Technologies for African Agricultural Transformation




Aquaculture Technology Adoption towards Enhancing commercialization for Africa's Agricultural Research Products: TAAT /NCoS Technology Fair

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WorldFish

Presentation Outline

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Objectives of TAAT Aquaculture Compact and Engagement with Enabler Compact

Objectives

- Facilitate effective delivery of technologies to aquaculture value chain actors.
- Raise aquaculture production and productivity through identification and deployment of appropriate technologies.
- Enhance technology transfer across ecological zones and country engagement for aquaculture development

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- Building Capacity of NAREs and Regional partners on IPs.
- Development of training modules for commercialization of technologies.
- Provision of extension manual guidelines

ENABLE TAAT

- Training of youths on aquaculture technologies.

Anglophone Key Partners	Francophone Key Partners
Ghana: Ministry of Fisheries and Aquaculture Development, Fisheries Commission	Burundi: Institut des Sciences Agronomiques du Burundi (ISABU)
Kenya: Aquacultural Association of Kenya (AAK)	Cameroon: Institute of Agricultural Research for Development (IRAD)
Malawi: Innovative Fish Farmers Network Trust (IFFNT)	Cote D'Ivoire: Association Nationale des Aquaculteurs de Cote D'Ivoire International (ANAQUACI)
Nigeria: International Institute of Tropical Agriculture (IITA) Youth in Agribusiness	DR Congo: Institute of Tropical Agriculture (IITA), Kalambo Station
Tanzania Fisheries Research Institute (TAFIRI)	Benin: National Institute for Agricultural Research, Republic of Benin (INRAB)
Zambian Aquaculture Solution	Togo: Ministere de L'agriculture, de Republique Togolaise, la Production Animale Travail-Liberté-Patrie et Halieutique

