



Setting the foundation for sustainable aquaculture in Timor-Leste: Ten years (2010–2019) and beyond

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Outline

1. WorldFish in Timor-Leste

2. Phase I (2010–2012): Planning

Developing National Aquaculture Development Strategy (NADS)

- Background
- Goals and key targets

3. Phase II (2013–2019): Partnership for Aquaculture Development in Timor-Leste (PADTL)

Devising sustainable aquaculture technologies

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- Feed
- Grow-out technologies
- Capacity building

4. Phase III (2020 and beyond): The way forward

Scaling for impact

- Scaling up
- Scaling out

1. WorldFish in Timor-Leste

WorldFish is an international, nonprofit research organization that harnesses the potential of fisheries and aquaculture to reduce hunger and poverty.

Our research programs include: Sustainable Aquaculture; Small scale resilient fisheries and Value Chain and nutrition

WorldFish has been working in Timor-Leste since 2010



1. WorldFish in Timor-Leste:

Key Aquaculture Projects

2010

- **Scoping mission [CTI]**

2010–2012

- Development of **National Aquaculture Development Strategy (NADS) 2012–2030 [RFLP/FAO; CTI]**

2013–2015

- **Combating Malnutrition and Poverty through Aquaculture in Timor-Leste (COMPAC-TL) [NORAD]**

2014–2019

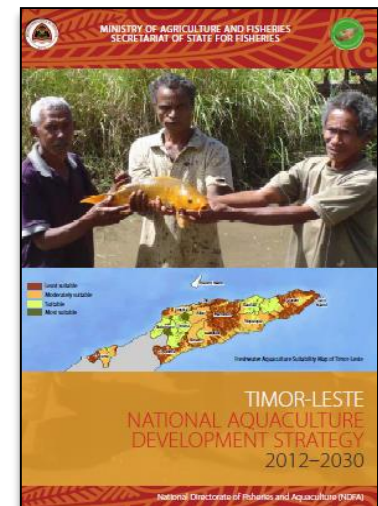
- **Partnership for Aquaculture Development in Timor-Leste (PADTL) [MFAT, New Zealand]**

2. Phase I (2010–2012): Planning

Developing National Aquaculture Development Strategy (NADS)

Background

- Combating poverty and malnutrition in Timor-Leste as top priority
- Comoro declaration in 2010: ‘food and nutrition security’ as a fundamental right of every person
- **Aquaculture** – identified as means of improving food and nutrition security and diversifying livelihoods
- **NADS (2012–2030)** prepared by MAF with assistance from WorldFish



2. Phase I (2010–2012): Planning

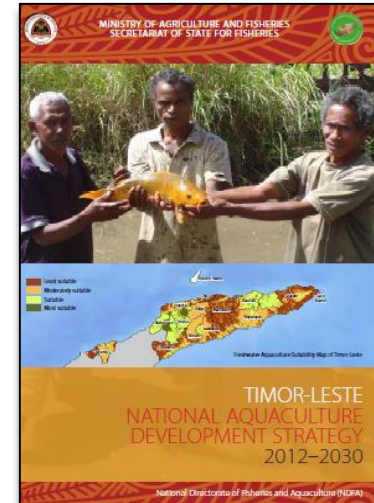
Developing National Aquaculture Development Strategy (NADS)

Goals of NADS to support the growth of sustainable aquaculture:

- improve food and nutrition security
- diversify livelihoods
- contribute to economic growth

Key targets:

Impact area	Indicators (by 2030)
Fish supply	12,000 t from aquaculture
Consumption	15 kg/capita/year (6.1kg in 2012)
Households	40,000
Nutrition	Fish in diets
Governance	Institutional capacity development



Outcome:
GOs/INGOs' Aquaculture development endeavors guided by the NADS goals

3. Phase II (2013–2019): PADTL

Devising sustainable aquaculture technologies

PADTL project

- **Goal:** Development of a self-sustaining aquaculture industry that improves nutrition, food security and rural livelihoods
- **Geographical focus:** Ermera, Baucau and Bobonaro



