



Tilapia health: *quo vadis?*

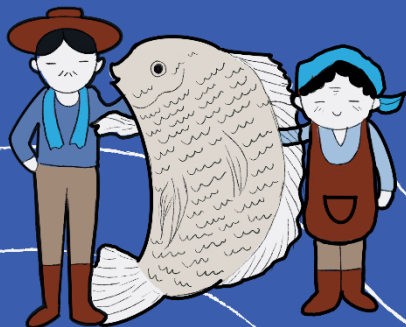
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From Africa to the world- the journey of Nile tilapia

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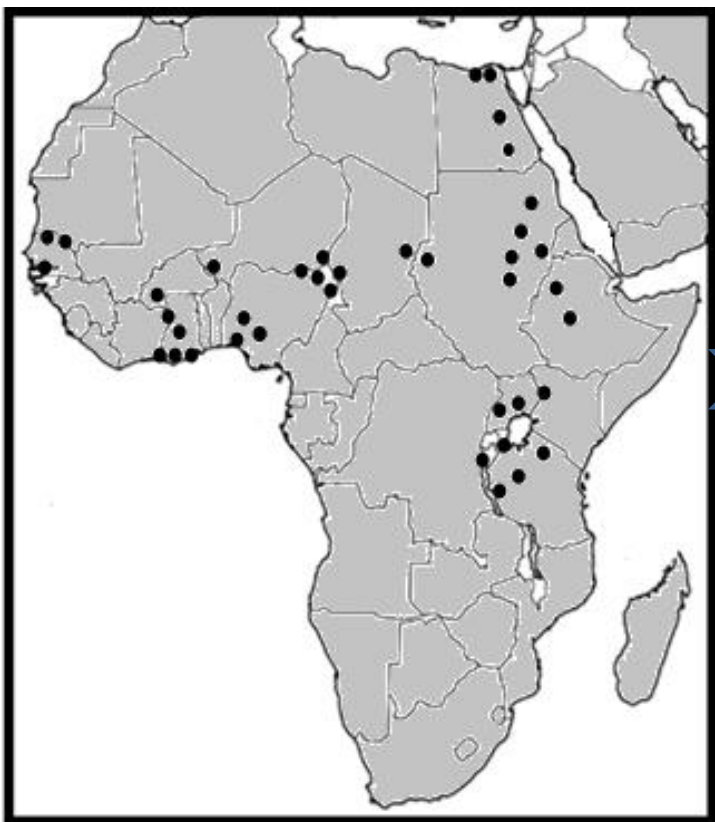
THE MAGNIFICENT NILE TILAPIA:

- Freshwater fishes belong to family Cichlidae.
- Naturally distributed in the Nilo- Sudanian region and Ethiopian Rift Valley.
- Central and Western Africa (Senegal, Gambia, Volta, Niger, Benue and Chad).
- Southwards, colonizing the western Rift lakes (Lake Albert, Lake Edward, Lake George, Lake Kivu and Lake Tanganyika) and Eastern Rift Valley (Lake Turkana).



TILAPIA DISTRIBUTION AND INTRODUCTIONS

Natural distribution of Nile tilapia in Africa



Global Nile tilapia introductions (114)





THE JOURNEY OF NILE TILAPIA

- **Attributes supporting tilapia introductions??**
- **High adaptability to tropical, subtropical and temperate environments.**
- **Fast growth rates.**
- **Tolerance to extreme environmental conditions.**
- **High resistance to stress and diseases.**
- **Feeding on low trophic levels, and ability to reproduce in captivity.**
- **Easy hatching and larval rearing.**
- **Simple and easy farming.**
- **Low sale prices.**

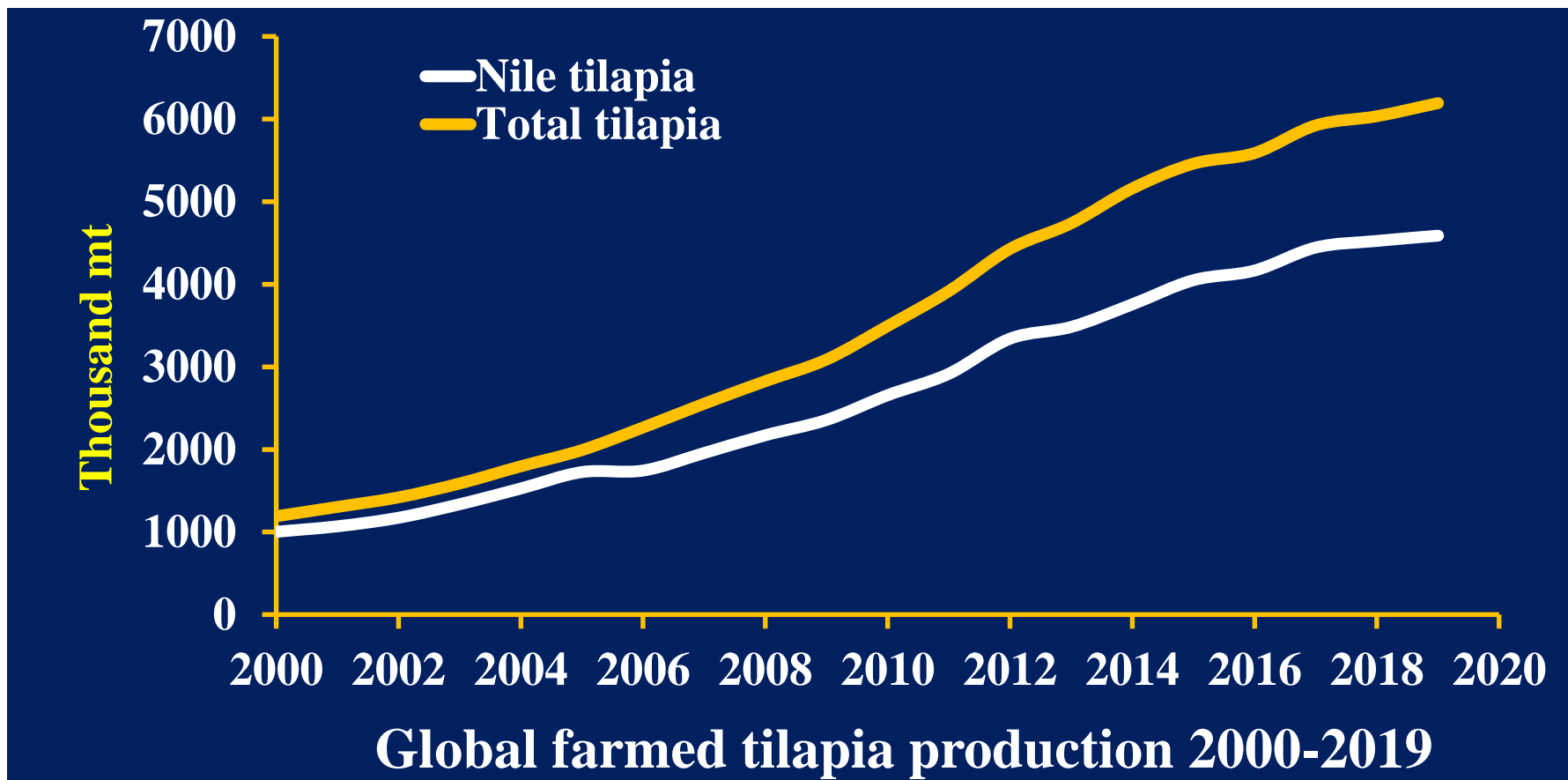


REASONS FOR TILAPIA JOURNEYS

- **114 Nile tilapia introductions recorded worldwide, 56.1% were established.**
- **Why??**
- **Fill ecological niches that are not occupied by other fishes;**
- **Stock natural water masses which are not inhabited naturally by tilapia;**
- **Develop tilapia-based new fisheries;**
- **Control plankton production and aquatic weed;**
- **Aquaculture..... Most important reason;**
- **Recreational and sport fishing; and**
- **accidental introductions, with no specific goals.**