Burundi
Cameroon
Cote d'Ivoire
Republic of Benin
Tanzania
Togo

DRC
Ghana
Kenya
Malawi
Nigeria
Zambia

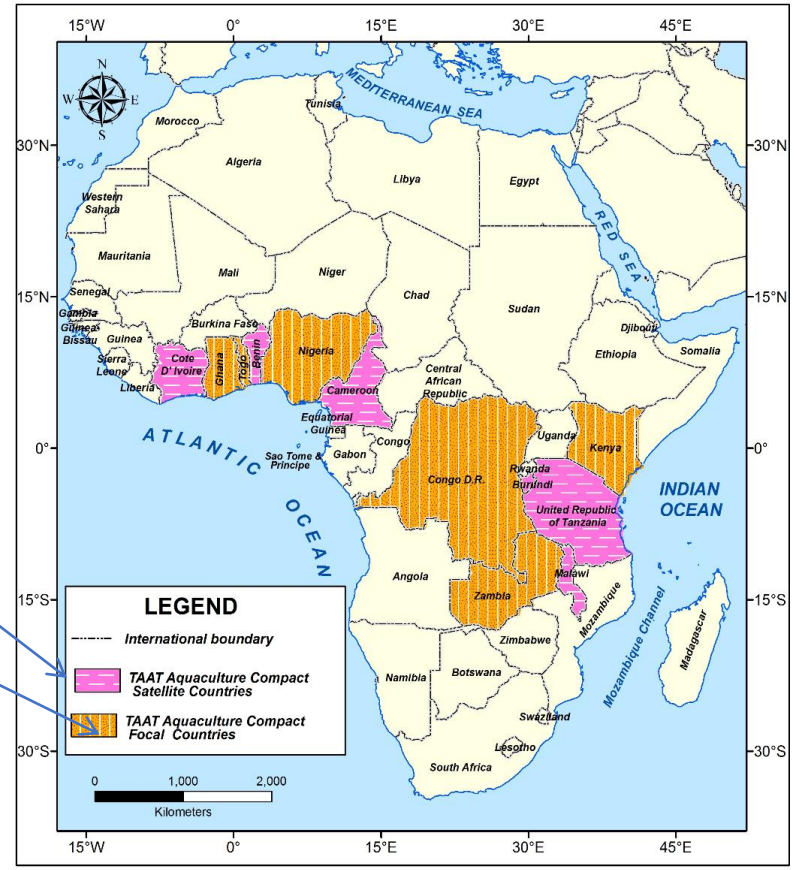

Figure 1: TAAT Aquaculture Compact Target Countries

Implementation Strategy and Roles of Partners

Implementation Strategy

- Outreach Campaign and Awareness
- Capacity Building
- Demonstrations of proven Aquaculture Technologies
- Dissemination and deployment of technologies

Roles of Partners

- Creation of awareness on aquaculture technologies for increased fish production at country level.
- Supply of production inputs, technology package and provision of extension services to Aquaculture value chain actors at country level.
- Organize step-down trainings and demonstrations to value chain actors at country level.

AfDB Country Engagement mission for RMCs: DR Congo, Ghana, Togo, Republic of Benin and Malawi

Key Achievements

- Quality 177 million fingerlings for fish farmers
- Increased productivity and management practices of fish farmers from 12 proven Aquaculture technologies in 12 countries.
- Aquaculture Value Chain Actors impacted 36,270 through capacity building in 12 countries
- Establishment of 92 demonstration sites in the 11 targeted countries

Priority Technology 1 and Benefit: Mono Sex Tilapia Production

- Tilapia fish is prolific in nature; prevents optimum fish growth
- Males are preferred to females because of better growth rate.
- All-Male/Mono-sex tilapia is promoted for commercial production:
  - Higher average growth rate.
  - Reduction of sexual/territorial behavior
  - Reduction of variation in harvest size
  - Higher economic value and profitability
  - High adoption rate for commercialization
- Obtained by sex reversal feed.
- https://www.worldfishcenter.org/publication/extension-manual-monosex-tilapia-production-and-management

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Priority Technology 2 and Benefits: Quality fish seeds of *Clarias gariepinus and hybride: Hetero-Clarias*

- Good quality fish seed
- Higher survival rate
- Fast-growing and healthy fingerlings for profitable ventures
- Hybrid of red mud catfish (*Heterobranchus bidorsalis*) and the African catfish *yield high quality flesh*
- Hardy: high tolerance to water stress and high use of supplementary feeds
- Suitable for culture promotion in Africa
- Attains 1.5kg and >2kg in 6 months
- High market acceptance and value addition for a variety of fish products
- https://www.worldfishcenter.org/publication/extension-manual-production-quality-catfish-seed

Mass Priority Technology 3 and Benefit: Production of Fingerlings in Hapa

- A hapa is a cage like, rectangular or square net impoundment placed in a pond for holding fish for various purposes.
- Made of fine mesh netting material with mesh to prevent escape of fry or fish.
- Sizes vary but ideal size measures 3 m long, 3 m wide, and 1.5 m deep.
- Allows easy handling of fry and brooders
- Production per unit area is high.
- Higher survival rate of fry.
- Easy to harvest fry or broodstock
- Hapa can be set up in ponds stocked with fish

Priority Technology for Scaling 4 and Benefits: Quality low-cost fish feed using locally available raw materials

- Fish feed prepared at Haran farm using local ingredients in Ghana
- Produced1.2 metric tons of feed, using local ingredients from demonstration centre, Haran farm in Ghana
- Reduction dependence of imported foreign fish feed.
- nutritionally balanced feed for desired market size in 4-6 moths.
- Increased 30% profit margin
- https://www.worldfishcenter.org/publication/extension-manual-quality-low-cost-fish-feed-formulation-and-production

Priority Technology 5 and Benefit: Fish Value Addition

➢**Smoking kiln**

- Reduced exposure to smoke and fire
- Easy to operate
- Achieving low Achieving low Polycyclic Aromatic Hydrocabon (PAH)
- 12 New fish products developed

Priority Technology 5 and Benefit: Fish Value Addition

➢Solar tent dryer

- No charcoal required
- High quality/sand free processed fish
- Economically viable

