



# The Economic Impact of the Caribbean Blue Economy

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BLUE ECONOMY SATELLITE ACCOUNTS

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An underwater scene with a blue gradient background. In the foreground, there are various types of coral, including branching and staghorn coral. A school of small fish is swimming in the middle ground. The overall lighting is dim, typical of an underwater environment.

**01**

**BLUE ECONOMY RECAP**

**02**

**BE SATELLITE ACCOUNTS**

**03**

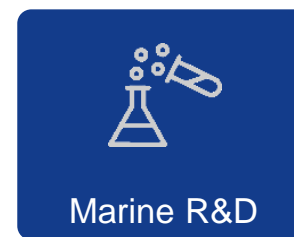
**CASE STUDY: JAMAICA**

# What do we mean by “Blue Economy”?

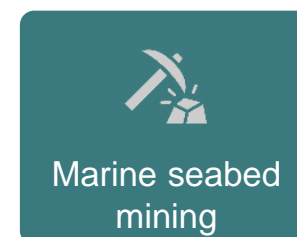
“ **Blue Economy:**  
A **sustainable** ocean economy, where **economic activity** is in balance with the **long-term capacity** of ocean ecosystems to support this activity and remain **resilient and healthy.**”

Economist Intelligence Unit 2015

## Established Industries



## Emerging Industries





# How important is the Blue Economy?



**40%**

of the world's population  
lives at or near the coast



**880 million**



people depend on the  
**fisheries and  
aquaculture** for their  
livelihoods, many  
from developing and  
coastal states

**By 2030, ocean-based industries  
will provide:**



**40 million**

direct full-time equivalent jobs  
- up from 31 million in 2010



**US\$3 trillion**

value added to global economy,  
- doubling from 2010



Coral reefs reduce

**97%** of wave  
energy,

acting as a barrier  
from storms

**In the Caribbean...**

**18%**



of the region's economy was  
generated in the ocean in 2012



Some countries have  
an **EEZ** that is  
**75x larger**  
than the **land area**



An underwater scene with a blue gradient background. In the foreground, there are silhouettes of coral reefs. A school of small fish is swimming in the middle ground. The overall tone is deep blue, suggesting an underwater environment.

