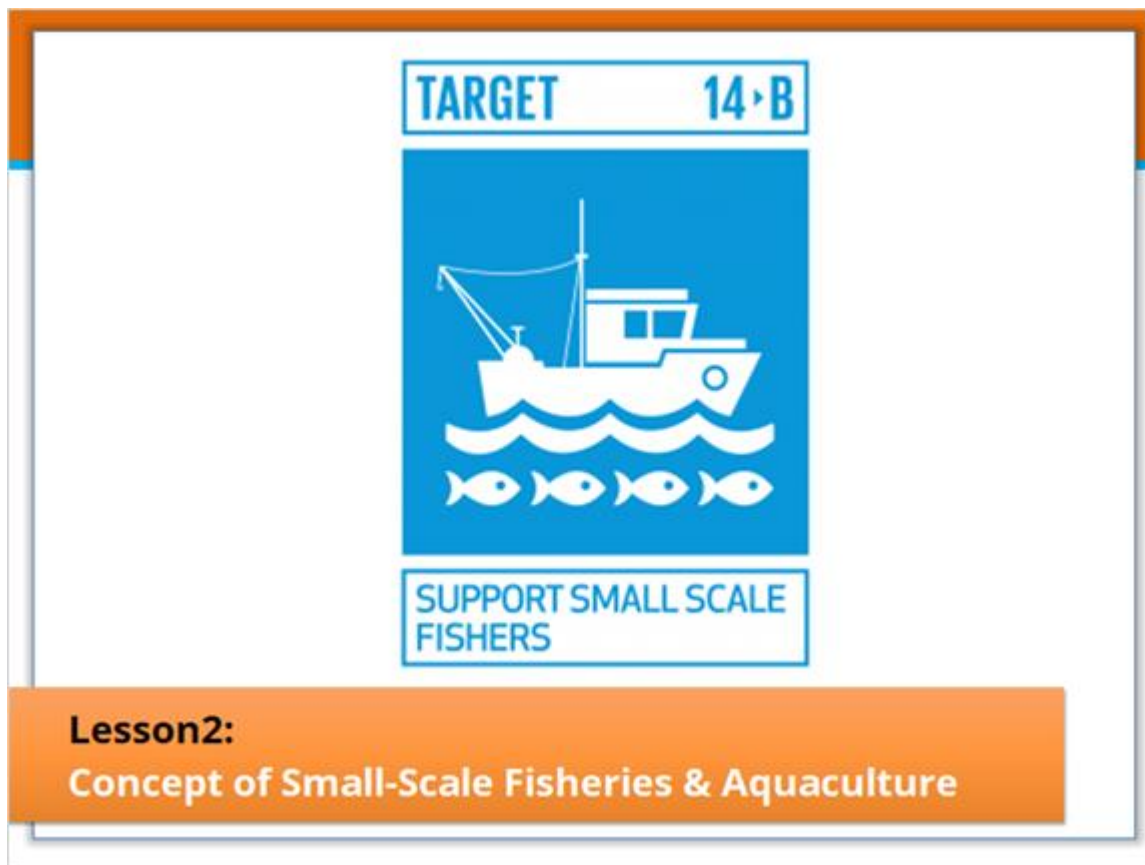


## Fisheries and Aquaculture Statistics - Lesson2

### Lesson2

#### 2.1 Lesson2: Concept of Small-Scale Fisheries & Aquaculture



#### Notes:

Fishing is the activity consisting of capturing aquatic animals in their natural environment while aquaculture production is the reproduction and growth in a capacity of species captured in their natural environment.

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## 2.2 Introduction

### Introduction

- Fisheries and Aquaculture form an important constituent of national economies in most of the Asia-Pacific countries.
- They are not only the source of livelihoods but also provide avenues for employments (especially for marginal section such as landless workers), meet the food and nutritional requirements of the population and contribute to foreign exchange earnings, thus supporting countries in balance of trade.



### Notes:

Fish being an integral part of the diet, provides an important source of animal protein and nutrients for most of the world's population and is a key element of food security and nutrition strategies. Consumption of fish provides energy and high quality protein. It is a key source of other nutrients like minerals, fat soluble vitamins and fatty acids. Small low - value fish which are largely consumed by the rural poor, provide more minerals than the same quantity of meat or large fish.