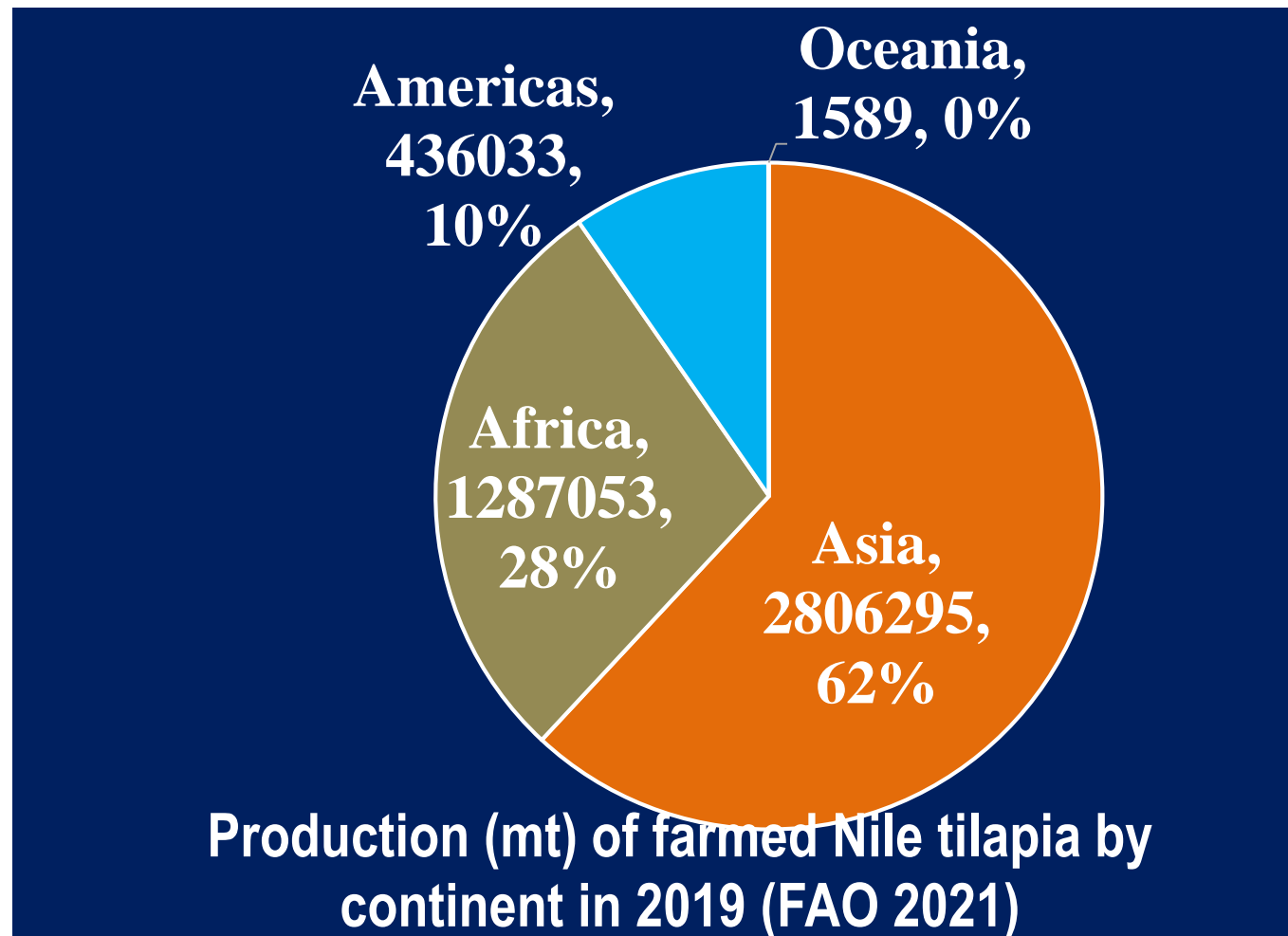
As a result:

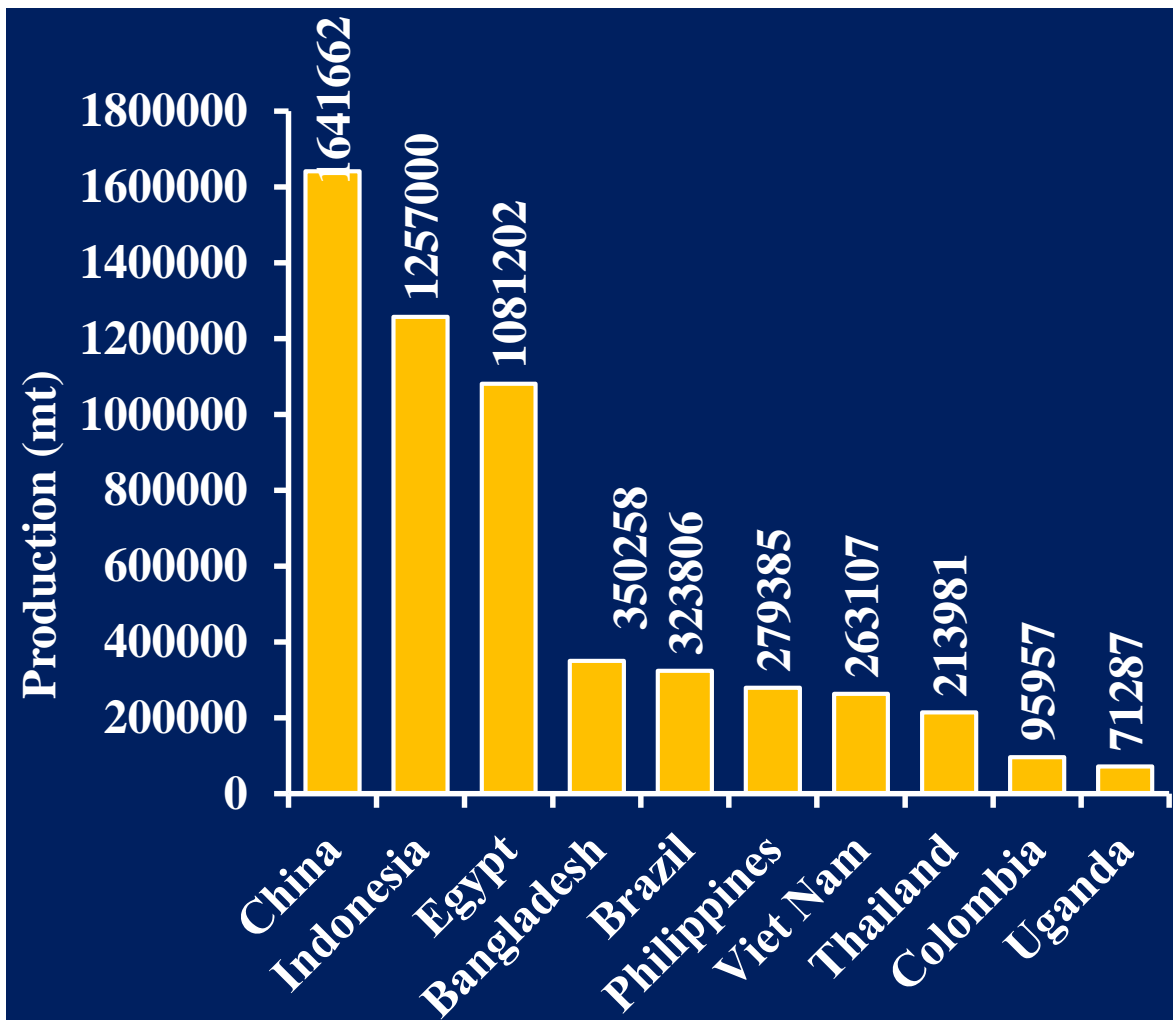
- Nile tilapia culture expanded world wide.
- Tilapia production sharply increased during the last two decades.
- Nile tilapia is the driving force in this production.... 74%