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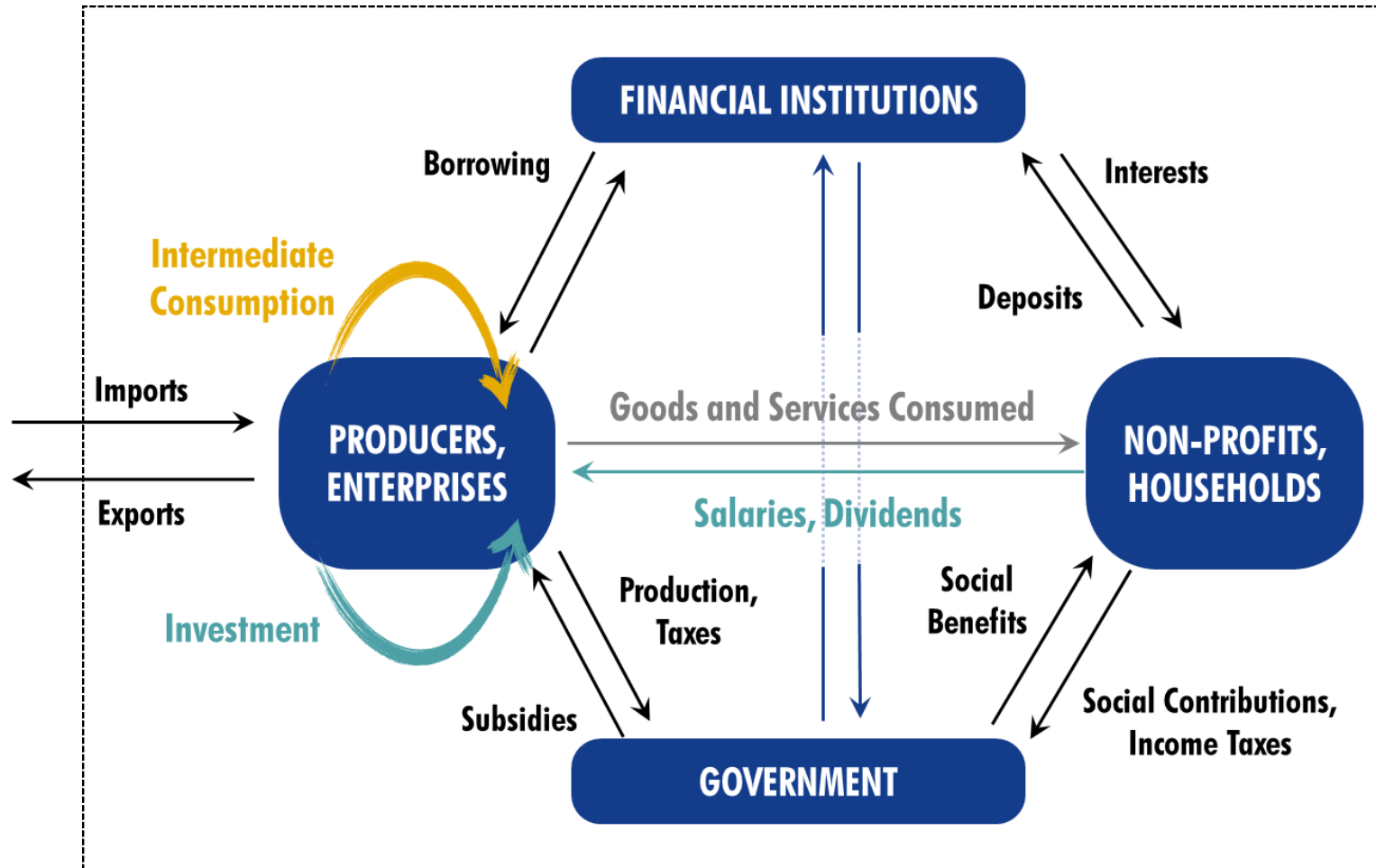
**03**

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# How is economic activity currently measured?