## 2.3 Contents

*The topics we would be learning are:*

- 1 Small-Scale Fisheries**
- 2 Aquaculture**
- 3 Voluntary Guidelines for Securing Sustainable Small-scale Fisheries (SSF)**
- 4 Effect of Small Scale Fisheries & Aquaculture**



### Notes:

In the upcoming slides we gain a deeper understanding of the concept of small-scale fisheries and aquaculture.

## 2.4 Small-Scale Fisheries: Definition

### Small-Scale Fisheries: Definition

**Small scale fisheries are traditional fisheries who use a relatively small amount of capital, relatively small vessels, make short fishing trips and mainly provide for local consumption.**



#### Notes:

Small-scale fisheries may also be of various forms and modes of operation. They include the catching of fish, post-harvest treatment, marketing of catches and ancillary trades. The activities are mainly targeted on supply of fish and fishery product to local and domestic markets and for subsistence consumption.

## 2.5 Small-Scale Fisheries (Continued)

### Small-Scale Fisheries (Continued)

- When men are engaged in fishing, women engage themselves in fish processing and marketing.
- Other ancillary activities can also generate fishery related employment and income opportunities in the marine and inland fishing sector.



- It is not unusual for a small-scale fishery in one country to be classified as large scale fishery in another country.
- It is widely agreed that small-scale fisheries play an important role in the global fisheries sector which, needs to be protected & supported.

#### Notes:

Women are significant participants in the sector, particularly in post-harvest and processing activities. It is estimated that about 90% of all people directly dependent on capture fisheries work in the small-scale fisheries sector. About 120 million people work directly in commercial capture fisheries, 97% of these people live in developing countries.



## 2.6 Small-Scale Fisheries (Continued)

### Small-Scale Fisheries (Continued)

The small-scale fisheries sector tends to be firmly rooted in local communities, traditions and values. Many small-scale fishers are self-employed and usually provide fish for direct consumption within their households or communities.



#### Notes:

Export oriented production has recently increased in many small-scale fisheries. Small-scale fisheries contribute to about half of global fish catches. When considering catches destined for direct human consumption, the share contributed by the small-scale fisheries increases to two-thirds.

## 2.7 Aquaculture: Definition

### Aquaculture: Definition

It is the farming of both animals (including crustaceans, finfish and molluscs) and plants (including seaweed and fresh water macrophytes). While agriculture is mainly based on fresh water use, aquaculture occurs in both fresh water and coastal (brackish water, sea water) areas.



#### Notes:

- This refers equally to large scale, high input, industrial fish culture and small scale, low input, low output fish farming. Not only is each very different in terms of culture technique, but objectives are likely to diverge. Rural aquaculture could significantly improve the welfare of small-scale farming households. The small-scale rural aquaculture indicates fish farming as an aspect of rural development with objectives related mainly to household food security and income generation.
- Most coastal aquaculture is undertaken at a small scale for semi - subsistence purposes.
- With most capture fisheries worldwide considered fully exploited or over exploited, aquaculture will be central to meeting the increasing fish demand which will continue to increase due to population growth, rising incomes and urbanisation.

## 2.8 Aquaculture Definition by FAO

### Aquaculture Definition by FAO



**Aquaculture is the farming of aquatic organisms: fish, molluscs, crustaceans, aquatic plants, crocodiles, alligators, turtles, and amphibians. Farming implies some form of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc.**

#### Notes:

Farming also implies individual or corporate ownership of the stock being cultivated. For statistical purposes, aquatic organisms which are harvested by an individual or corporate body having ownership throughout their rearing period contribute to aquaculture. Aquatic organisms which are exploitable by the public as a common property resource, with or without appropriate licenses, are the harvest of capture fisheries.



**2.9 Food & Agricultural Organisation of the United Nations (FAO) introduced the following definition of aquaculture in 1988.**

Food & Agricultural Organisation of the United Nations (FAO)  
introduced the following definition of aquaculture in 1988.

