



# High throughput Biobanking and revival of African poultry breeds for the future

Mike McGrew, Simon Lillico, Christian Tiambo  
Contact: c.tiambo@cgiar.org



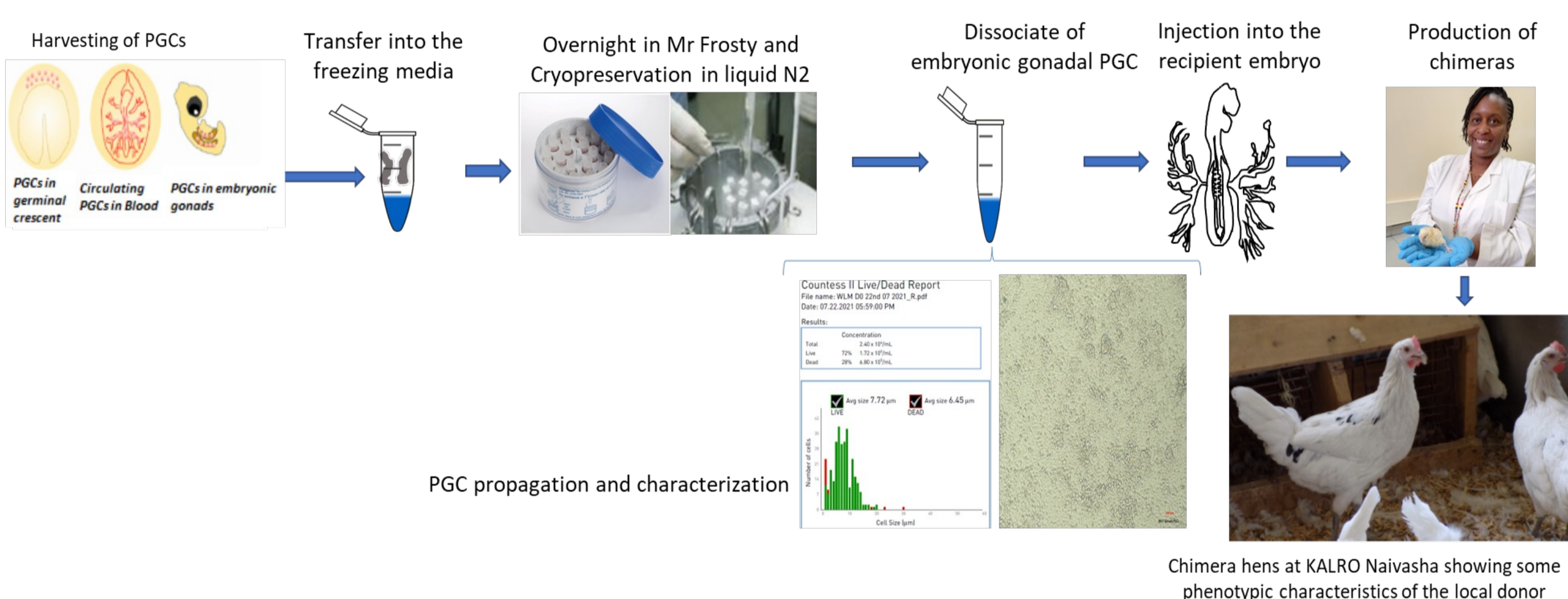
## Context

- Africa is losing its indigenous poultry genetic diversity.
- Conserving and valuing indigenous chicken genetic resources is important for a future sustainable poultry production industry in Africa.
- Primordial germ cells (PGCs) offer an alternative method to cryopreserve avian germplasm