## System of National Accounts (SNA)

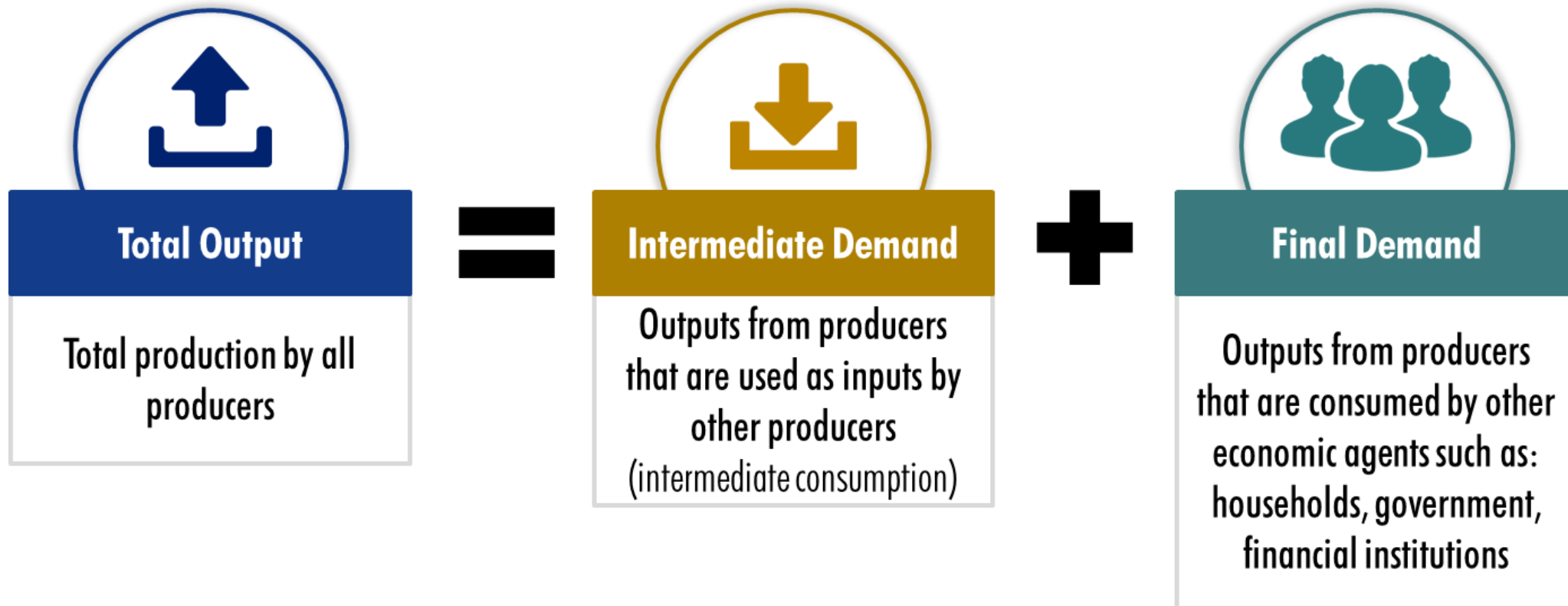


There is a unique interaction between the economic agents in the economy.

These transactions are what the SNA tries to measure.



