

The Fishing fields: Sustainable aquaculture development strategies for the Commonwealth

29 July 2020



The Commonwealth

The Fishing fields: Sustainable aquaculture development strategies for the Commonwealth

2:00 PM - 2:05 PM	Opening Remarks Mr Jeff Ardron, Adviser - Ocean Governance and Project Lead, Commonwealth Blue Charter, Commonwealth Secretariat
2:05 PM - 2:10 PM	Special Address from the Blue Charter Action Group Champion for Sustainable Aquaculture Mr. Vassilis Papadopoulos, Head of Aquaculture Division, Department of Fisheries and Marine Research, Cyprus
2:10 PM - 2:35 PM	Presentations by the Speakers Dr. Malcolm Dickson, Aquaculture Consultant Mr. Aubrey Lesperance, Principal Aquaculture Officer, Seychelles Fishing Authority, Republic of Seychelles Mr. Damien Legros, Director, Chicoa fish farm, Mozambique Dr. Ahmed Nasr-Allah, Aquaculture scientist, WorldFish, Egypt
2:35 PM - 2:55 PM	Question & Answers
2:55 PM - 3:00 PM	Concluding Remarks



The Commonwealth
Blue Charter

Aquaculture Action Group

Sustainable
Aquaculture

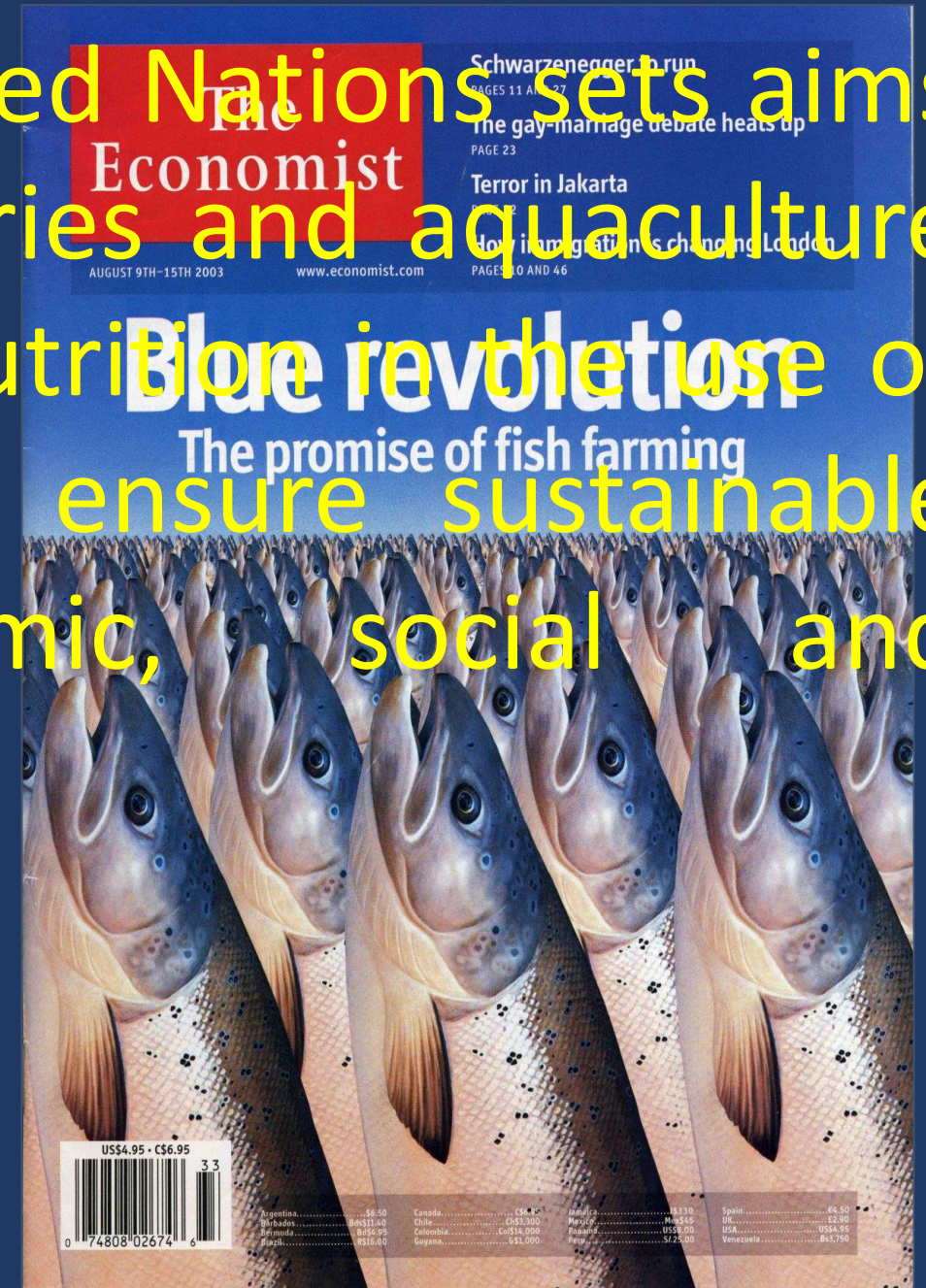


We are faced with one of the world's greatest challenges – how to feed more than 9 billion people by 2050 in a context of climate change, economic and financial uncertainty, and growing competition for natural resources.

and most importantly

We have to achieve this in a Sustainable way

The 2030 Agenda of the United Nations sets aims for the contribution of fisheries and aquaculture towards food security and nutrition in the use of natural resources so as to ensure sustainable development in economic, social and environmental terms.