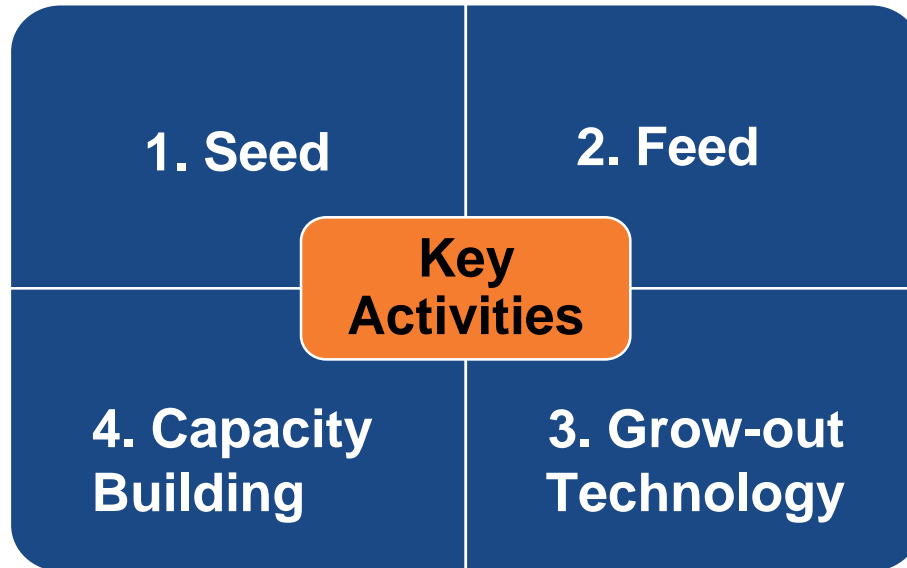
PADTL key activities



GIFT hatchery in Gleno, Ermera.



On farm preparation of feed in Batugade, Bobonaro.



Training by tilapia international expert in Gleno hatchery, Ermera.

Farmer field school in Batugade, Bobonaro.



PADTL key activities 1:

Seed

- **GIFT Hatchery in Gleno:**
 - State-of-the-art GIFT hatchery established in 2016
 - Broodfish; monosex fingerlings
 - fingerlings distributed to 12 municipalities
- **Public-Private partnership (PPP) model hatchery in Leohitu, Bobonaro:**
 - Inaugurated on 7 June 2019
 - Fully in operation
 - The hatchery is expected to produce >3 million fingerlings annually
- **Establishment of another PPP model hatcheries in partnership with MDF underway**



PADTL key activities 2:

Feed

- Feed formulation options for tilapia:
 - Farm made feed
 - Commercial fish feed
(locally available + imported ingredients)
- Pond fertilization
(Green water technology)
- Farm made feed + Green water technology
widely being used by PADTL farmers

Feed formulation options (plant based feed ingredients)



PADTL key activities 3:

Grow-out technologies (1/3)

Technical interventions:

Group/cluster based approach

Modular training following Farmers
Field School (FFS) approach

Seed: GIFT monosex

Stocking density: 3.5 fish/m²

Feeding and fertilization:
farm made feed
+
green water technology

Monitoring: Pond record books



PADTL key activities 3:

Grow-out technologies (2/3)

- **Fish production and productivity:**
 - Extrapolated yields: 4.3 t/ha/cycle
 - Potential yields: 7.2 t/ha
 - Per household: 52 kg (max 212 kg)
 - Total production: 9 tons (n=174)
 - Total Gross return: USD 36,000
- **Utilization of fish:**
 - 50% used for HH consumption
 - Remaining 50% sold



PADTL key activities 3: Grow-out technologies (3/3)

- **GIFT Better management practices (BMP) guideline for Timor-Leste** for wider dissemination



English version
Available [online](#) & printed copy



Tetum version
Coming soon!

PADTL key activities 4:

Capacity Building

- Overseas training of NDA and private sectors
- In-country training/mentoring (ToT; technology training)
- NDA officials as FFS co-facilitators



PADTL key achievements

- Successfully established a sustainable tilapia aquaculture development model for Timor-Leste
- Followed a holistic approach to ensure access to and availability of quality input (seed, feed) and services (technology training, capacity building)
- Demonstrated significant role of aquaculture in diversification of rural livelihoods confirmed



4. Phase III (2020 and beyond): The way forward

Scaling for impact

Scaling Up:

- **Increasing fish productivity:**
 - Average productivity: 4.3 t/ha/cycle
 - Potential for increasing the average productivity up to 7.2 t/ha/cycle
- **Shortening culture period:**
 - Potential to complete two production cycles/year (6 months per cycle)
- **Increasing efficiency:**
 - Reducing fish production costs (<USD 1.5/ kg)

4. Phase III (2020 and beyond): The way forward

Scaling for impact

Scaling Out:

- **NADS target by 2030:**
 - Fish production: 12,000t of fish from aquaculture
 - Consumption: 15 kg/person/year
- **Opportunities for scaling by 2030:**
 - Pond area: ~ 800 to 1,000 ha
 - Seed: 70 million fingerlings/year (12-14 PPP model hatcheries)
 - Feed : >12,000t of feed/year (opportunity for commercial feed industry)
- **Human resource development:**
 - Training of Trainers
- **Marketing:**
 - Linking producers with market (local, Dili)
- **Post harvest handling/processing**

4. Phase III (2020 and beyond): The way forward

Scaling for impact

- **The way forward:**
 - Public–Private Partnership (PPP) – scaling out
 - Refinement of technology – scaling up
 - Financing aquaculture – funding partners
- **Strong coordinated approach** for achieving the sustainable development of the aquaculture sector will be easy!

Obrigadu Thank You



This work was undertaken as part of



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