# How is economic activity currently measured?



# How is GDP calculated?

**Gross Valued Added (GVA)<sup>n</sup> =**

$$\sum_{i=1}^n \text{production}_i - \text{intermediate consumption}_i$$

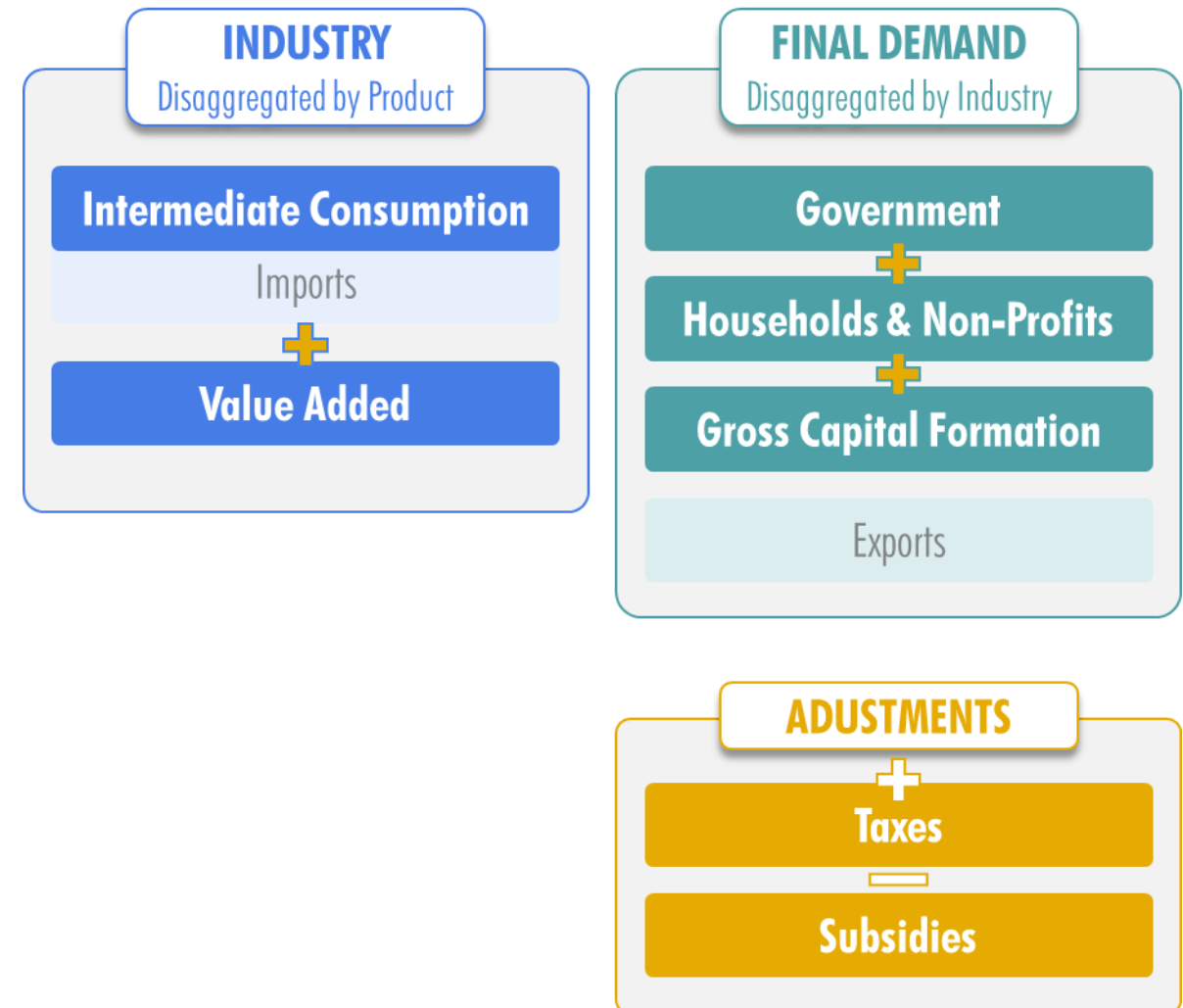
**GDP at current market prices =**

GVA at basic prices

+ taxes on products

– less subsidies on products

## Supply-Use Framework

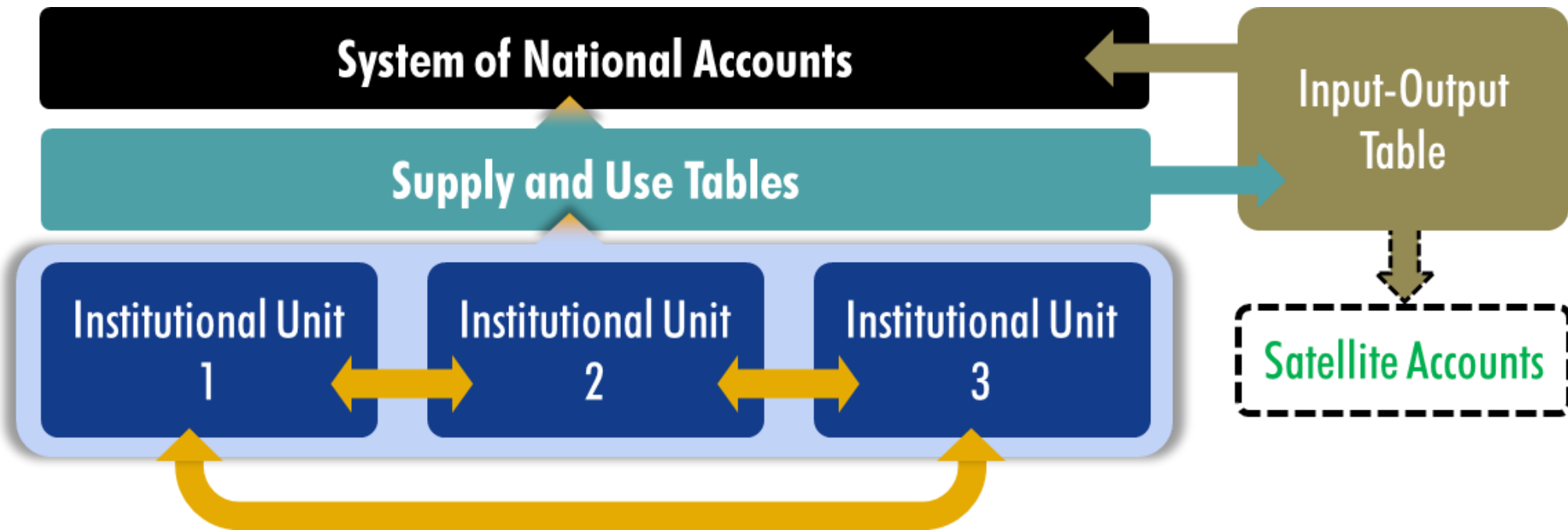




# How does micro-level data link to the overall SNA?



## System of National Accounts Process



# What is the value of a Satellite Account?



Satellite Accounts provides micro-analysis on a specific area of activity in the SNA

## **PRECISE**

Enables meticulous analysis of the economic benefits of a certain sector or set of activities

## **COMPARABLE**

Benefits can be more accurately compared across country and over time



# What is the *Leontief Inverse Matrix* methodology?



## Understanding the **Z** matrix:

There are **n** industries in the BE that use other BE products as intermediate inputs

$$\begin{bmatrix} Z_{11} & \dots & Z_{1n} \\ \vdots & & \vdots \\ Z_{n1} & \dots & Z_{nn} \end{bmatrix}$$

The **total of this row** represents the total of outputs from all **n** industries used as inputs into the **first** industry

The **total of this column** represents the total of outputs from the **first** industry used as inputs into all **n** industries