**“Aquaculture is the farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants.”**



**Notes:**

Although FAO definition of aquaculture is an important contribution to our understanding of aquaculture there are some grey areas in relation to rice fields and culture based fisheries. FAO classifies rice-cum-fish culture as aquaculture but there are complex inter relationships between wild fish aquaculture in rice fields. Sometimes farmers catch wild fish in rice fields by building trap ponds when water levels fall at the end of rainy season.

## 2.10 Aquaculture (Continued)

### Aquaculture (Continued)

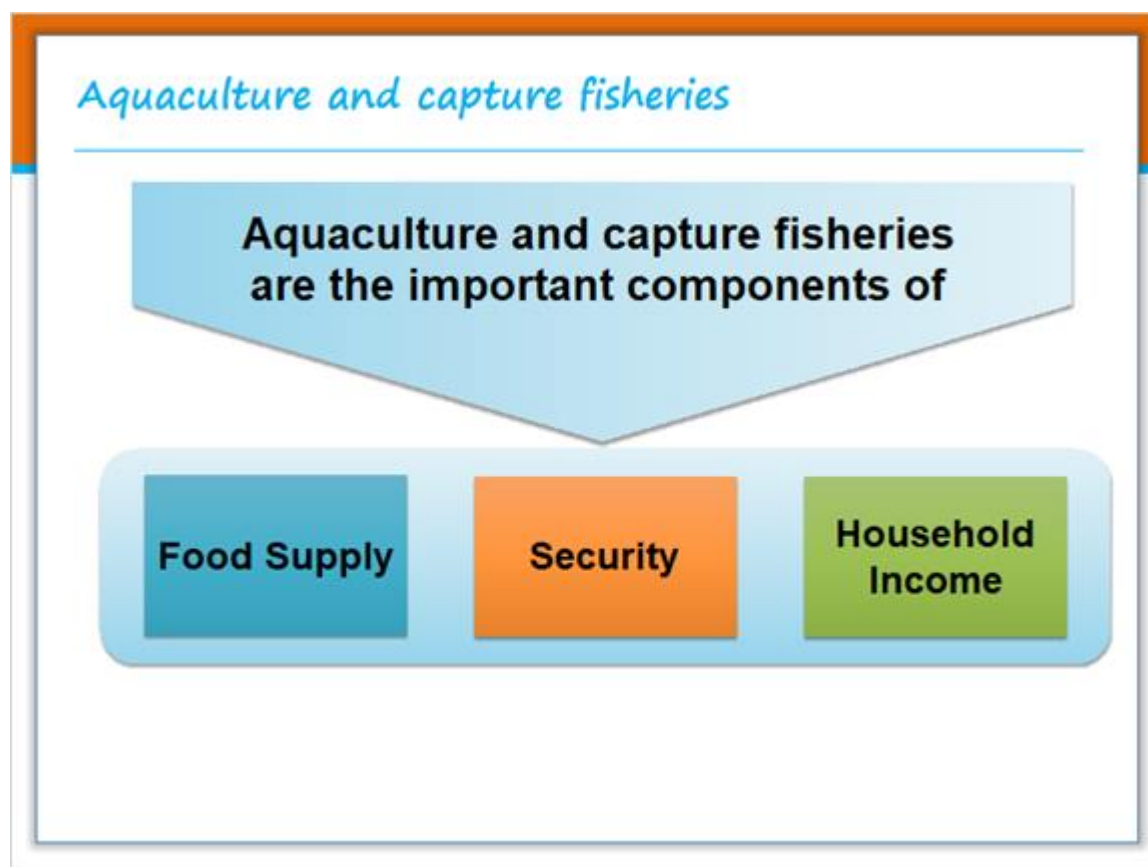
- About 580 aquatic species are currently farmed all over the world, representing a wealth of genetic diversity both within and among species.
- Aquatic plants, such as seaweed, are also an important resource for aquaculture, as they provide nutrition, livelihood and other important industrial uses.



#### Notes:

Aquaculture involves rearing of organisms and hence, may be carried out in ponds, paddy fields, lagoons, estuaries, etc. Eighty percent of current aquaculture production is derived from animals low in the food chain, such as herbivorous, omnivorous fish and mollusks.