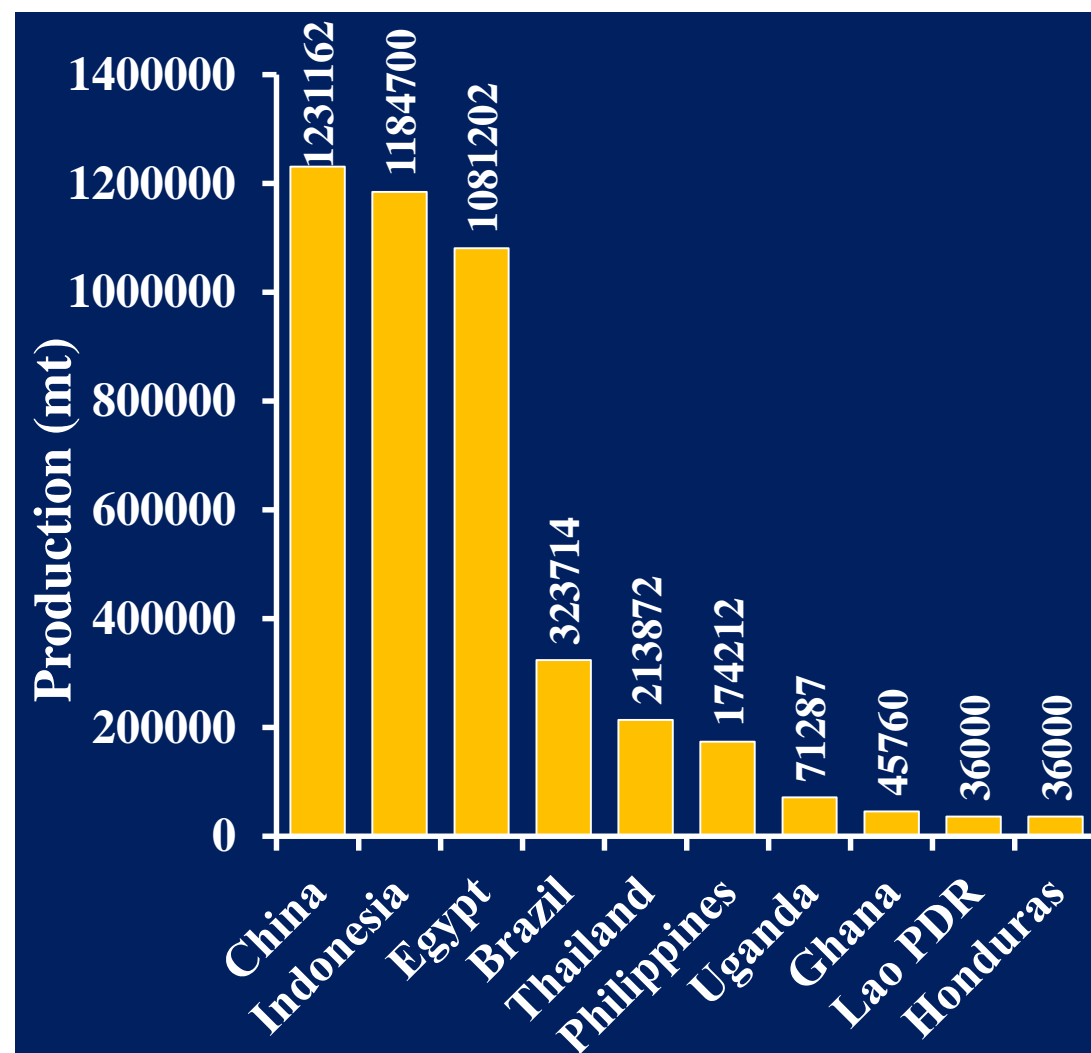
CONTINENTAL TILAPIA PRODUCTION IN 2019

- **Asia is dominant**
- **Africa on the track**
- **Americas, especially**
- **Latin America, have a great potential**





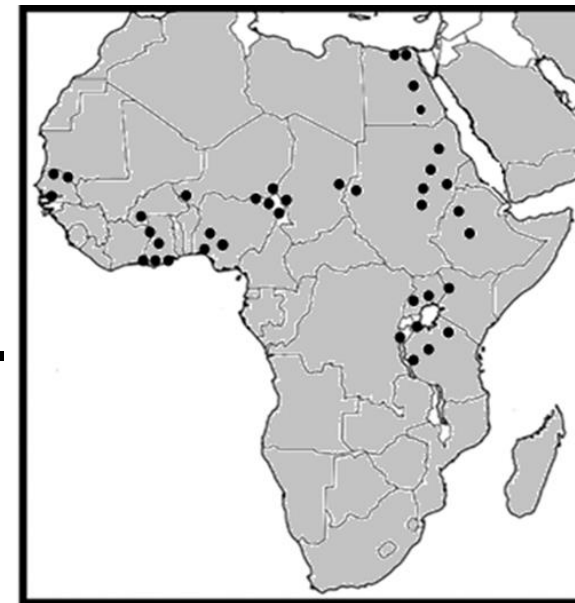
Major farmed tilapia producers in the world in 2019



