



African Chicken Genetic Gains

ACGG: A platform for testing, delivering, and continuously improving tropically-adapted chickens for productivity growth in sub-Saharan Africa

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**ACGG Ethiopia Second National Innovation Platform
Meeting, Debre Zeit, Ethiopia, 22-23 March 2016**

Some facts about the ACGG program



- **Project countries:** Nigeria, Tanzania and Ethiopia
- **Funding:** Core grant BMGF , matched by partners
- **Program period:** 5 years with a possibility of additional years
- **Starting date:** January, 2015
- **End date:** December, 2019
- **Implementing Institute:** ILRI with partners
- **Main beneficiaries of the project:** Women, Youth and CVC actors
- **Main Trust of the project:** Get the genetics right for contexts

Vision



Our Vision

The vision of this program is to catalyze public-private partnerships for increasing smallholder chicken production and productivity growth as a pathway out of poverty in sub-Saharan Africa.

ACGG Program Overall Outcomes



- **Data driven understanding** of the breeds and specific traits that poor smallholder farmers, especially women, **prefer** across the various countries and agro-ecologies;
- Farmer preferred lines, that produce at least **200% more egg and meat** than existing local breeds production, are made accessible to smallholders through public and private organizations;
- Increased **realized productivity for smallholders** with access to the tested, farmer preferred lines;
- Empowered smallholder **women** engaged as chicken producers;
- Long-term chicken genetic gains programs with clear plans for breeding are established in each country with the capacity to drive accelerated genetic gains **(Long term Genetic Gains program)**;

Overview of ACGG Objectives:



- Identify, characterize, and test tropically-adapted chicken germplasm to determine productivity across agro-ecologies and management conditions and to define farmer preferences.
- **Establish stable multiplication lines of farmer-preferred germplasm** and develop IP models to facilitate private and public sector access to the germplasms through a long-term genetic gains program focused on continual improvement
- **Develop and nurture Innovation Platform** at different levels to facilitate private sector engagement and business model development focused on empowering poor smallholder farmers especially women in the chicken value chain to improve their livelihoods

Where have we reached in 2015



- Well-functioning team in the project countries and partners formed;
- National IPs formed and functioning;
- The project launched successfully in the project countries in the presence of high level officials
- Capacity building
 - Short term trainings on **Design and implementation** of chicken improvement and **data analysis** conducted to PhD students and project people
 - **PhD and MSc** students identified (Nigeria and Ethiopia) and Tanzania progressing

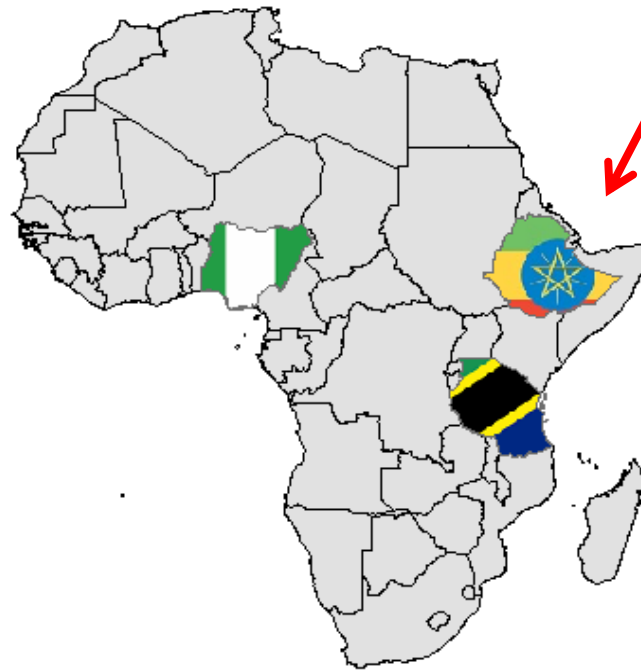
2015 results and lessons to build from



- Baseline survey successfully conducted and preliminary analysis done and being used in designing the on-farm testing
- A total of **Ten strains** that are productive and tropically adapted identified, and partnership developed with the suppliers
 - Kuroiler with Kegg farms in India
 - Koekoek with ARC and medium scale chicken farmers in South Africa
 - Embrapa 051 with Embrapa in Brazil
 - Sasso With Ethio-chicks in Ethiopia and with Silver Lands in
 - Fayoumi with INRA in France
 - Shika Brwn with NAPRI and FUNAAB in Nigeria
 - FUNAB Alpha with University of Abyokota in Nigeria
 - Horro with DZARC in Ethiopia
 - Australorp with private suppliers in Tanzania; and
 - Fulani with University of Abyokota and Ife in Nigeria