Framework for Aquaculture Development

CYPRUS

by

Vassilis Papadopoulos

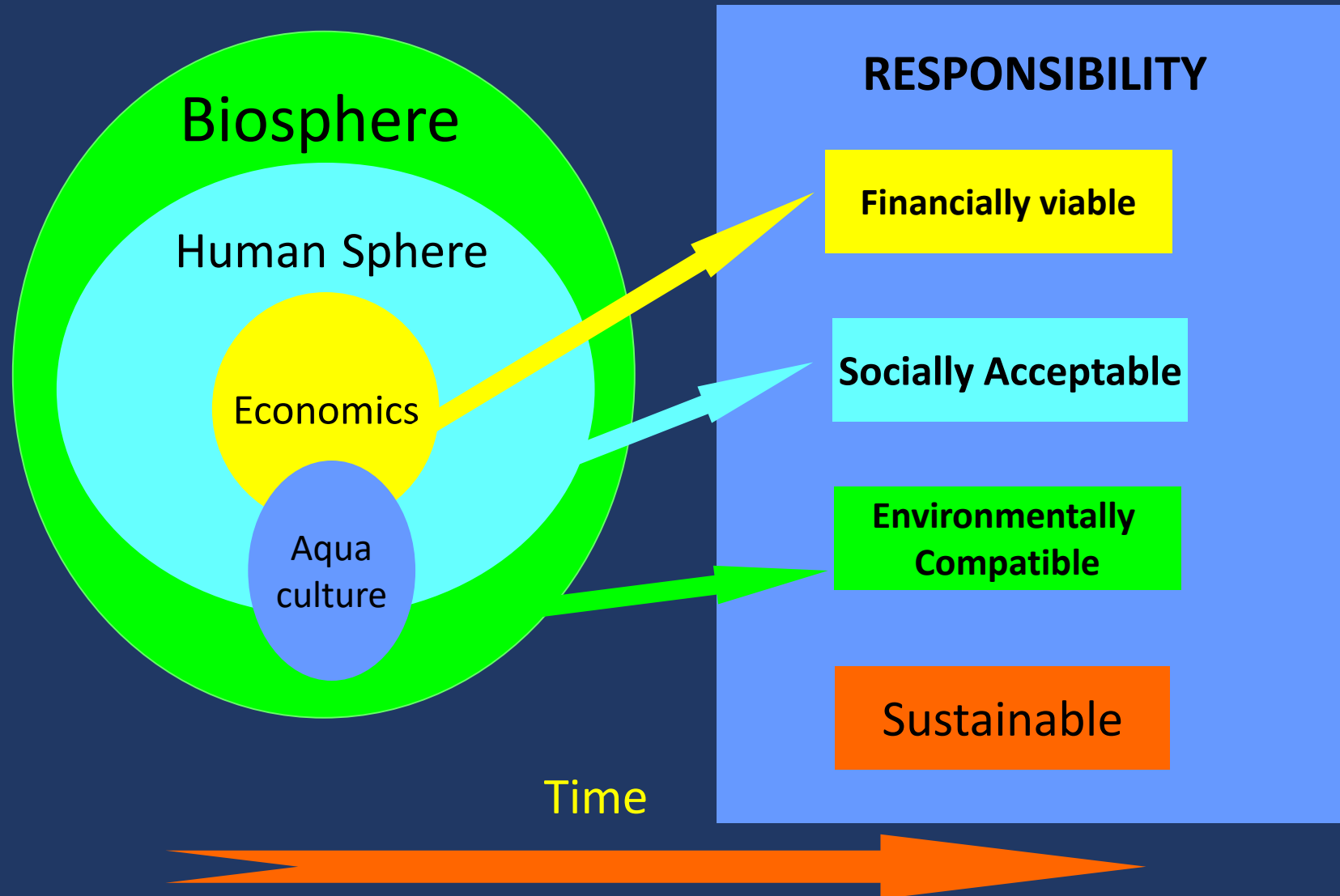
Fisheries and Marine Research Senior Officer

Head of Aquaculture Division

Aquaculture History Overview

- Aquaculture started in Cyprus at the end of 1960s with the establishment of a freshwater aquaculture research station and the subsequent development in the early 1970s of private freshwater fish farms
- In the mid 1970s a Marine Aquaculture Research Station Marine aquaculture was set up which led to the development land-based marine aquaculture farms at the end of 1980s and the first marine offshore aquaculture farm at the beginning of the 1990s.
- Initial aquaculture development was partially covered by fisheries legislation.
- In the mid 1990s the realization of the future potential of this activity and the increasing private sector interest for investment in marine aquaculture, underlined the need for changes and demanded action in order to foster and support the development of this new sector.