Top Nile tilapia producers in the world in 2019

NILE TILAPIA JOURNEY IN AFRICA

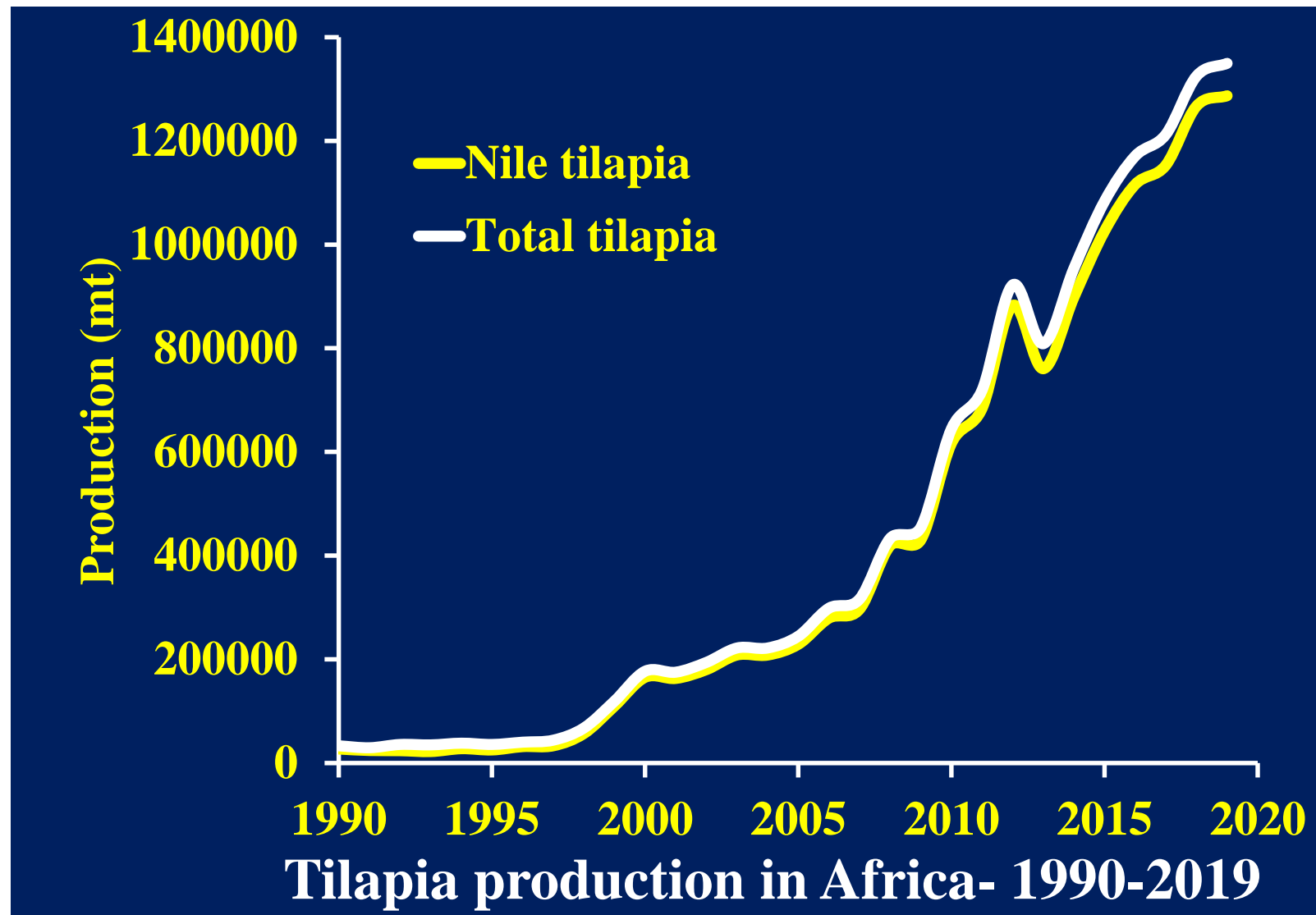
- Nile tilapia journey in Africa started in Egypt about 4000 years ago.
- In recent history, first tilapia culture trials started in 1924 in Kenya.
- In 1934, the first farming trials took place in Egypt.
- Trials carried out during 1950s and 1960s,
- Real journey of Nile tilapia in Africa started in 1990s.
- Nile tilapia represent 95.4% of total farmed tilapia and 68% of total inland FW aquaculture.





Results:

1. Increased production
2. Increased per capita fish consumption.
3. Rural development
4. Health status
5. Employment
6. Livelihoods



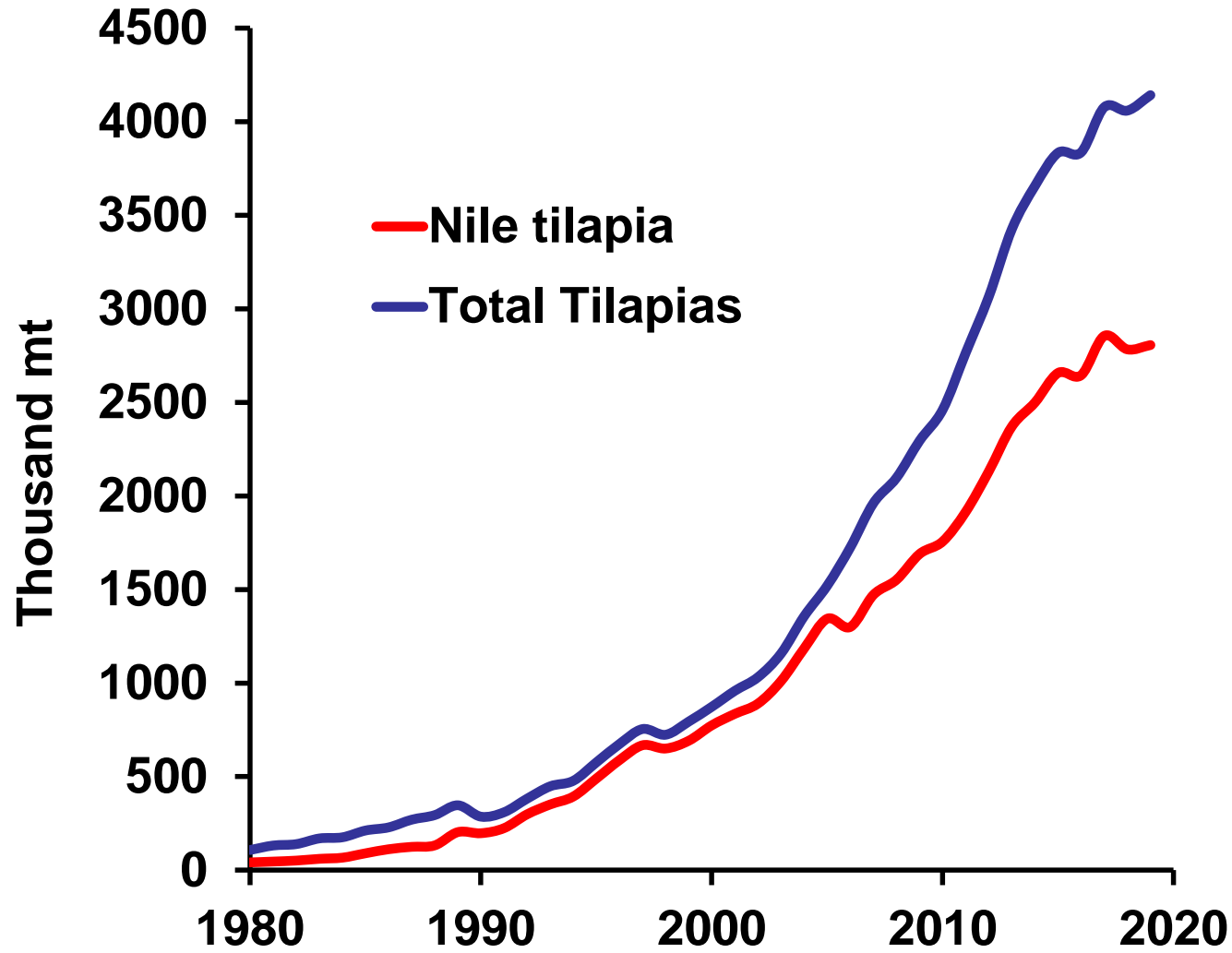
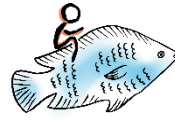