Chicken strains to be tested in project countries



- Kuroiler
- Koekoek
- Embrapa 051
- Sasso
- Fayoumi???
- Horro + XX ecotypes
in the sites

On-farm testing SNZs identified



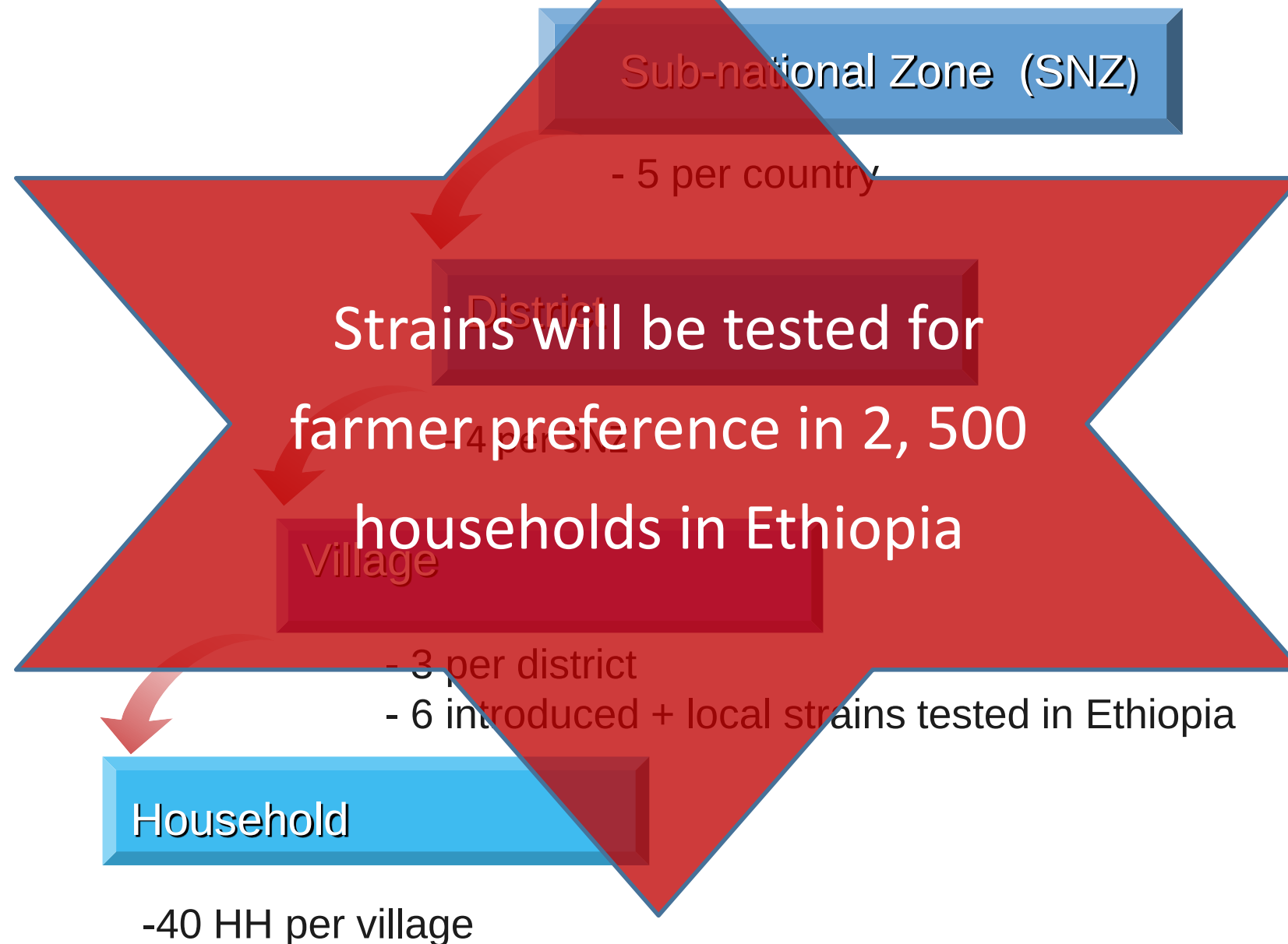
Ethiopia



SNZ:

1. Amhara
2. Oromia
3. Southern
4. Tigray
5. Addis Ababa

Sampling frame for the on-farm test and villages identified



2015 results and lessons to build from



- On-farm and on-station performance testing protocol developed
- Farmer and other value chain actors preference assessment tool developed

1. On-station testing and locations



ACGG on-station sites

Tanzania:
1. SUA
2. Naliendele

Ethiopia:
1. DARC
2. HU

Nigeria:
1. FOL-HOPE Farm
2. FUNAAB



The ACGG Long Term Genetic Gains (LTGG) Program

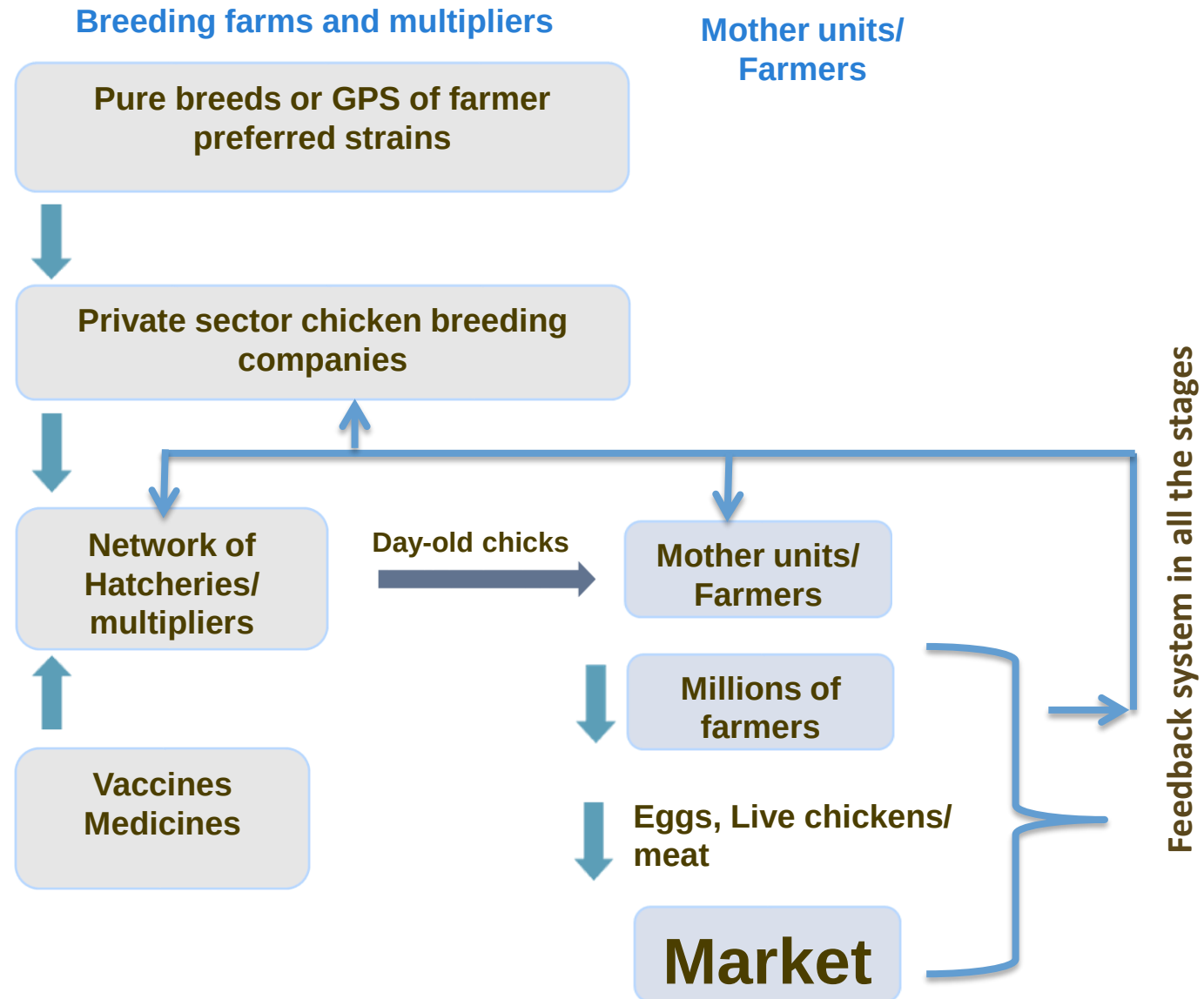
A platform for developing a Long Term Genetic Gains program for tropically-adapted and farmer preferred chickens for sustainable productivity growth in sub-Saharan Africa

