



# Training Program of AITRS for 2018-2019 within the Framework for Developing Statistics that Support the Sustainable Development Goals (SDGs) 2030 in the Arab Region

## SDG Indicators under FAO Custodianship

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## GOAL 14. CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT



**14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics**

- **14.4.1** Proportion of fish stocks within biologically sustainable levels



# IMPORTANCE OF GLOBAL FISHERIES

- Fisheries and aquaculture are a vital source of nutritious food and protein for billions
- Worldwide nearly 3 billion people receive 20 percent of their daily animal protein intake from fish
- In 2014, 57 million people worked in the primary sector of capture fisheries, the vast majority in small-scale fisheries
- Including ancillary activities (e.g. processing and packaging) and dependants, these sectors support the livelihoods of some 820 million people around the world



# IMPORTANCE OF GLOBAL FISHERIES

- In 2014, for the first time ever, the world's population consumed more farmed fish than wild-caught fish.
- The share of world fish production utilized for direct human consumption has increased significantly in recent decades, up from 67 percent in the 1960s to 87 percent
- In 2014, fishery exports from developing countries were valued at US\$80 billion



# GLOBAL FISHERY STATISTICS

- In 2015 Asian countries produced 53% of global marine catches and 66% of inland catches

(million tonnes)	2014	2015
Inland capture	11.3	11.5
Marine capture	76.7	76.9
Total	91.1	92.6



# CHALLENGES OF THE FISHERY SECTOR

- The bulk of capture fisheries production comes from coastal waters, where both the productivity and quality of fish stocks are severely affected by pollution.
- Fleet overcapacities result in large economic losses - estimated at USD 50 billion/year - through inefficient utilization of resources that otherwise could support economic development and growth.
- Overfishing: Almost a third of marine fish stocks were fished at biologically unsustainable levels in 2013 (FAO SOFIA) and the decreasing trend is worrying
- Illegal, unreported and unregulated (IUU) fishing weighs in at around 11 million to 26 million tonnes each year [on 5 June 2018, first International Day against IUU fishing was celebrated]



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- **14.4.1** Proportion of fish stocks within biologically sustainable levels (Tier I)



# METHODOLOGY

- The indicator builds on the already established MDG indicator 7.4
- Measures the percentage of the assessed stocks within biologically sustainable levels
- ‘*Within biologically sustainable levels*’ means the abundance of the fish stock that is at or higher than the level that can produce the maximum sustainable yield (MSY)
- The basic benchmarks for the sustainability of fisheries are set by the UN Convention on the Law of the Sea (UNCLOS, Article 61(3))
- FAO has monitored the state of the world’s fishery stocks since 1974, classifying about 584 species every two or three years (these species assessed account for 70-80% of global catch) – FAO SOFIA (The State of World Fisheries and Aquaculture)



# METHODOLOGY

What is a stock?

- A **stock** refers to a unit of fish that is harvested and/or managed. This unit is typically defined by geographic location, and may or may not correspond to an individual population.
- A **fish population** is a group of single interbreeding individuals of the same species located in a given area.
- Often a population is composed of one or more stocks defined by management constraints (e.g., jurisdictional boundaries) and/or biology.



# METHODOLOGY

- The indicator measures the sustainability of fish resources based on two major considerations: **yield** and **reproduction**. When a stock is fished biologically sustainably, it produces good yield without impairing the stock's reproductivity, reaching a good balance between human use and ecological conservation.
- The proportion is only calculated based on stock numbers, without weighting either by its production volume or stock abundance, that is every fish stock is considered of the same importance.
- Fish stock assessment science defines the long term sustainability of fish resources as their abundance is fished at the level that produces the maximum sustainable level



# METHODOLOGY

- Fishery sustainability is defined based on **stock abundance**.
- To know stock abundance, one needs to carry out **stock assessment** that uses fish catch statistics, fishing effort data, biological information and surrogate biomass measures and fit the data to a **population dynamics model**.
- After completing stock assessment for all stocks concerned, fish stocks that have abundance at or above the level associated with the maximum sustainable yield are counted as biologically sustainable, and otherwise are considered as overfished.



## DATA SOURCES

- Assessments on stock status is provided by the cooperation with regional fishery bodies (RFBs) and FAO member countries
- Catch data are often reported to FAO by member countries, but fishing effort data and other biological data usually come from regional fishery management organizations.