## Understanding the **f** matrix:

This represents the final demand in each of the **n** industries

$$\begin{bmatrix} f_1 \\ \vdots \\ f_n \end{bmatrix}$$

The **total of this column** represents the total final demand of all **n** industries

## Understanding the **O** matrix:

This represents the total output for each of the **n** industries that are used as either for final demand or as inputs into all (not just BE) industries

$$\begin{bmatrix} O_1 \\ \vdots \\ O_n \end{bmatrix}$$

The **total of this row** represents the total output of all **n** industries

## Understanding the **i** matrix:

This **nxn** matrix, called the identity or unit matrix, is a standard feature of linear algebra

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

### STEP 1

$$\text{Calculate } \mathbf{A} = \mathbf{Z} \div \mathbf{O}$$

**A** is the share of industry output used as inputs in each of the **n** industries

### STEP 2

$$\text{Calculate the } (\mathbf{i}-\mathbf{A}) \text{ matrix} = \mathbf{i} - \mathbf{A}$$

### STEP 3

$$\text{Calculate the inverse of the } (\mathbf{i}-\mathbf{A}) \text{ matrix} = (\mathbf{i}-\mathbf{A})^{-1}$$

### STEP 4

$$\text{Calculate } \mathbf{x} = (\mathbf{i}-\mathbf{A})^{-1} + \mathbf{f}$$

An underwater scene with a blue gradient background. In the foreground, there are silhouettes of coral reefs. In the middle ground, a school of small fish is swimming. The overall tone is deep blue, with a yellow highlight on the third item.