Nile tilapia Journey to Asia

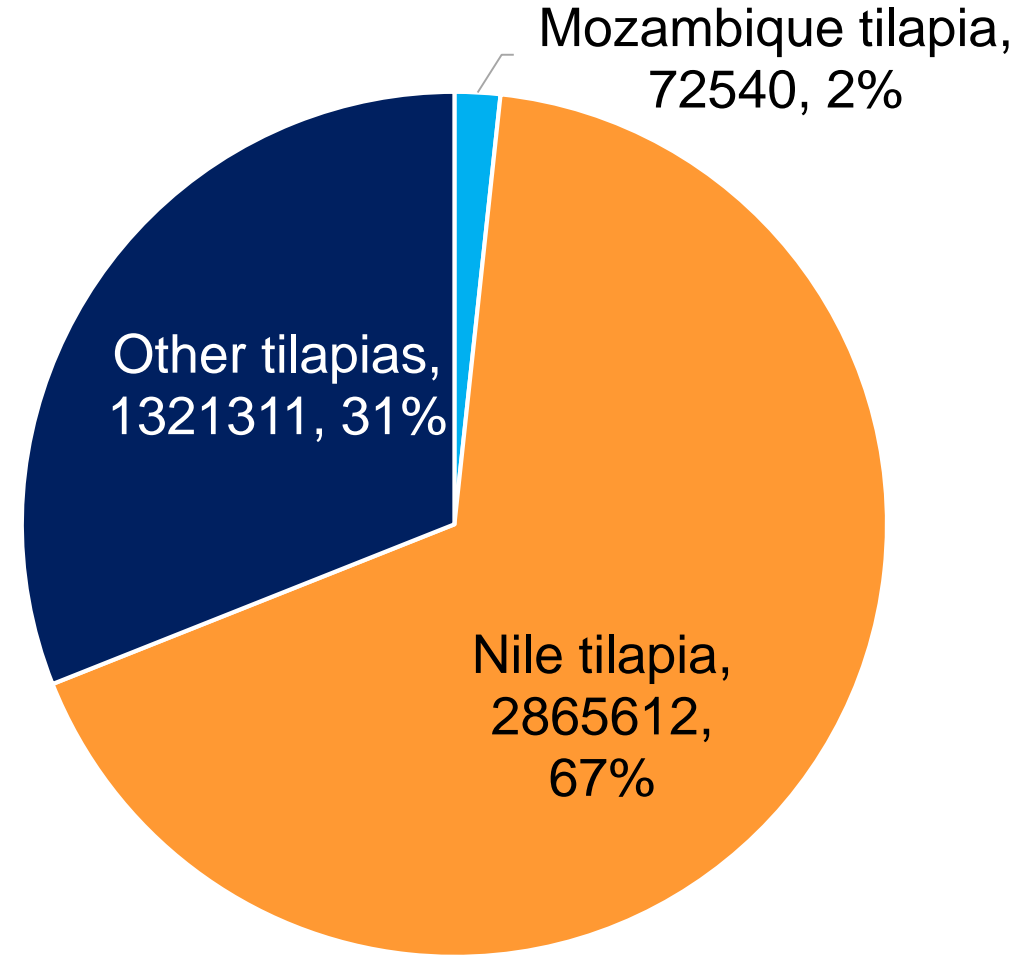
**The journey started during the 2nd half of the 20th Century.
Mainly for aquaculture and fisheries support.
Most of introductions were established.
The fish became an important candidate for aquaculture.**

As a result:

- Tilapia aquaculture was quite successful in many countries,**
- Played a considerable role in the livelihoods, health and economies**



Tilapia production in Asia 1980-2019

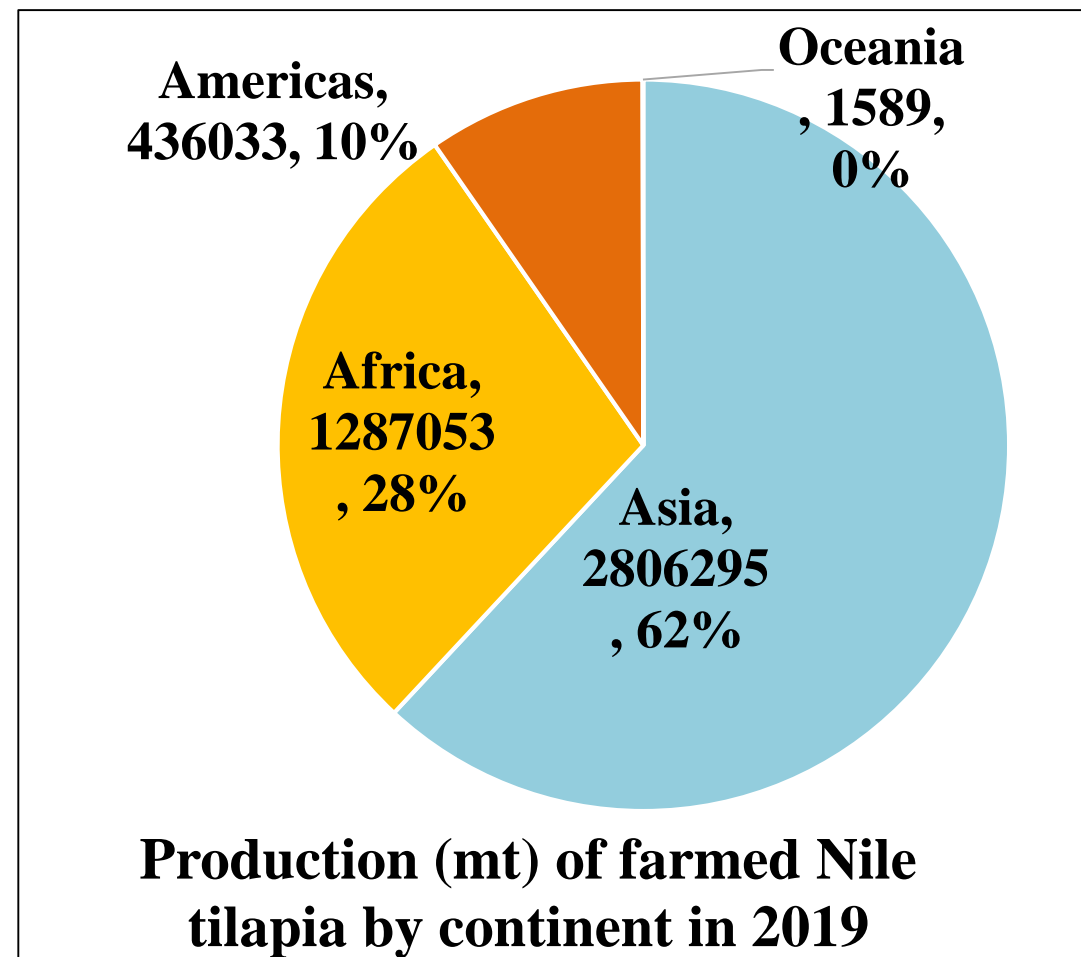


Tilapia production in Asia in 2019



As a result:

- Asia is currently the largest producer of farmed tilapia in the world, contributes 69% to global tilapia production and 62% of global Nile tilapia production.
- Nile tilapia represent 68% of total Asian tilapia production and 45% of global tilapia output.
- China, Indonesia, Bangladesh, Philippines, Thailand and Vietnam produced over 65% of total farmed tilapia in Asia in 2019.