Approach and Challenges to Sustainable Aquaculture Development



Main Initial Actions Implemented

- **Establishment of Aquaculture Development Policy**

- Sustainable Aquaculture Development became a priority within the policy framework of the Ministry of Agriculture Rural Development and the Environment

- **Adoption of a Development Strategy**

- Analysis of the existing situation

- Defined specific short, medium and long term targets (i.e. number of units, volume and value of production)

- Identification / proposition of measures and possible incentives to be implemented in order to promote and support the development this activity so as to achieve the predefined targets and objectives

Accomplishments and Outcomes

- This led to the composition and adoption of a specific aquaculture legislation and the relevant regulations in 2000 and 2002 respectively, that set the framework for the establishment, operation and further development of aquaculture activities in Cyprus.
- This legislative framework has provided and still provides for:
 - an important and solid foundation in order to promote and support the development of aquaculture in Cyprus.
 - a secure investment environment
 - transparency
 - the constant monitoring and evaluation of the environmental performance of the aquaculture units
 - the wellbeing of the cultured organisms
 - an inclusive approach



A large school of fish, possibly sea bream, swimming in deep blue water. The fish are densely packed, moving in various directions, creating a sense of dynamic movement. The lighting is slightly dim, emphasizing the blue tones of the water and the silvery scales of the fish.

Aquaculture Development is a Dynamic Process

It is our responsibility to ensure that aquaculture development and growth will be Sustainable

and

that it will continue to contribute to food security, by establishing viable businesses, respecting the environment and creating employment opportunities



Thank You



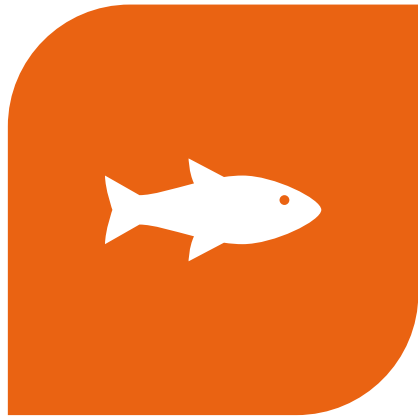
Sustainable aquaculture development

PRESENTATION BY MALCOLM DICKSON

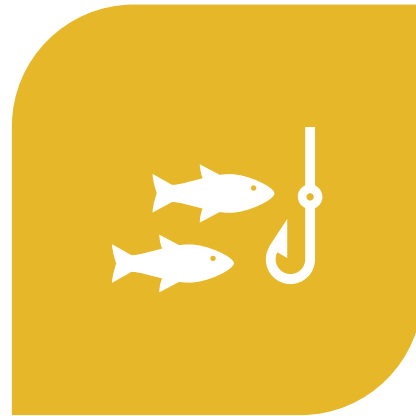
THE COMMONWEALTH BLUE CHARTER WEBINAR – THE FISHING FIELDS: SUSTAINABLE
AQUACULTURE DEVELOPMENT STRATEGIES FOR THE COMMONWEALTH