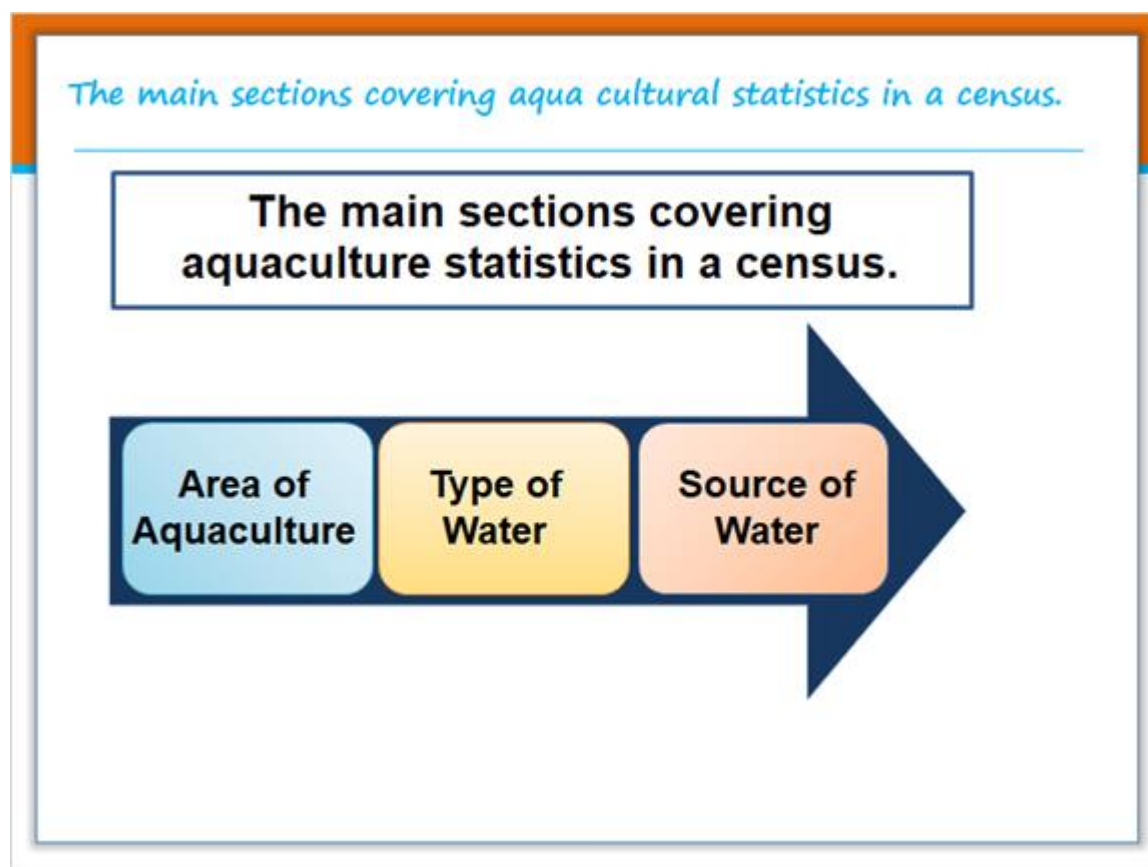
## **2.11 Aquaculture and capture fisheries**



### **Notes:**

With capture fishery production relatively static since the late 1980s, aquaculture has been responsible for the impressive continued growth of fish supply for human consumption.

## **2.12 The main sections covering aqua cultural statistics in a census.**



### **Notes:**

Structural data on aquaculture need to be collected by the statistical questionnaire and the aquaculture production.



### **2.13 Work of FAO towards small-scale fisheries**

#### *Work of FAO towards small-scale fisheries*

- Integrating sustainable fish production and consumption in food security and other related strategies.
- Empowering small – scale fishers and fish farmers, their communities to participate in decision making processes and relate the right to food.

**Notes:**

The Asia - Pacific region houses many of the world's poorest people, who depend on fish to meet their basic needs. Keep in view the dominant constituent of the global fisheries and aquaculture practitioners are small-scale fishers and farmers.