Contribution to Asian life

1. Livelihoods
2. Employment
3. Extra income
4. Women empowerment
5. Large-scale, commercial
6. Export.... \$\$\$\$





Nile tilapia Journey to the Americas

**Nile tilapia have been introduced during the 20th century for:
aquaculture,
mosquito and weed control, and
fee fishing.**

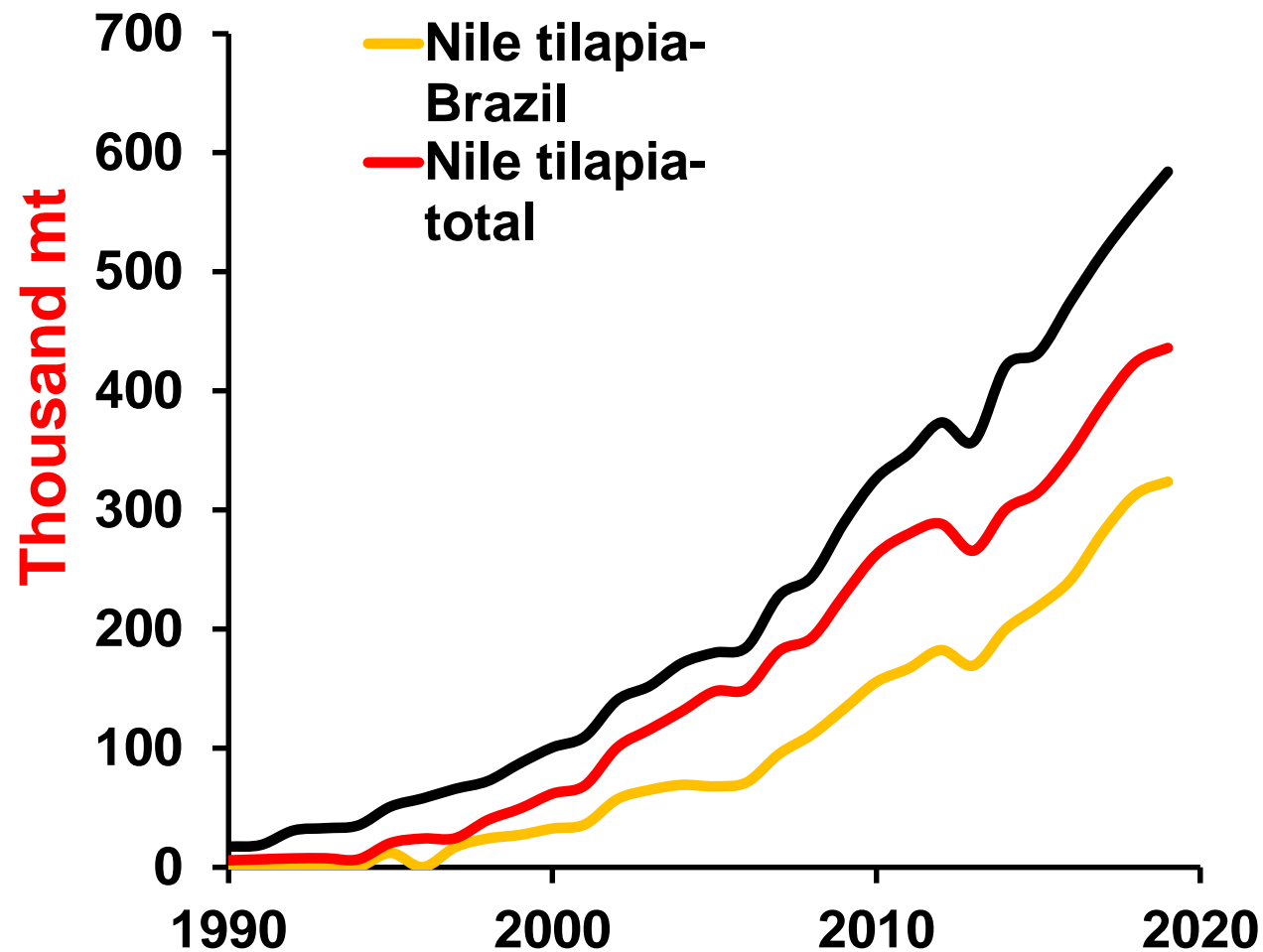
17 countries now practice Nile tilapia culture, with a production of 436,033 mt in 2019, representing 75% of total farmed tilapia production, and 42% of total FW aquaculture output.

Most tilapia production in the Americas is directed to domestic markets, while tilapia imports are relatively low

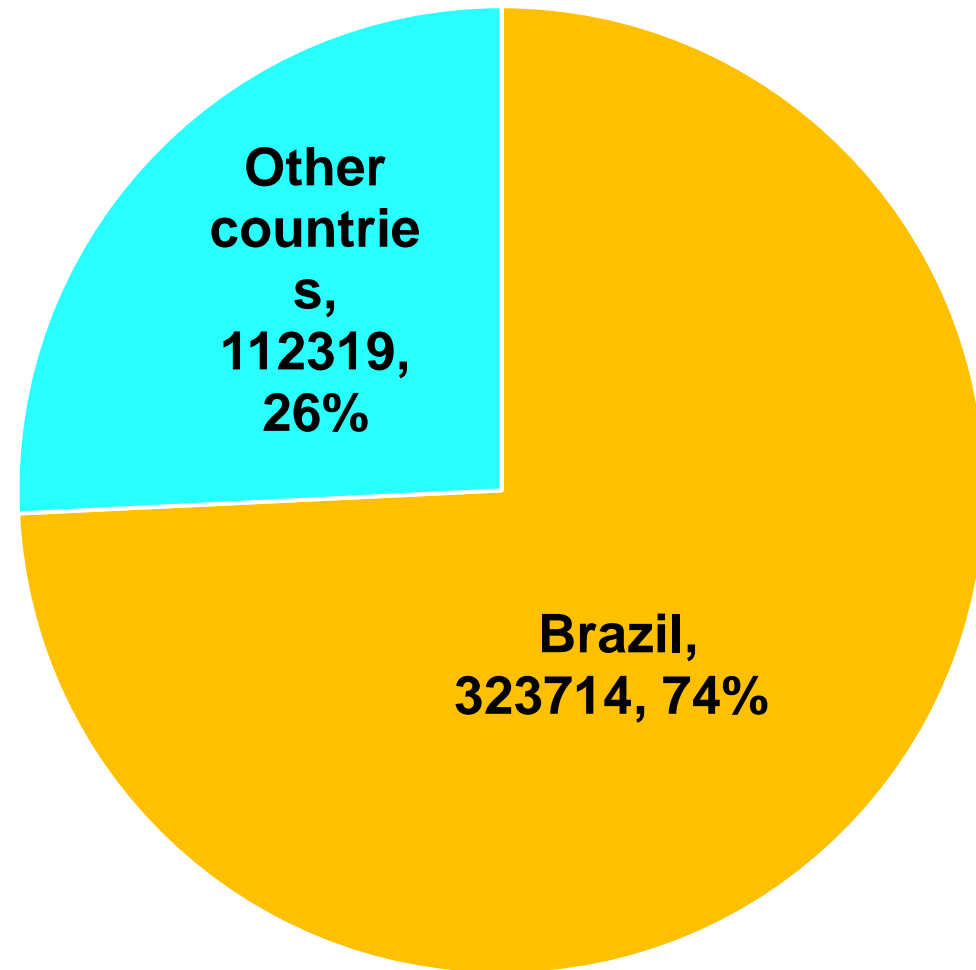
Some countries export tilapia fillet mainly to the US market.