WEDNESDAY 29 JULY 2020, 1400-1500 BST

Overview



GLOBAL
AQUACULTURE

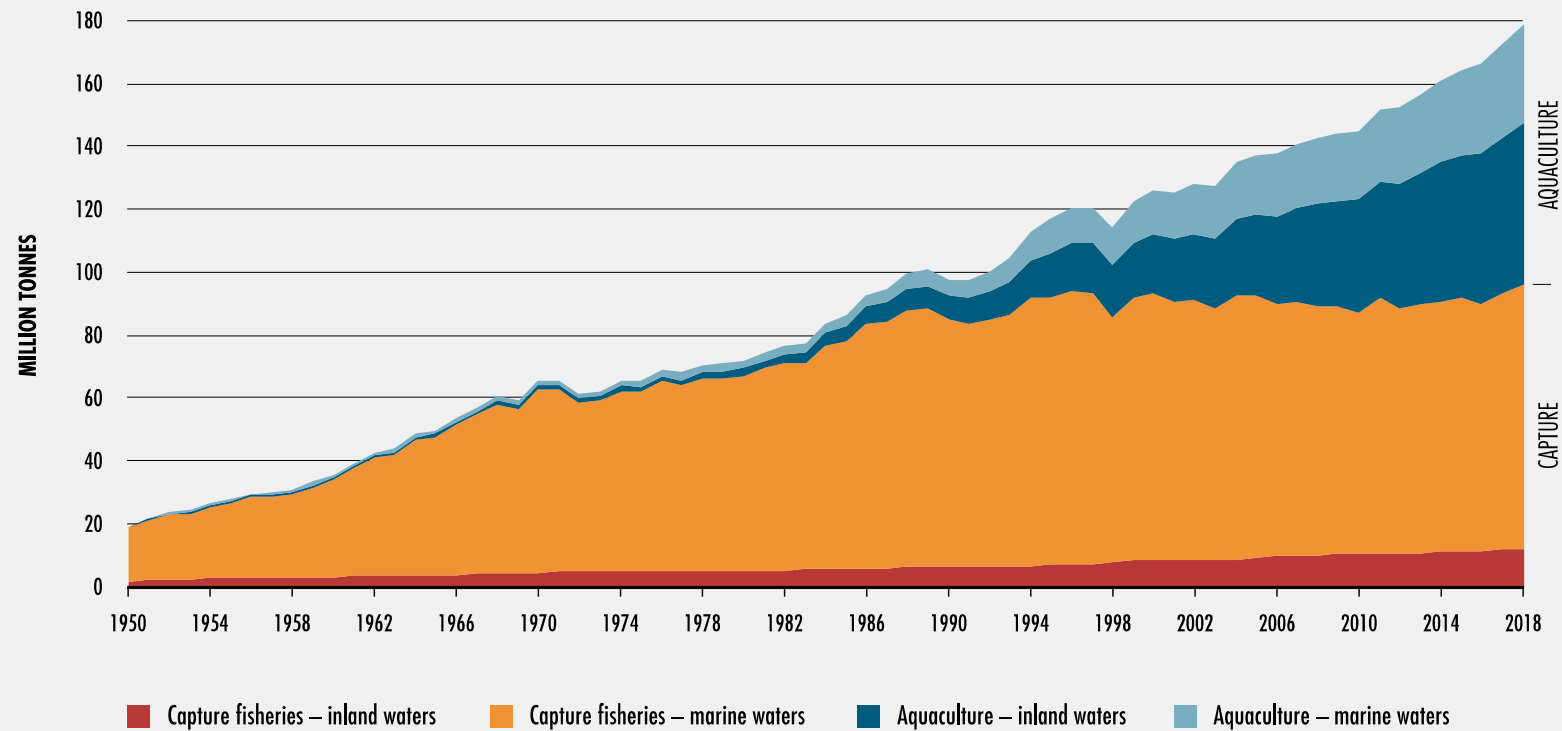


AQUACULTURE IN THE
COMMONWEALTH



SUCCESS FACTORS
FOR AQUACULTURE

FIGURE 1
WORLD CAPTURE FISHERIES AND AQUACULTURE PRODUCTION



NOTE: Excludes aquatic mammals, crocodiles, alligators and caimans, seaweeds and other aquatic plants.

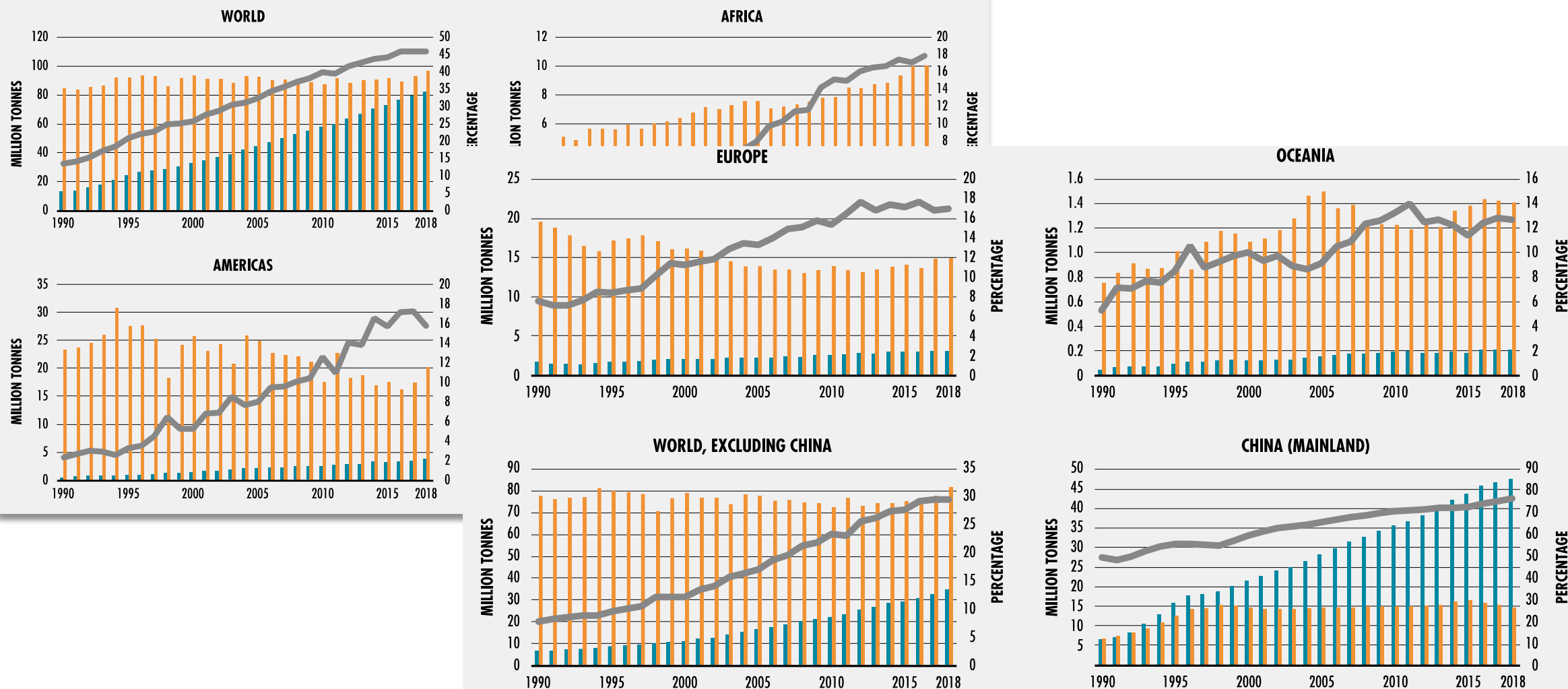
SOURCE: FAO.