## FAO FIRMS – THE FISHERIES AND RESOURCES MONITORING SYSTEM

- Access to a wide range of high-quality information on the global monitoring and management of fishery marine resources
- An information sharing partnership to facilitate the monitoring of stocks status among:
  - 14 International organizations
  - 19 Regional Fishery Bodies (RFBS)
- Monitoring is based on inventories of stocks and fisheries
- Each stock inventoried include information on the identification of single marine resources/stocks plus the indicators of Stock State and total catch (or landings)



# FAO FIRMS – THE FISHERIES AND RESOURCES MONITORING SYSTEM

- FIRMS database currently covers:
  - ✓ shared stocks under RFBs mandates
  - ✓ national stocks / assessment units
  - ✓ status of national fisheries



# REPORTING ON NATIONAL STOCKS

- Currently, SDG indicator 14.4.1 is only available at global level. However, FAO is developing new methods to allow for country reporting of fish stock sustainability status. This will entail:
  - ✓ A selection of species and identification of national stock units - national inventories of relevant fish stocks
  - ✓ Individual assessment of fish stocks
  - ✓ Stocks are Assessment results of individual stocks are published in monitoring systems
  - ✓ The proportion of sustainable fish stocks is compiled in time/space consistent ways



# REPORTING ON NATIONAL STOCKS

- Low capacities in developing countries for assessing individual stocks
  - ✓ traditional assessment methods are based on mathematical models
  - ✓ which methods to apply / who will do the assessment
- Catch / effort data not of sufficient quality
  - ✓ catch often not available by species ; fishing effort data often not available by fleet segment
  - ✓ geographic distribution often not precise enough
  - ✓ if available, time series are often short or difficult to reconstitute consistently in long term



# REPORTING ON NATIONAL STOCKS

- For Individual Stock status
  - ✓ countries assess themselves the status of stocks under their responsibility
  - ✓ countries are fully engaged and delegate the assessment e.g. as part of RFB process
  - ✓ countries are consulted and in a position to understand why stocks are presented with a given status
  
- For SDG monitoring / reporting – a standard-based fish stocks inventory mechanism
  - ✓ FAO offers facility for unique global stock identifiers (through FIRMS)
  - ✓ Publishing of such Unique Identifier constitutes a validation mechanism by FAO
  - ✓ These unique global identifiers are then used as references for countries



## 14.4.1: HOW FAO CAN SUPPORT

- Identification of a suitable set of stock assessment methods in Data Poor situations
  - Workshop organised in Rome in November 2017, with the participation of two Arab countries:

Morocco	Jilali Bensbai, Institut National de Recherche Halieutique (INRH-Casa)
Kuwait	Mohsen El-Husaini, Kuwait Institute for Scientific Research (KISR)

- Guidelines on the monitoring / reporting framework
- Expansion of the FIRMS model / partnership to support national stock status monitoring
- Ongoing development of an e-training curriculum



## GOAL 14. CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT



**14.7** By 2030, **increase the economic benefits** to small island developing States and least developed countries **from the sustainable use of marine resources**, including through sustainable management of fisheries, aquaculture and tourism

- **SDG indicator 14.7.1** Sustainable fisheries as a percentage of GDP in small island developing States, least developed countries and all countries



# OVERVIEW OF METHODOLOGICAL CHALLENGES

- Formulation of the indicator is unclear
- Definition of income from 'sustainable' and 'non sustainable' is likely to be problematic
- In consultation with Small Island Developing States, FAO started a reflection on a surrogate indicator that would:
  - ✓ better reflect the target
  - ✓ be feasible in terms of data collection



## OVERVIEW OF METHODOLOGICAL CHALLENGES

- A strict interpretation of the indicator would be based on the System of National Accounts (SNA) and the data that is collected through this process.
- This refers to the **fisheries valued added contribution to GDP** by country (but without reference to sustainability).
- This data is available to FAO for 120 countries
- Even though the SNA sets out fairly straightforward procedures, in practice its application can vary. Use of this indicator would require data consistency, both over time and across countries.



## OVERVIEW OF METHODOLOGICAL CHALLENGES

- While this indicator is simple to calculate it does not provide a full picture of the contribution of fisheries to GDP:
  - ✓ The sector captured by the SNA is related to the “fishing” activity, rather the more inclusive “fisheries” sector.
  - ✓ Post-harvest activities, including fish processing, are not included in the fishing sector for the purpose of the SNA
  - ✓ In addition, the GDP approach does not take into account sustainability criteria when estimating the contribution of fisheries to GDP



## ADDITIONAL INDICATORS

- Two potential additional indicators have been proposed for target 14.7 within the context of the 2020 comprehensive review:
  - ✓ The economic impact of sustainable fisheries, aquaculture, tourism and other coastal and marine resources uses
  - ✓ The productivity of aquaculture
- FAO has already sent feedback to the IAEG-SDG
  - ✓ Unclear how to assess “economic impact”, if not again as *value added* in the same approach as 14.7.1.
  - ✓ Measuring aquaculture productivity is extremely complicated because it is not clear which input could be used (area, feed, wild stock). Plus, 90% of aquaculture is concentrated in Asia



Food and Agriculture  
Organization of the  
United Nations



# THANK YOU

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**For more detailed information please see:**

- <http://www.fao.org/sustainable-development-goals/indicators/1441/en/>
- <http://www.fao.org/sustainable-development-goals/indicators/1471/en/>