Tilapia production in the Americas



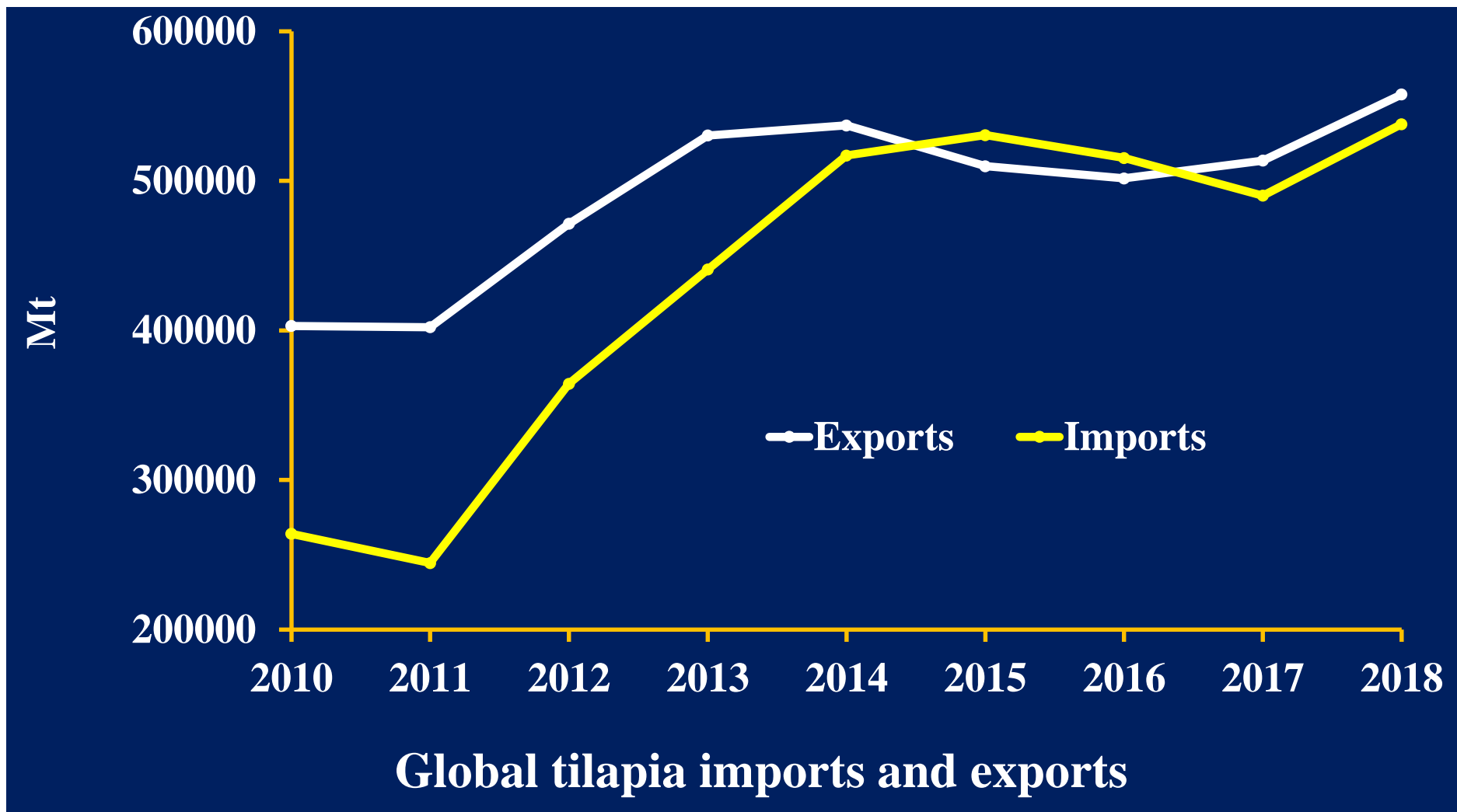
Production of Nile tilapia in the Americas





Nile tilapia- a fish for the poor, and the rich

- Nile tilapia is a fish for the public, in Asia, Africa and Latin America.
- The demand for tilapia is increasingly high worldwide.
- Most of produced tilapia is consumed domestically.
- This led to significant improvement in livelihoods of rural societies.
- Global trade of tilapia products has recently witnessed an outstanding flourishing
- Expected to continue.





Nile tilapia journey will continue

- 1. New destinations will be explored.**
- 2. New countries will be reached (e.g. India, Pakistan, Sri Lanka, Myanmar, and Loa).**
- 3. New production powers will emerge (e.g. Mexico).**
- 4. Huge potential for Nile tilapia production other American countries (e.g. Costa Rica, Honduras, Guatemala, Ecuador and Colombia).**
- 5. The global tilapia markets and trade will expand much further.**
- 6. Countries which Introduced, or intend to introduce, Nile tilapia should adopt the necessary policies that support the conservation of native ecosystems and local biodiversity.**

The bad side of the coin- adverse impacts

Nile tilapia may pose serious adverse impacts

1- Ecological impacts

- **habitat degradation and loss,**
- **disruption of native biota,**
- **reduction or eradication of native species,**
- **reduction of capture fisheries yield,**
- **competition for food and breeding sites with endemic species,**
- **hybridization with native species, and spread of aquatic diseases and**
- **pollution**



2- Socioeconomic impacts

- adversely affect the abundance and fisheries of native fishes,
- affect the health, income and livelihoods of the resource users
- reduced the incomes of freshwater capture fisheries.
- impact the value of other species, due to the competition for food and reduction in growth rates of these fishes.
- the catch of native species is declining ,.... deteriorate the livelihood of local fishers.