2018 data:

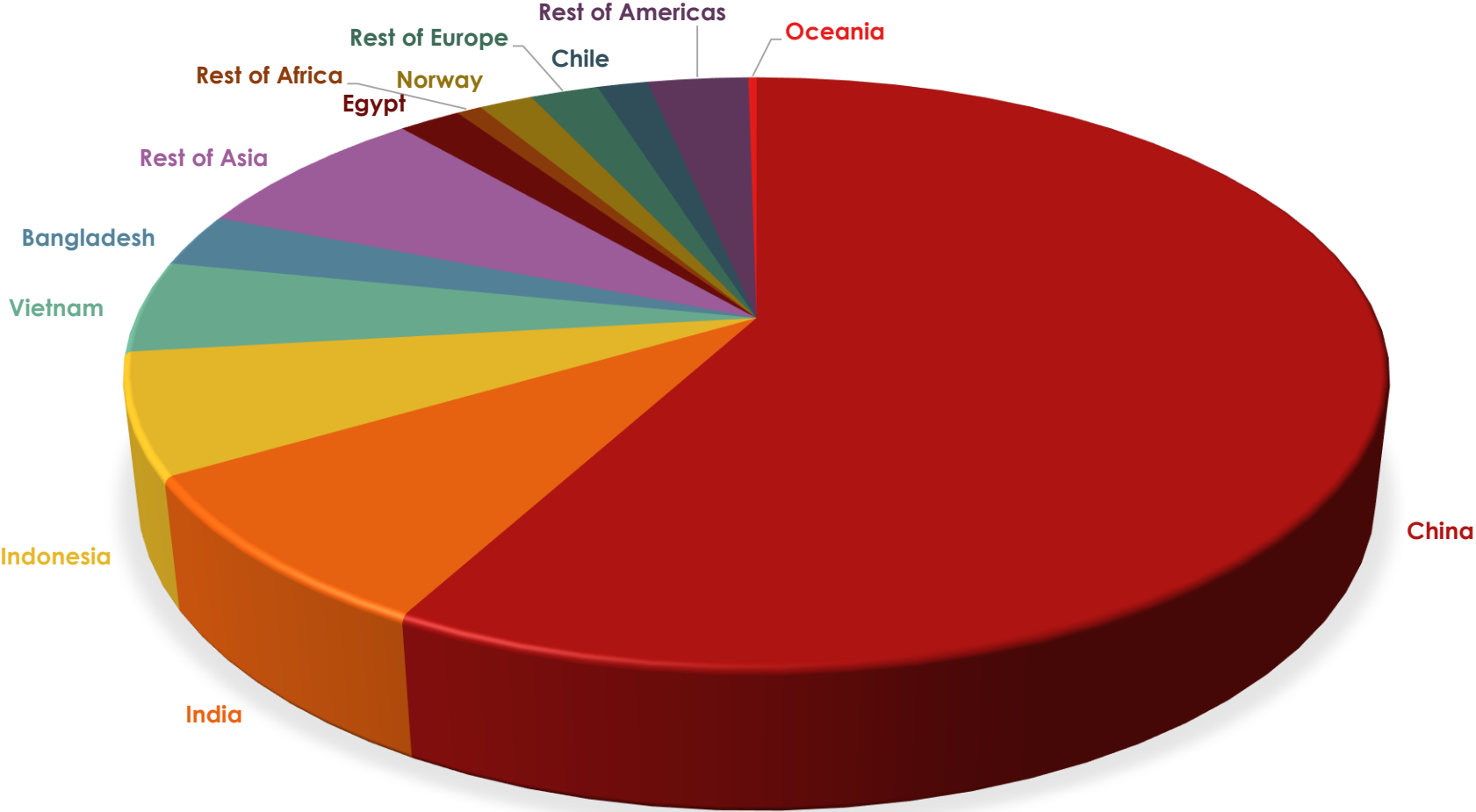
Aquaculture: 82.1
million tonnes

Fisheries: 96.4 million
tonnes

FIGURE 10
CONTRIBUTION OF AQUACULTURE IN TOTAL PRODUCTION OF AQUATIC ANIMALS



2018 GLOBAL AQUACULTURE PRODUCTION (FAO)



Aquaculture in the Commonwealth

- 'Big hitters'; India, Bangladesh, Malaysia
- High growth countries; Zambia, Nigeria, Ghana, Uganda, Kenya, Rwanda
- Established industries; UK, Canada, Australia, New Zealand, Malta, Cyprus
- Aspiring countries; Malawi, Mozambique, Seychelles, Sierra Leone, Tanzania, Bahamas, Jamaica, Trinidad and Tobago, Fiji, Solomon Islands.....



Success factors : Opportunity and profitability

Opportunity

- Physical space for aquaculture development
- Aquaculture systems and species that will work in that environment
- Institutional and legal frameworks (land/water tenure, environmental compliance, labour regulations, food safety)
- Domestic or international markets (certification?)

Profitability

- Overall value chain needs to be profitable (includes input costs, efficiency of conversion and market price)
- Leads to private-sector investment into feed supply, hatcheries, farms, market infrastructure, training, etc

Key points

- ▶ Aquaculture is already making a major contribution towards global fish supply
- ▶ Generates economic activity and jobs often in areas with few alternatives
- ▶ Aquaculture not a substitute for fisheries – usually different types of fish and different people - but can be complementary
- ▶ Together, aquaculture and fisheries contribute towards healthy diets and improved nutrition
- ▶ Performance varies from country to country so it is important to share experience



Thank you
for your
attention!

