
| <b>Cote d'Ivoire</b>                             |      |      |      |      |      |      |      |
| <b>Phase 1</b> (1,500 HA)                        | ▬    | █    |      |      |      |      |      |
| <b>Scale-up 1:</b> 10,000 HA (denguele)          |      | ▬    | █    |      |      |      |      |
| <b>Scale-up 2:</b> 105,000 HA North west Regions |      |      | ▬    | █    |      |      |      |
| <b>Ghana</b>                                     |      |      |      |      |      |      |      |
| Ghana entry strategy                             | ▬    |      |      |      |      |      |      |
| 4 th country (Burkina Faso entry strategy)       |      | ▬    |      |      |      |      |      |
| <b>Phase 1:</b> 1500 HA (2 Ghana districts )     |      | █    |      |      |      |      |      |
| <b>Scale-up 1:</b> 10,000 HA ( 2 regions )       |      | ▬    | █    |      |      |      |      |
| <b>Scale-up 2:</b> 40,000 HA ( 5 regions )       |      |      |      | ▬    | █    |      |      |

Strategic re-planning

▬ Project feasibility and planning phase      █ Project roll-out



## Suggested Timeline for implementation of phases 1

| Activity  | 2018 |    |    |    | 2019 |    |    |    |
|---|------|----|----|----|------|----|----|----|
|   | Q1   | Q2 | Q3 | Q4 | Q1   | Q2 | Q3 | Q4 |
| <b>Cote d'Ivoire/Ghana/Senegal</b>                                  |      |    |    |    |      |    |    |    |
| <i>Coalition building, build the overall coordination structure</i> |      |    | ■  | ■  |      |    |    |    |
| <i>Baseline measurement</i>   |      |    |    | ■  |      |    |    |    |
| <i>Restore/Improve irrigation</i>                                   |      |    |    |    | ■    | ■  | ■  | ■  |
| <i>Upgrade rice mill(s), 5 tons/hr, 25'000 Mtons paddy/yr</i>       |      |    |    |    | ■    | ■  |    |    |
| <i>Marketing, build brand name, secure off-taker contracts</i>      |      |    |    |    | ■    | ■  | ■  |    |
| <i>Quality control including input control / mechanisation</i>      |      |    |    |    | ■    | ■  | ■  |    |
| <i>Improve GIEs, microfinance, farmer training and yield</i>        |      |    |    |    | ■    | ■  | ■  | ■  |
| <i>Optimise farmer business case</i>                                |      |    |    |    |      |    | ■  |    |
| <i>Validate the "proof of concept" by independent auditor</i>       |      |    |    |    |      |    |    | ■  |