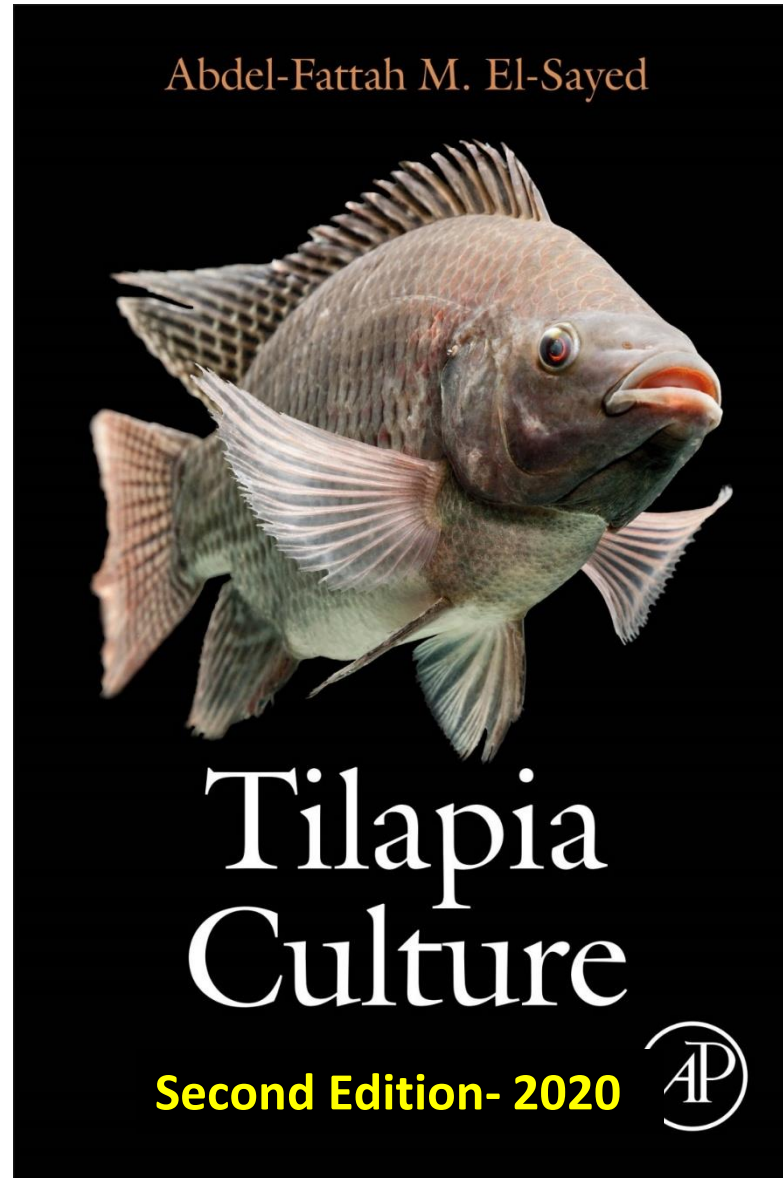
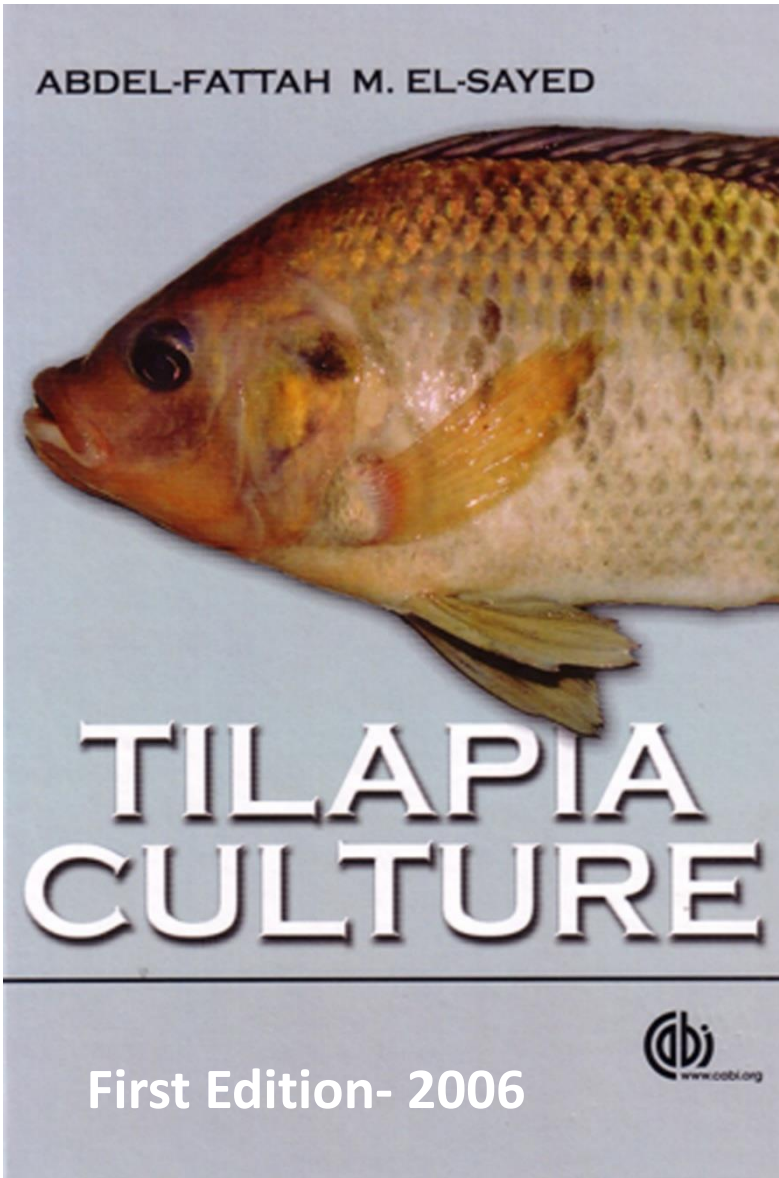


Management of tilapia introduction

- **It is almost impossible to guarantee safe confinement of introduced species;**
 - **Appropriate management measures should be adopted to control tilapia introduction:**
 - **The following measures have been suggested:**
1. **Prevention of tilapia introductions (if possible). But if introductions are inevitable, appropriate control measures should be adopted, including-**
 - **selective removal,**
 - **restrict transfer or introduction to target ecosystem, and avoid introduction for other aquatic environments,**
 - **raising public awareness of the risks of introducing non-native fishes,**
 - **adopting bio-control programs, and**
 - **promoting effective public policies and strategies.**



- 2. Implementing reliable governmental policies to tackle the problem.**
- 3. Encouraging aquaculture of native species, on research and investment basis.**
- 4. Enhancing aquaculture and fisheries development, using fish species that are not harmful to natural ecosystems.**
- 5. Excluding introduced tilapia from the areas where they have not yet been introduced to.**
- 6. Preventing tilapias from spreading to environmentally sensitive areas.**
- 7. National laws and legislation should be developed, to comply with the international guidelines. Effective local enforcement of such laws is also urgently needed.**
- 8. Careful management procedures of tilapia culture facilities should be followed.**





Food and Agriculture
Organization of the
United Nations



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Thank you