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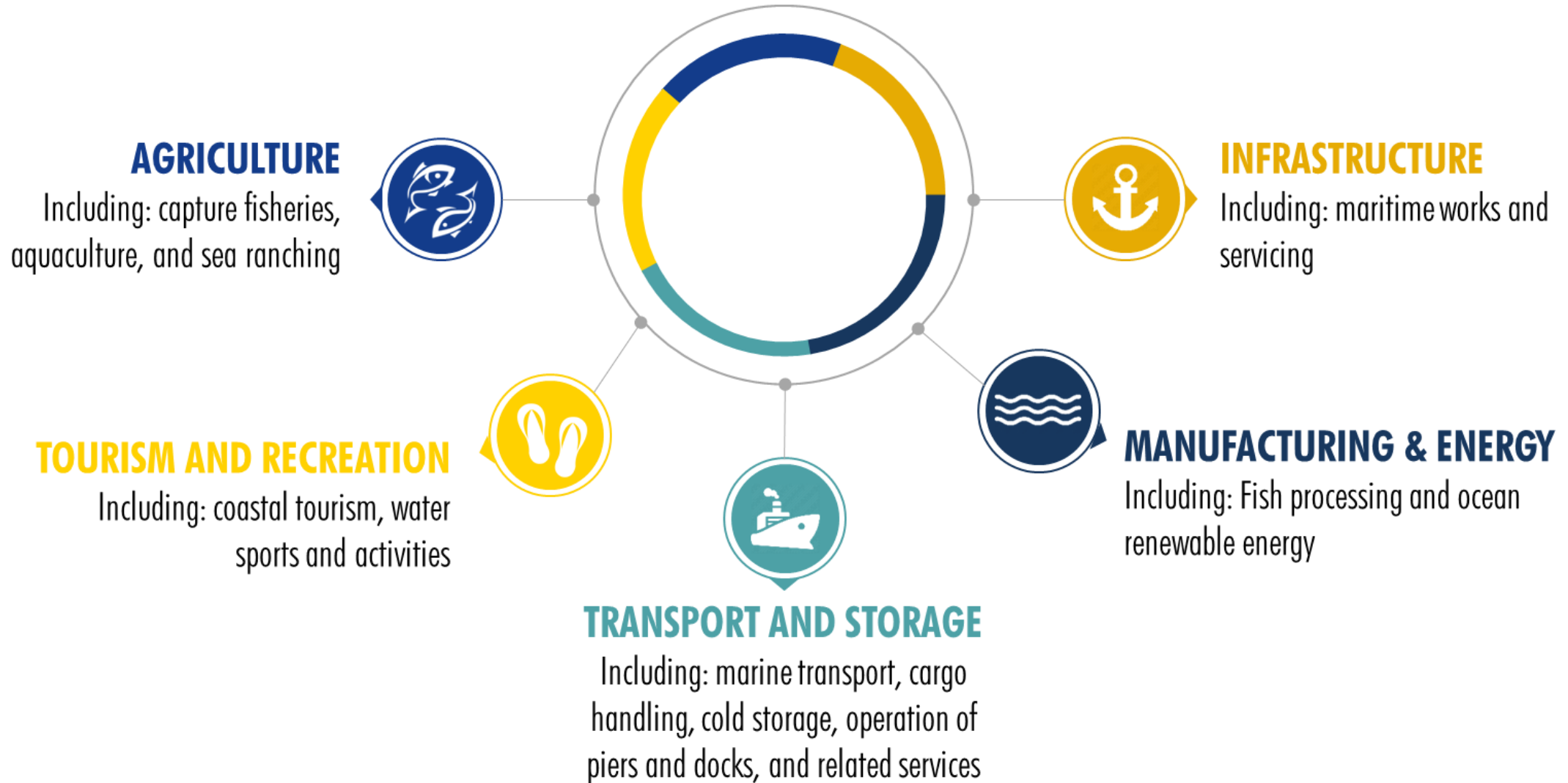
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# What activities are included in the Jamaica BESA?