What is our vision for this “network”?



Key elements

- Set-up a long term genetic Gains program (Pure breeds or GPS) of farmer preferred strains - ACGG's longitudinal study, by private sector chicken breeding companies
 - potentially within-breed selection and crossbreeding
 - Base population 180 eggs/hen/Y – 2% GG annually
- Establish a supply of improved Parent stock with improved growth, egg production, feed conversion and adaptability traits
- Multiplier flocks established and scaled-up via a network of hatcheries/multipliers
- When target scale is reached, hatcheries begin sale of day-old improved chicks to mother units/farmers
- Chicks vaccinated by hatcheries/multipliers and/or mother units



How do we achieve our vision?



LTGG Network

- By end of 2016, develop a network of partners to maintain, multiply and distribute selected chicken strains.

Capacity Building

- By end of 2016, conduct a capacity assessment and gap analysis in the private and public sector partners; and
- In 2017, implement context specific capacity building.

LTGG Execution

- Establish by 2017/8 a long term genetic improvement program for a minimum of two strains that have been identified through ACGG's longitudinal study as farmer preferred and highly productive under semi-scavenging conditions; and
- In 2017/8 develop and multiply crossbreed populations of selected indigenous chickens and the selected farmer preferred strains.

*Deploying tropically adapted, more productive and farmer preferred chicken will raise both the **income** and **nutrition** of smallholders*

Common economically important traits

- Productivity
 - Egg number
 - Body weight gain
 - Egg weight
- Adaptability
 - Survivability