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## **2.14 FAO also provides technical assistance**

### *FAO also provides technical assistance*

**FAO also provides technical assistance through the implementation of the Code of Conduct for Responsible Fisheries, who carries out the following functions:**

- promotes sustainable aquaculture development, especially in developing countries, through better environmental performance of the sector, through health management and biosecurity.
- provides regular global and regional analysis and report of aquaculture development status and trends, sharing knowledge and information.
- develops and implements efficient policies and legal frameworks, promoting sustainable and equitable aquaculture development with improved socio-economic benefits

#### **Notes:**

The FAO has endorsed and adopted the voluntary guidelines for securing sustainable small scale fisheries mentioned in the upcoming slides.

## **2.15 Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF)**

### *Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries (SSF)*

- to enhance the contribution of small-scale fisheries to global food security and nutrition and to support the progressive realization of the right to adequate food.
- to contribute to the equitable development of small-scale fishing communities and poverty eradication and to improve the socio-economic situation of fishers and fish workers within the context of sustainable fisheries management.

#### **Notes:**

The objective of the guidelines is to inter alia enhance the contribution of small-scale fisheries to global food security and nutrition, and to support the progressive realization of the right to adequate food.

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## 2.16 Voluntary Guidelines for SSF

### Voluntary Guidelines for SSF (continued)

- to achieve the sustainable utilization, prudent and responsible management and conservation of fisheries resources consistent with the Code of Conduct for Responsible Fisheries (the Code) and related instruments.
- to promote the contribution of small-scale fisheries to an economically, socially and environmentally sustainable future for the planet and its people.



#### Notes:

The objectives should be achieved through the promotion of a human-rights-based approach, by empowering small-scale fishing communities, including both men and women, to participate in decision-making processes, and to assume responsibilities for sustainable use of fishery resources, placing emphasis on the needs of developing countries to benefit vulnerable and marginalized groups.



## 2.17 Voluntary Guidelines for SSF (continued)

### Voluntary Guidelines for SSF (continued)

- to provide guidance that could be considered by States and stakeholders for the development and implementation of ecosystem friendly and participatory policies, strategies and legal frameworks for the enhancement of responsible and sustainable small-scale fisheries.
- to enhance public awareness and promote the advancement of knowledge on the culture, role, contribution and potential of small-scale fisheries, considering ancestral and traditional knowledge, and their related constraints and opportunities.

#### Notes:

A recent model developed by the Latin American Parliament includes a broad definition encompassing artisanal and small scale fishing together. As stated in the voluntary guidelines for securing sustainable, small-scale fisheries, the main argument against trying to develop a universally accepted definition for small scale fishers is the fact that the sector is very diverse and dynamic. It is further compounded by the fact that small-scale fisheries are generally place, local, and community based fisheries rich in customs, tradition and values.

## 2.18 The Effect of Small Scale Fisheries & Aquaculture

### The Effect of Small Scale Fisheries & Aquaculture



Employment in fishing and aquaculture has grown rapidly over past decades.

#### Notes:

- In capture fisheries, women are commonly involved in making and repairing nets, baskets & pots, setting traps and nets and fishing from small boats and canoes. In aquaculture, women feed and harvest fish, and attend to fish ponds. Women play a major role in processing fish in many parts of the world using both, traditional preservation methods and working in commercial processing plants.
- There is also an increasing amount of trade in fish products in developing countries. Over 30% of fishery commodity production in developing countries is detained for export (FAO 2005a) and it is an important source of foreign exchange for many countries. International trade in fishery product has shown a positive effect on food security in many developing countries.