Webinar 4:
**The Fishing fields: Sustainable aquaculture
development strategies for the Commonwealth**
Wednesday 29 July 2020

**Case Study: Development of an Aquaculture
Industry in Seychelles**

Mr. Aubrey Lesperance
Principal Aquaculture Officer
Seychelles Fishing Authority
alesperance@sfa.sc

The Issues

Reliance on the 2
main pillars of the
economy

Tourism (*volatile
& largely
dependent on
global economy*)

Capture fisheries
(*overexploited*)

Need to diversify the
economy due to
vulnerability

2008 global
economic crisis

Now Covid-19

Lack of existing
framework to allow for
emerging maritime
sectors including marine-
based aquaculture

No aquaculture
legislations in
place (*pre-2014*)

Infrastructure
and institutional
capacity

The Response

The approach

- Ecosystems Approach to Aquaculture (FAO)
- Consultative and survey based since 2007

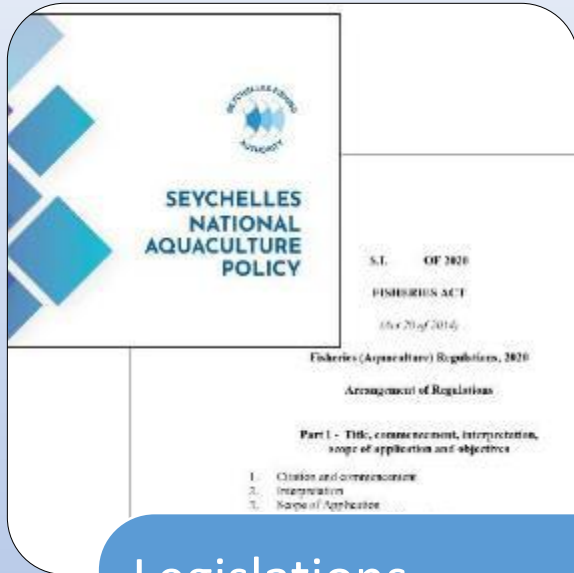
Results

- Positive
- Recommendations to proceed with a full Mariculture Master Plan (MMP)

Outcomes

- MMP as roadmap
- Strong governmental support for the development of a new industry
- Linked to the Blue Economy Strategic Framework and Roadmap

Results, Accomplishments and Outcomes



Legislations

- Updated Fisheries Act
- Seychelles National Aquaculture Policy 2018
- Seychelles Aquaculture Regulations (*in Official Gazetting stage*)



Infrastructure

- Broodstock, Acclimation and Quarantine Facility
- Sea Urchin Research Facility
- Pilot Sea Cages
- Echinoid Hatchery (*in construction*)



Capacity

- Institutional Capacity Building
- Industry training
- Entrepreneurship

Challenges



Delayed Implementation

- Lack of sector funding (*key support infrastructure*)
- Covid-19



Delayed launch of the Industry in 2020

- Covid-19
- Slow legislative process

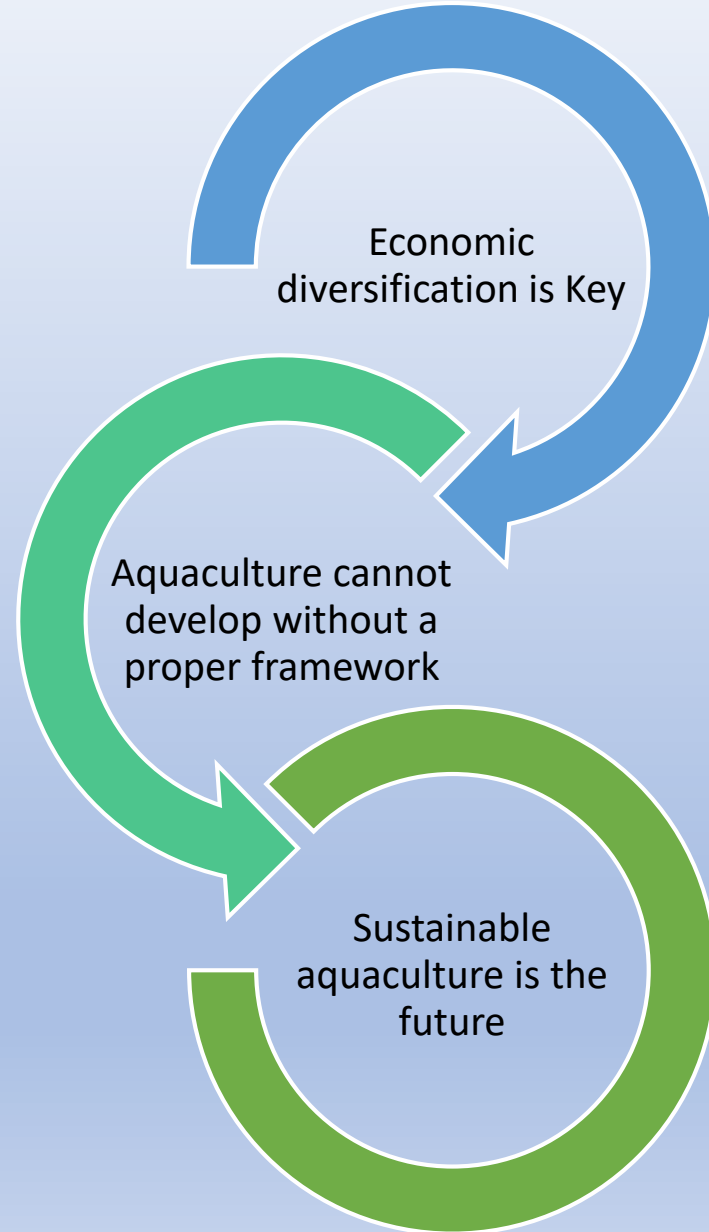


Outstanding actions

- Improving perception of aquaculture (*notably in fisheries sector*)
- Securing land and addressing labour issues (*baseline studies*)



Key lessons learned





Thank You



CHICOA FISH FARM LAKE CAHORA BASSA MOZAMBIQUE.