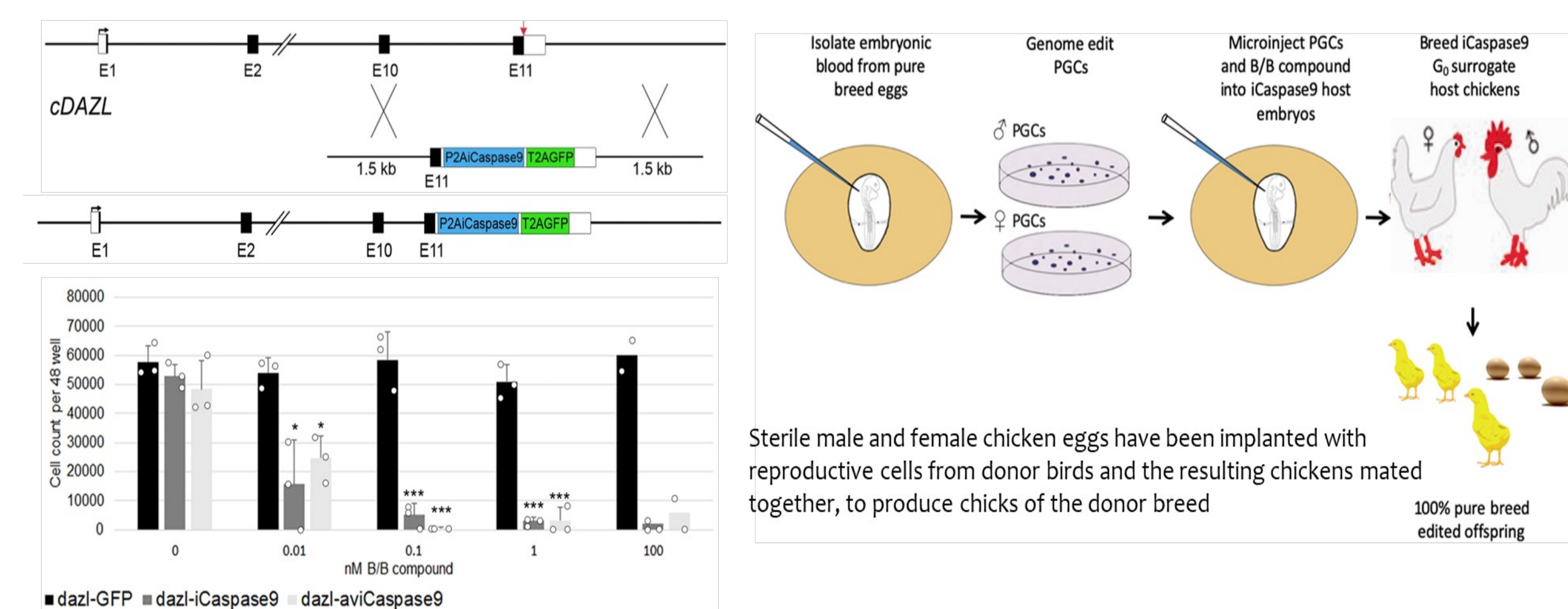
F1 generation of eggs and chicks from chimeric chicken under evaluation at KALRO-Poultry, Naivasha, Kenya

## Our Approach



Primordial Germ Cells (PGCs) and Induced Pluripotent Stem cells (iPSCs) techniques for conservation & resuscitation of African poultry genetics resources