Selection / improvement

Within-breed selection
and crossbreeding

Increased Productivity/Adaptability

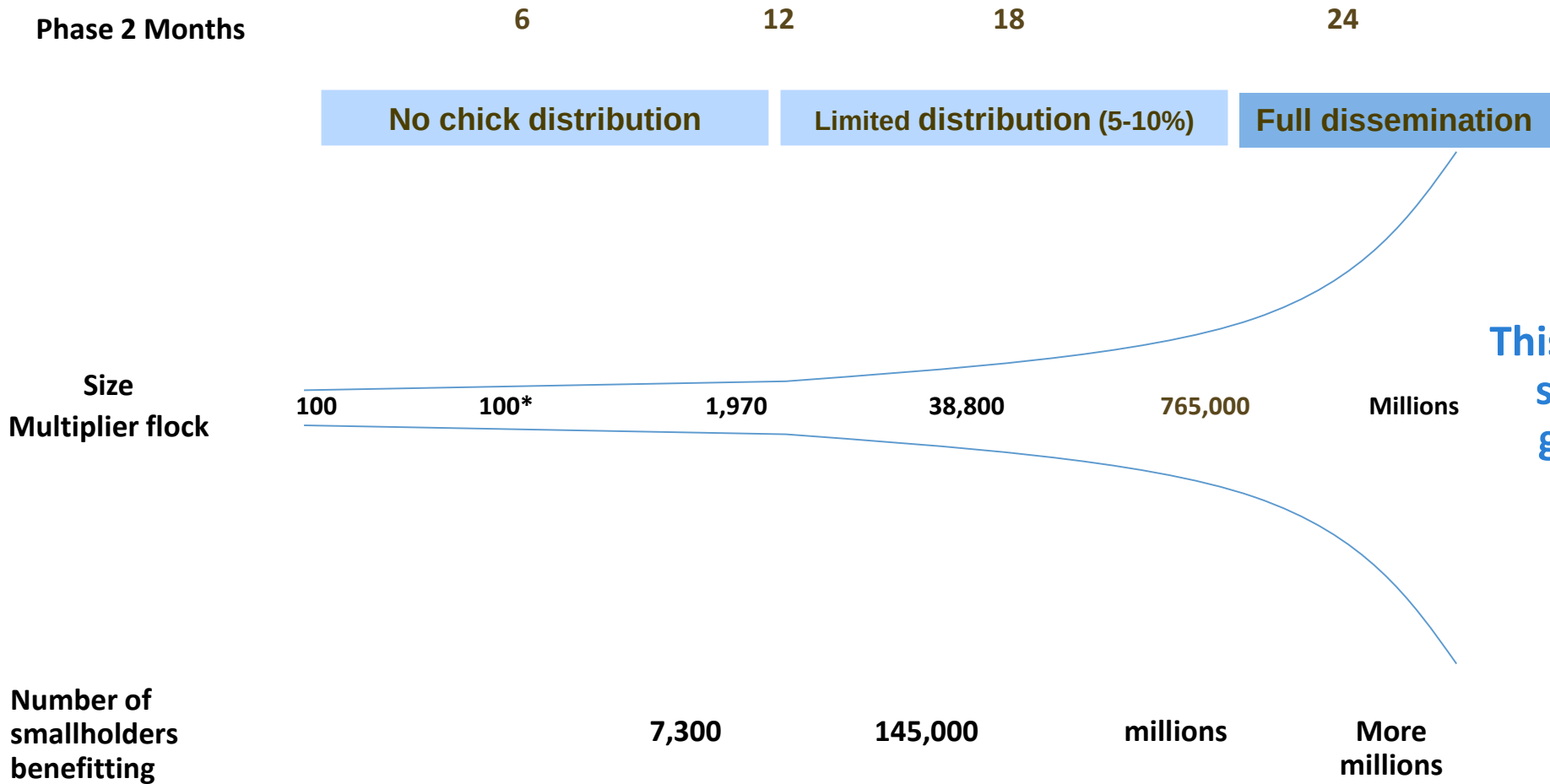
- Increased egg production
- Increased weight gain
- Survivability

Additional value to smallholders

- \$**xxxx** per hen/year
- \$**xxx** per male/year
(incremental value over birds in a traditional system)