Partnership Engagement: Private Sector Engagement Opportunities

- Remi Ahmed, President of the TADAN and the Managing Director of Choice Fisheries
- Trained in WorldFish Regional Training Center, Abbassa Egypt, TAAT AC, 2018
- Better Management Practices

- Pairing ration 1:3; Male: Female
- Addition of probiotics in fish feed to boost fish resistance to diseases and achieve fast growth rate
- Higher survival rate of the fingerlings stage.
- Use of hapa nets for mass production of fingerlings for easier management of Tilapia in large ponds.
- Adoption of Urea for cleaning dirt from the hapa net
- Grading with fish grader prevented cannibalism and impacted his hatchery production.

- Increased mono sex tilapia fingerlings annual production from 500,000 to 4,000,000 (four million).
- Annual production increased from 20mt to 85mt: Average weight of 620g after 165days from 5g

Partnership Engagement: Private Sector Engagement Opportunities

- Cameroon Aqua-Cameroon (CAC) approached the WorldFish through the Cameroon's Ministry of Livestock, Fisheries and Animal Industries for collaboration
- Technical support to establish aquaculture industry in Cameroon.
- A private sector investor proposed aquaculture farms for production of tilapia on the Dibamba River and catfish in Eastern Region
- Input supply and technical support from tilapia and catfish private sectors in Nigeria for commercialization of technologies
- Establish linkages to country Loan for aquaculture development
- Partnership with private sector for scaling of aquaculture technologies
- Encourage market Linkages for cross boarder aquaculture products

Partnership Engagement: Youth Enterprise- Ibadan Nigeria

- Farm managed by young female entrepreneur, Ohwofasa Faith Oghenefogho.
- Non-existence of Tilapia culture prior to Aquaculture Compact intervention
- Adopted the technology and produced 10,000 monosex Tilapia in six (6) months
- Additional income of USD 625
- Trained >30 Youths including new entrepreneurs on monosex Tilapia fingerlings production
- Started a new business for production of monosex tilapia for consumption using cage culture

Youth Engagement: Djam Wilfred Chiatoh, Nirex Farms Ltd, Yaoundé-Cameroon

- Nirex Farm owned and managed by an experienced young entrepreneur
- Farm established in 2016
- Newly introduced to mono sex male tilapia technology
- Through TAAT AC, increased technical skills in production of mono-sex tilapia fingerlings in WorldFish Center, 2019
- Adopted and produced 230,000 mono sex tilapia in 2019
- Adoption of mono sex male tilapia after training by Nirex farms are >70 fish farmers
- Additional income of USD 27,000 after adoption

Adoption of TAAT technologies for Increased Incomes and Job Creation among Youth in DRC

- Trained in WorldFish Center by TAAT AC in 2019
- Step-down training on mono-sex tilapia and catfish seed production; fish feed formulation with local ingredients, management of floating cages.
- In Bukavu, Lake Kivu, increase from 3 to 5 cages of 144 m3 each, ten rental ponds
- Number of workers on the farm has increased from 5 to 15 peoples.
- Tilapia fed with feed manufactured on our farm, thanks to the TAAT Aquaculture Program.
- Created employment for 15 young people (graduates and non-graduates).
- Increased fish production of 5,000 kg or 20,000 USD per cage in 6 months.
- Provision of fund for payment of school fees for our children and family food allowance.
- Members of fishermen associations (5) working on Lake Kivu benefited from technical support of TAAT Aquaculture in DRC.

Conclusion

- Advocate for more aquaculture development through government agencies for support in the national development agenda.
- Grants are limited; countries encouraged to take loans for aquaculture development and scaling.
- Private-Public-Partnership is crucial for technology scaling because aquaculture is private sector driven
- Partnership with private sector, government and development agencies to co-invest in the aquaculture sector
- Stengthen skills of Aquaculture Value Chain Actors in BMPs, processing, marketing and business development.

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Thank you for Listening