## 2.19 The Effect of Small Scale Fisheries & Aquaculture (continued)

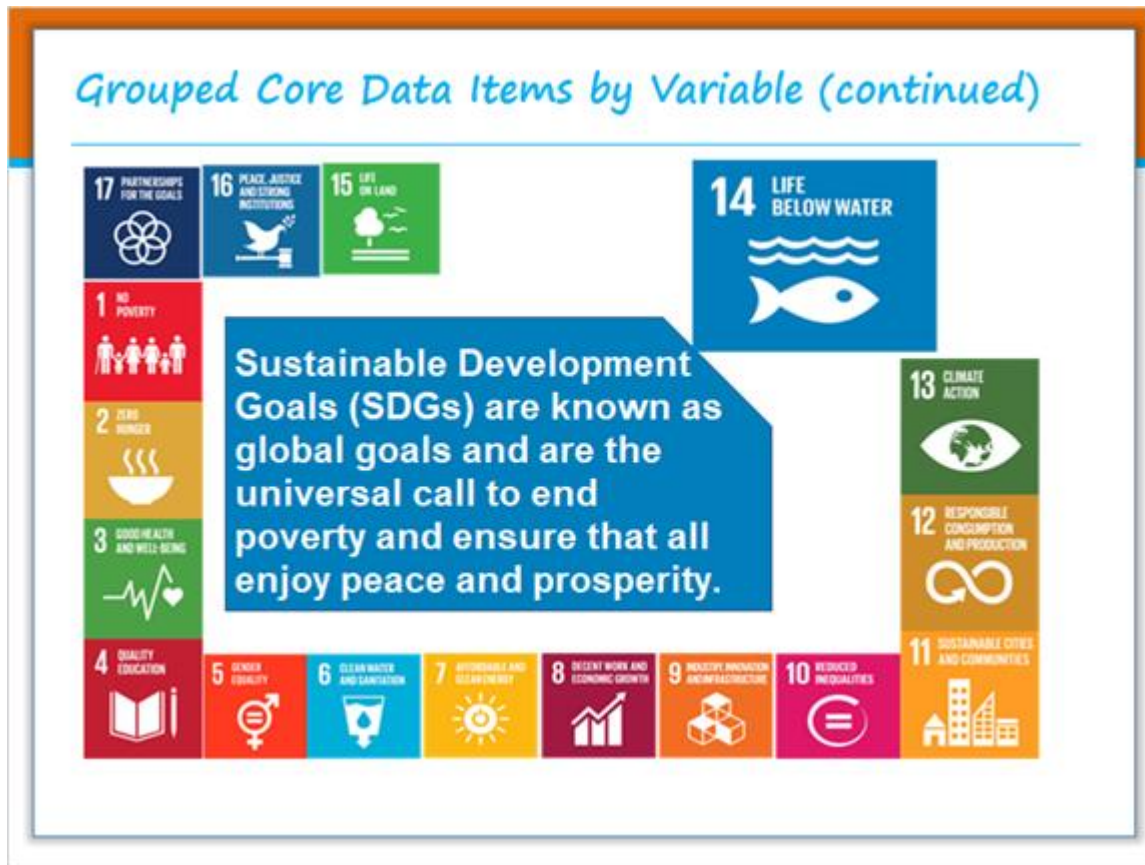
### The Effect of Small Scale Fisheries & Aquaculture (continued)



#### Notes:

- Fish, being a rich food for poor people, was placed to make an important contribution to the Millennium Development Goals (MDG's)
- Despite significant contributions of fisheries & aquaculture in employment generation and nutrition, they are rarely included in the agenda of national development policy. One problem might be the evaluation of small scale fisheries as policy makers do not have access to data which reflect the importance of fisheries & aquaculture.