# What is the BE's impact on Jamaica's GDP?

**Blue Economy Industry Indicator**  
Percentage of Gross Value Added (Direct and Indirect)

Indicator	2012	2013	2014	2015	2016	2017
Visitor Accommodation	3.1	3.2	3.4	3.4	3.4	3.4
Maritime Transport	2.1	2.1	2.1	2.0	2.0	2.1
Fishing	0.4	0.4	0.5	0.5	0.5	0.5
Tourism and Recreation Services	0.8	0.8	0.8	0.8	0.8	0.9
<b>BE Activities</b>	<b>6.4</b>	<b>6.5</b>	<b>6.8</b>	<b>6.7</b>	<b>6.7</b>	<b>6.9</b>

**Blue Economy activities** had a measureable and direct impact of **6.9%** of GDP in 2017

On average, the BE was **6.7%** of GDP between 2012 and 2017



# How do BE investments flow through the economy?



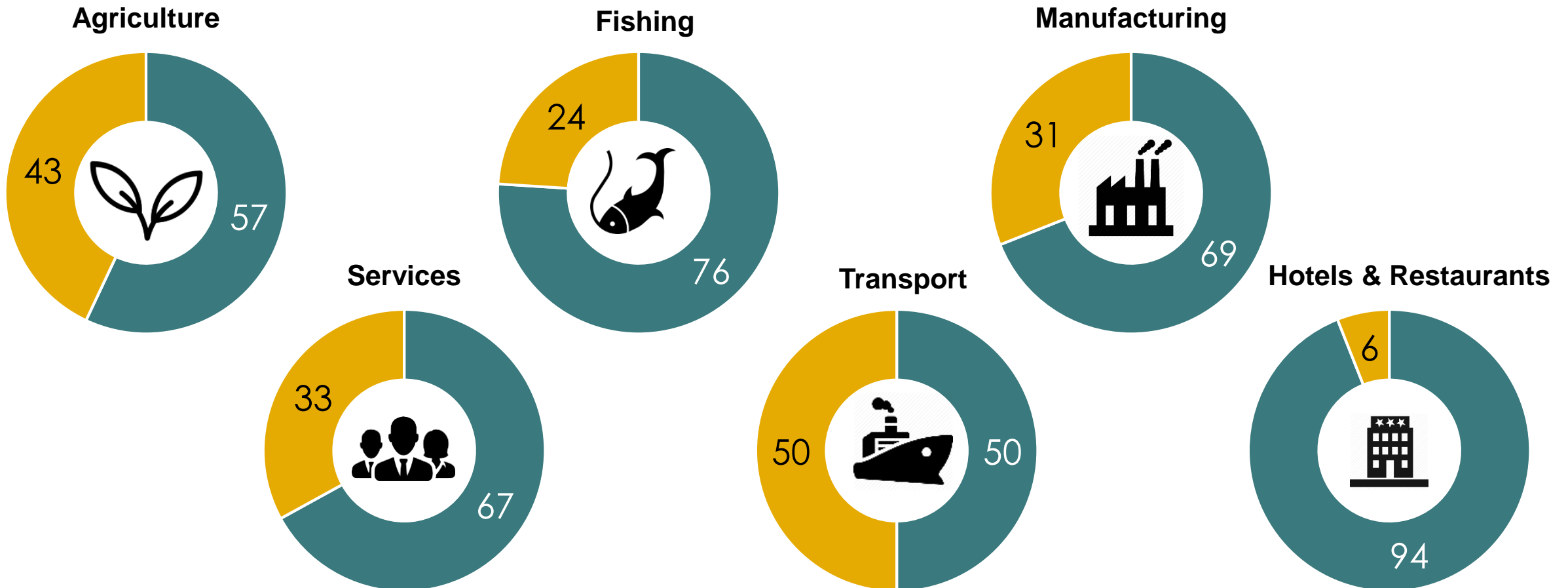
## Industry Output by % Demand



Demand for Final  
Consumption



Demand for  
Intermediate  
Consumption



# How do BE investments flow through the economy?



Increase Tourism Industry's Final Demand by



**10%**



## Impact on Total Output of all BE Industries

% Change in GDP

Agriculture



**1.0%**

Manufacturing



**0.6%**

Fishing



**1.6%**

Hotels & Restaurants



**9.5%**

Services



**0.4%**

Transport



**0.3%**



# THANK YOU

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