FROM INCEPTION, THE CONCEPT IS
TO CREATE A VERTICALLY
INTEGRATED TILAPIA FARM AS A
BACKBONE FOR THE AQUACULTURE
INDUSTRY WHERE IT DOES NOT
EXIST YET.





Division orientale

Lilongwe

M16

M12

EN8

M10

M5

M1

M8

M6

Province de Tete

Lake Cahora Bassa

Province de Lusaka

M3

M4

M2

7

Za

A1

A2

A5

EN1

Google Earth

Mozambique

Image Landsat / Copernicus
US Dept of State Geographer
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Harare

A satellite map showing a coastal area with a yellow pin marking the Chicoa Fish Farm. The map displays a mix of land and water, with the land appearing in shades of brown and green, and the water in a dark blue-green hue. The coastline is irregular, with several inlets and peninsulas. The text "Chicoa Fish Farm" is placed next to the yellow pin.

Chicoa Fish Farm

Image © 2020 CNES / Airbus
© 2020 Google

Google Earth



DOING THINGS DIFFERENTLY AND ADAPTING TECHNIQUES
TO OUR CONTEXT. BREEDING AND NURSING SECTION ON
THE LAKE.



PRODUCTION CAGES AND EARLY MORNING HARVEST.
CAGES ARE ANCHORED IN 40 TO 60 M DEPTH,
ALTHOUGH CLOSE TO SHORE.

VERTICAL INTEGRATION:

WHAT WE ALREADY DO

WHAT WE ARE DEVELOPING

WHAT WE WON'T DO



COMMUNITY ENGAGEMENT AND CSR

- COMMITMENT ON DEVELOPING A SMALL SCALE FARMERS PROGRAM WITH VARIOUS STAKEHOLDERS (IDH, ZVDA, MIN. OF FISHERIES, GAIN AND OTHERS BEING APPROACHED).
- BUILDING A TRAINING CENTRE FOR SMALL HOLDERS, STUDENTS AND CIVIL SERVANTS
- COMMITMENT TO TRAIN AND EMPLOY WOMEN AND YOUTHS
- FIXING ROAD ACCESS TO THE VILLAGE, THE PRIMARY SCHOOL, THE CLINIC AND OTHER SOCIAL ACTIONS TO HELP THE LOCAL COMMUNITY
- TRAINING ILLITERATE WORKERS OF CFF.
- APPOINTMENT OF A DEDICATED SOCIAL IMPACT COORDINATOR





INSPIRING OTHERS
AND DEVELOPPING
A SMALL SCALE
FARMERS PROGRAM
EVEN BEFORE
STARTING OUR
SMALL SCALE
FARMERS'
PROGRAM, 3 SMALL
SCALE FARMS HAVE
DEVELOPED WITH
THE HELP OF CFF.



PROVIDING HIGH QUALITY PROTEINS TO THE REGION:
OUR MARKETS ARE IN MOZAMBIQUE, ZAMBIA, MALAWI AND RSA.

ACTUAL SITUATION

- CFF IS CLOSING DEALS WITH ADDITIONAL PARTNER(S) TO MOVE TO THE NEXT PHASE OF 3000 TPA (FROM OUR ACTUAL 1200 TPA CAPACITY) AND IMPLEMENT THE SMALL SCALE FARMERS PROGRAM.
- THE PROFILE OF OUR INVESTORS IS CLEARLY FUNDS AND ORGANISATIONS FOCUSSED ON SUSTAINABLE AQUACULTURE AND IMPACT INVESTMENT (AQUA SPARK (NL) HAS BEEN THE FIRST INVESTOR WITH HAN DERSKEN)

THANK YOU FOR YOUR ATTENTION



Best management practice training for Egyptian fish farmers managed by WorldFish under the IEIDEAS and STREAMS projects; Case Study

Ahmed Nasr-Allah and Harrison Charo-Karisa



Webinar 4: The Fishing fields:

Sustainable aquaculture development strategies for the Commonwealth

Wednesday 29 July, 14:00 – 15:00 BST (GMT+1)