## 2.20 Grouped Core Data Items by Variable (continued)

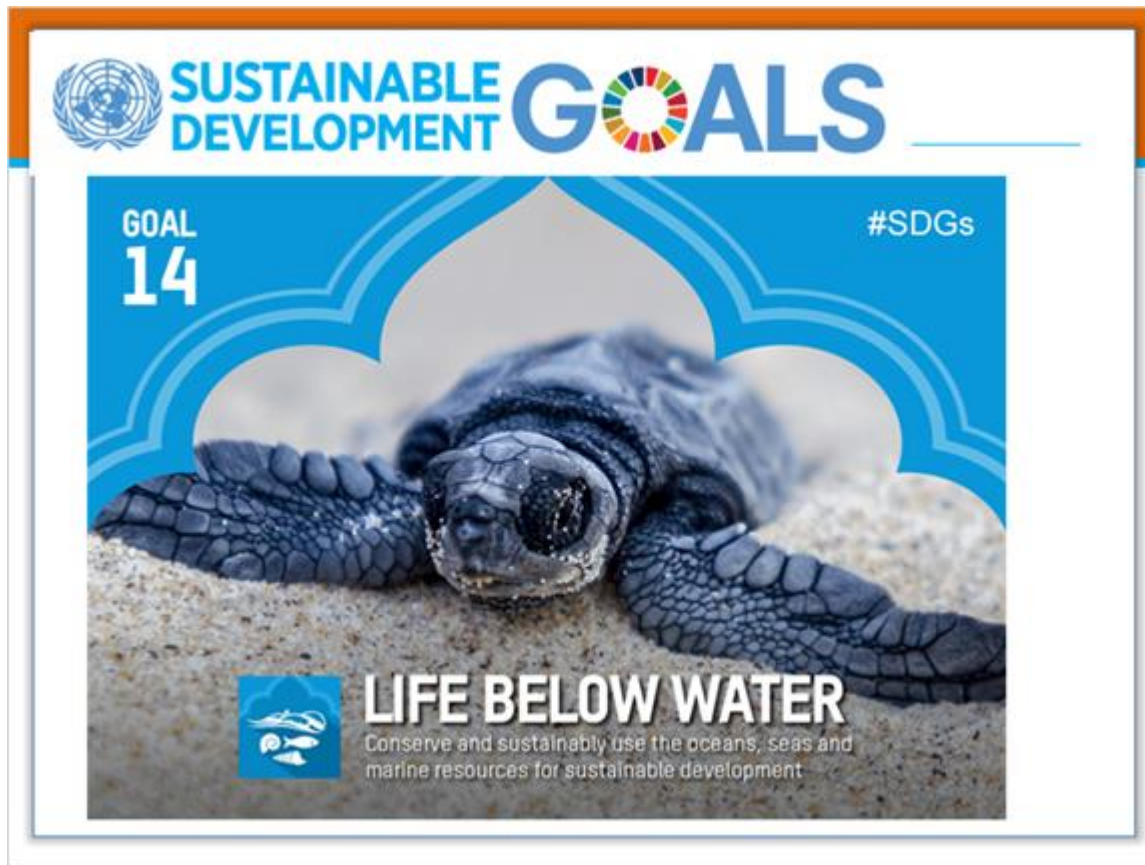


### Notes:

Small-scale fisheries also relate to the other SDG's for food security and conservation. Countries need to address small scale fishery matters in order to achieve many aspects under SDGs by 2030. In particular, target 14.b, within Goal 14 on "Life below water". Target of Goal 14.b is to - 'Provide access to small scale artisanal fishers to marine resources and markets.'



## 2.21 SDG Goal



### Notes:

Picture Courtesy: UNDP-India

## 2.22 References

### References

1. Voluntary guidelines for securing sustainable small scale fisheries – FAO.
2. World fisheries & aquaculture – FAO
3. Pauly, D., and D. Zeller. 2016. "Catch Reconstructions Reveal that Global Marine Fisheries Catches are higher than reported and declining."
4. Ruttan, L.M., F.C.J. Gayanilo, U.R. Sumaila, and D. Pauly. 2000. "Small Versus Large-scale Fisheries: A multi-species, Multi-fleet Model for Evaluating their interactions and potential benefits." In *Methods for Evaluating the impacts of fisheries on North Atlantic Ecosystem*, edited by D. Pauly and T.J. Pitcher.
5. Sumaila, U.R., Y. Liu, and P. Tyedmers. 2001. "Small Versus Large-scale Fishing Operations in the North Atlantic." In *Fisheries Impacts on North Atlantic Ecosystems: Evaluations and Policy Exploration* edited by T.J. Pitcher, U.R. Sumaila, and D. Pauly.
6. Sumaila, U.R., V. Lam, F. Le Manach, W. Swartz, and D. Pauly. 2016. "Global Fisheries Subsidies: An Updated Estimate."

Notes:

## 2.23 End of Lesson

End of Lesson

**14** LIFE  
BELOW WATER



**Congratulations!**

You have successfully completed the interactive  
lecture of the **Lesson 2:**

**Concept of Small-  
Scale Fisheries &  
Aquaculture**

TARGET 14-B



SUPPORT SMALL SCALE  
FISHERS

Notes:

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