Chicken's high rate of reproduction enables rapid scale

Distribution could begin after 12 months



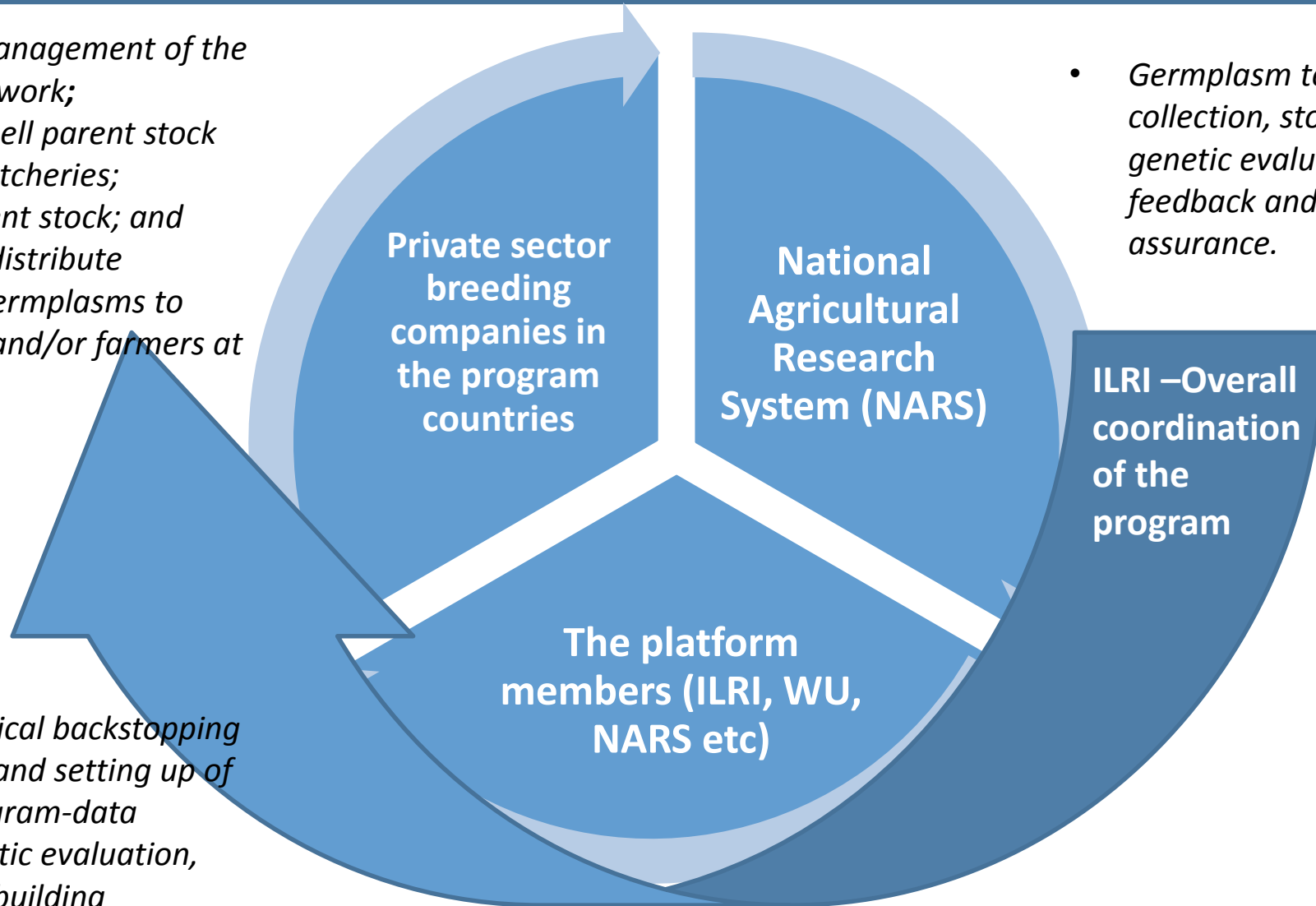
This model can be implemented simultaneously in multiple geographies and countries.

Who are the partners of the Long Term Genetic Gains program network ?



- Day-to-day management of the genetic gains work;
- Multiply and sell parent stock and GPS to hatcheries;
- Maintain parent stock; and
- Multiply and distribute commercial germplasms to mother units and/or farmers at scale.

- Provide technical backstopping in the design and setting up of the LTGG program-data capture, genetic evaluation, and capacity building



- Germplasm testing, data collection, storage and genetic evaluation of lines, feedback and quality assurance.

- Negotiate the IP and access to the preferred strains;
- Design and coordination of the LTGG program;
- Capacity assessment/gap analysis in the private/public sector partners; and
- Develop and lead the implementation of context specific capacity building

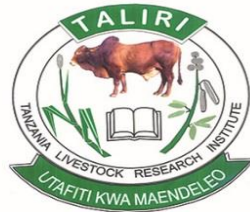
Opportunities for private sector engagement in the Nigerian LTGG network –WIIIM

- **Improve and Produce parent stock** to sell to the network of hatcheries –after receiving GPS or pure breed – more productive and farmer preferred strains
- Hatcheries-**multiply stock and sell to mother units** at scale (network developed by ACGG)
- Mother units to **sell millions of vaccinated and brooded chicks to smallholder farmers in Nigeria**
- ILRI and NARS support the private sector in successfully **leveraging the market opportunity of smallholder producers**
- Private sector to **engage in public-private partnership (PPP) to develop market linkages and solutions in the chicken value chain (Farm to consumption)**
- Opportunities available to other **value chain actors** (e.g., feed suppliers, health workers, and input suppliers)
- **Work with ILRI and ACGG to enter markets in Tanzania and neighboring countries**

Partners



BILL & MELINDA
GATES *foundation*



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For quality of life

PICO-Eastern Africa
helping institutions work...



more productive chickens for Africa's
smallholders

<http://africacgg.net>



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