Egyptian aquaculture in 2010

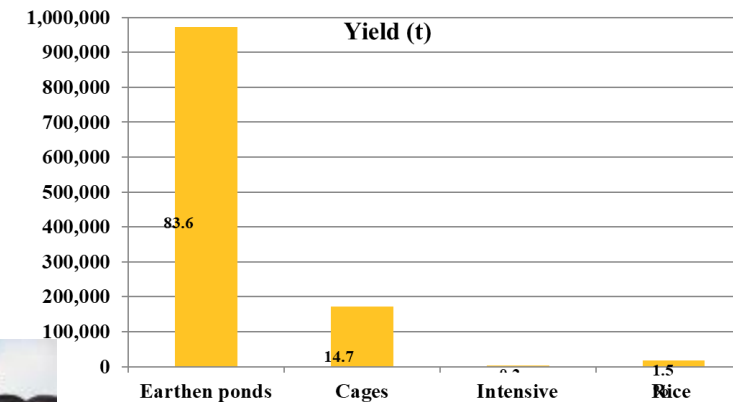
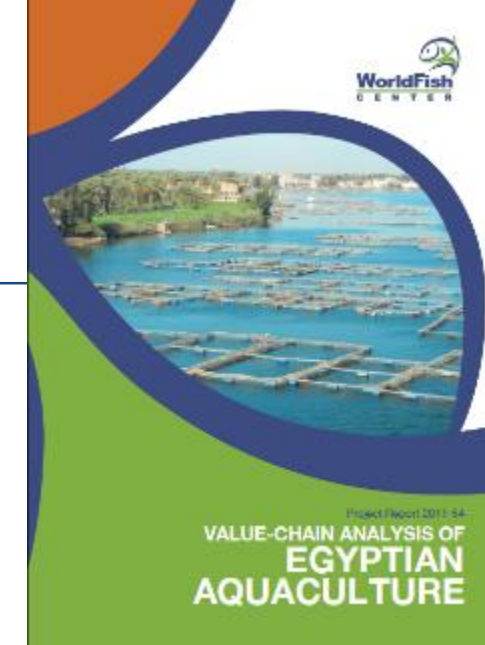
* GAFRD statistics

Production in 2010 was 921,585 t*

- Nearly all fish for domestic market.
- Aquaculture represented
 - 70.3% of Egyptian fish production
 - 59% of total fish consumption
- Employed at least 100,000 FTE, around 50% youth



**TOT Approach
for scaling**



**# of farms 10-15k,
average farm size 6-8 ha**

Training materials

2 BMP manuals (farms & hatcheries), 10 BMP videos



Over 10 Aquaculture training videos available online

https://www.youtube.com/playlist?list=PL_5s5CPGqCKQtv15flpx4UKDIIm3JyEIM



Best Management Practices training 2010-2014

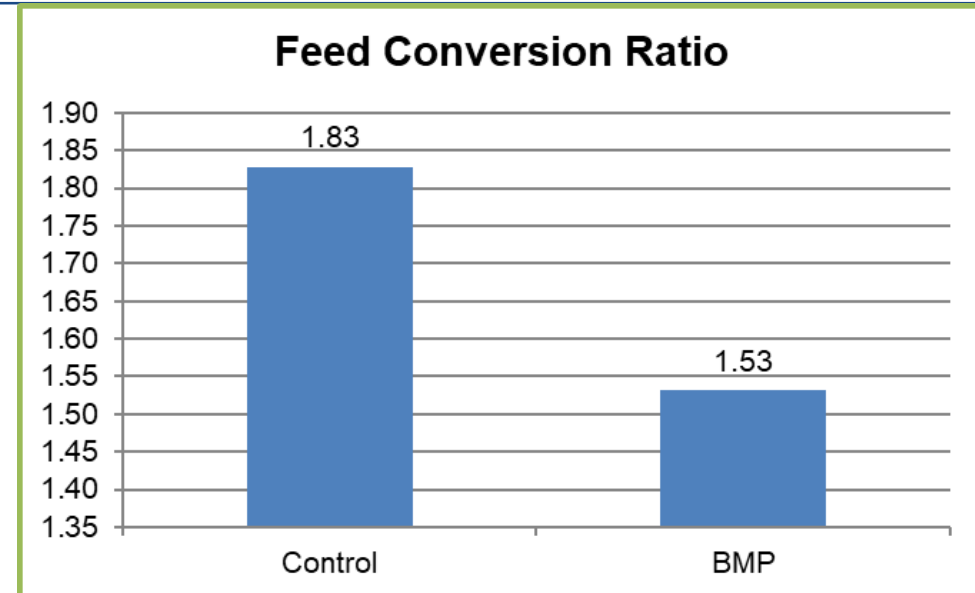
- Farmers to farmer training delivered in small groups, practical oriented
- Over 2900 trainees reached (2200 completed full BMP training)
- 90 hatchery owners/operators trained on hatchery BMP

Gov.	sessions	farmers
Behera	382	306
Fayoum	637	427
Kafr El Sheikh	1338	1366
Sharkia	886	887
Total	3243	2986



Impact Assessment of BMP during IEIDEAS

	Yield t/ha
Control	8.16
BMP	8.00



	Feed cost \$/ha	Total Cost \$/ha	Net profit (% of sales)
Control	0.84	9,509	19%
BMP	0.98	10,702	32%

BMP delivered through STREAMS Project (2015- 2018)

4297 fish farms trained on BMP,

- ✓ reduced feed use by 20% (FCR (1.82:1 to **1.4:1**). (IA 2019)
- ✓ 13% increase in profitability
- ✓ 10% decrease in water consumption
- ✓ 22% Reduction in GHG emissions

Conclusion

- Adoption of Better management practices in aquaculture important for the sustainability of fish farming
- BMP improves producer incomes, contributes to food security, reduces pressure on water resources and reduces GHG

Thank You



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