## Progress/Outcomes



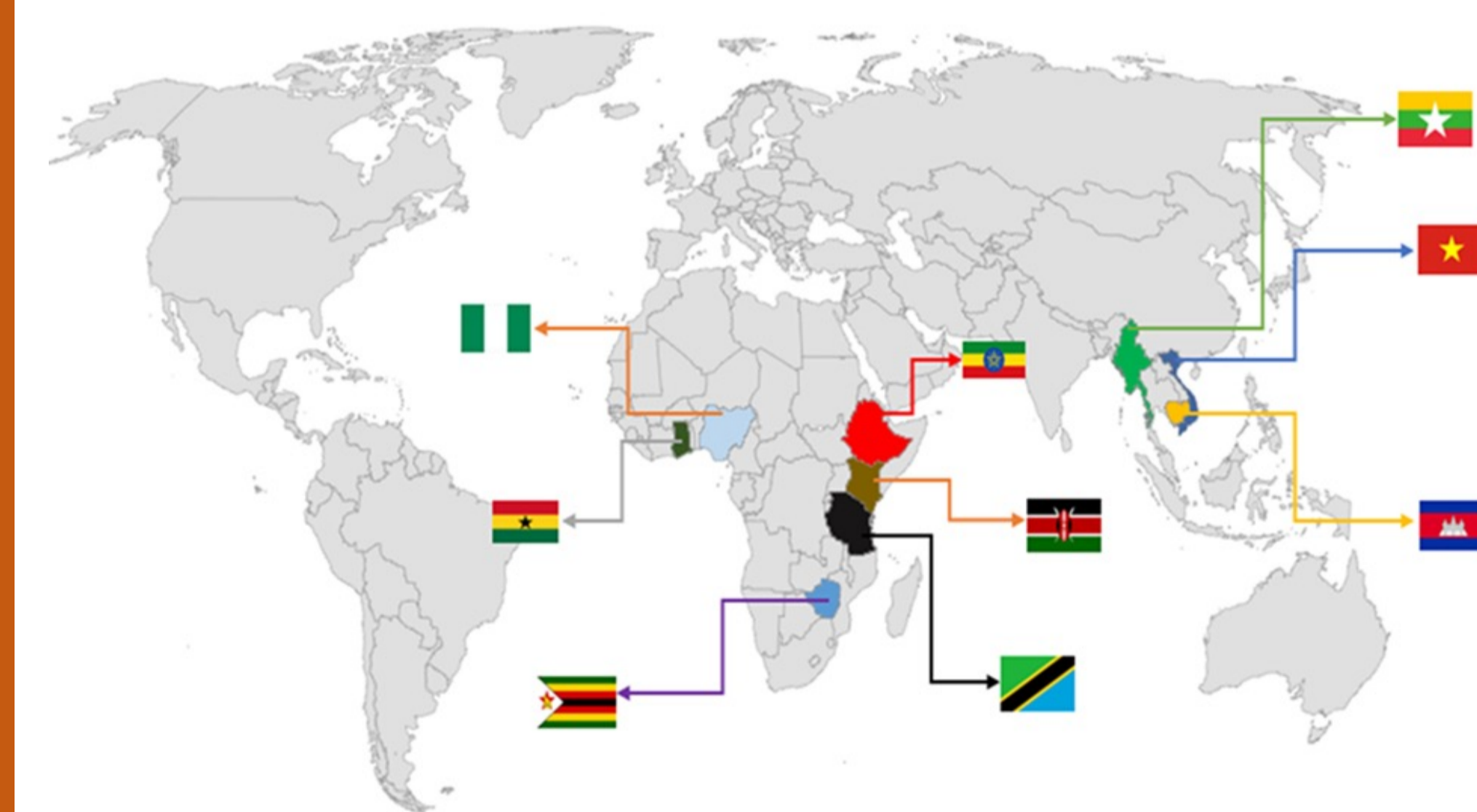
Production of sterile surrogate host (DDX4 KO and iCaspase-9) for restoration of poultry biodiversity and dissemination of potential elite lines

## Challenges

- Poor genetic potential of existing populations means less eggs and meat, and slow growth
- With correspondingly high adverse environmental impact of unproductive animals
- Genetic improvement can achieve rapid gains, but there are only few infrastructures to enable this
- Africa still lacking the critical mass of expertise for new biotechnologies

## Moving Forward

- Training and support biobanking & recovery in Africa and Southeast Asia.
- Adopt the GEd non transgenic DDX4 KO hosts for resuscitation and large-scale dissemination of elite locally adapted Kenyan chickens.
- GWAS and exploration of candidate genes for GEd for productivity and adaptability.
- Design a surrogate from locally improved and tropically adapted chicken breed



CTLGH-TPGS collaborations sites in Africa and Southeast Asia

