

# UN's System of Environmental Economic Accounting (SEEA) a Conversation

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# About me

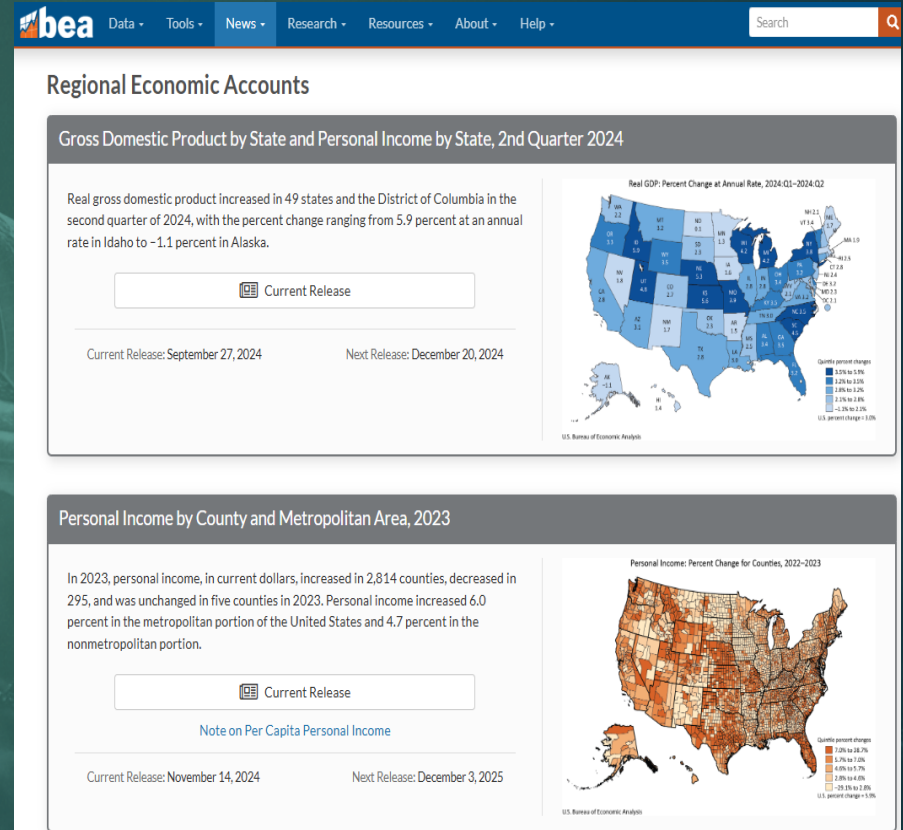
- Agricultural and Resource Economist, 25 years, Stantec
- Adjunct Professor, Western Washington University
- Prior career in accounting and finance in Silicon Valley
- NOT affiliated with the United Nations, just an admirer of the Environmental Programme
- Malcolm Gladwell, author of The Tipping Point, identified 3 kinds of people coming together to create a “Tipping”
  - A connector (computer network hub),
  - A maven (information specialist) and
  - A salesperson (ability to persuade)

# Framework for a Conversation

- Common thread of:
  - Accounting
  - The Environment
  - Economics
  - Malcolm Gladwell's The Tipping Point
- Can, should and how could we **Tip** to an International system of accounts to help understand current conditions, and make informed policy choices?

# Framework to Consider the SEEA – BEA data

- Consider **economic** analysis
- The United States Bureau of Economic Analysis has a system of accounts used to report all States economic information



The screenshot displays the BEA website interface. At the top, there is a navigation bar with links for Data, Tools, News, Research, Resources, About, and Help, along with a search bar. The main content area is titled "Regional Economic Accounts" and features two data releases.

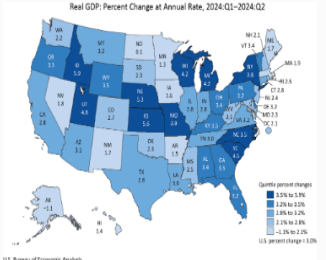
### Regional Economic Accounts

#### Gross Domestic Product by State and Personal Income by State, 2nd Quarter 2024

Real gross domestic product increased in 49 states and the District of Columbia in the second quarter of 2024, with the percent change ranging from 5.9 percent at an annual rate in Idaho to -1.1 percent in Alaska.

[Current Release](#)

Current Release: September 27, 2024      Next Release: December 20, 2024



Real GDP: Percent Change at Annual Rate, 2024:Q1-2024:Q2

Quantile percent changes:  
■ 5.9% to 9.9%  
■ 3.0% to 5.9%  
■ 1.1% to 3.0%  
■ -1.1% to 1.1%  
■ -3.0% to -1.1%  
U.S. percent change = 3.0%

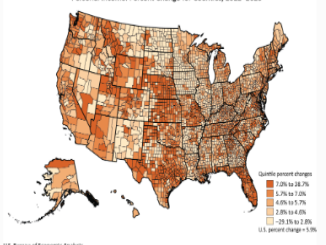
#### Personal Income by County and Metropolitan Area, 2023

In 2023, personal income, in current dollars, increased in 2,814 counties, decreased in 295, and was unchanged in five counties in 2023. Personal income increased 6.0 percent in the metropolitan portion of the United States and 4.7 percent in the nonmetropolitan portion.

[Current Release](#)

[Note on Per Capita Personal Income](#)

Current Release: November 14, 2024      Next Release: December 3, 2025

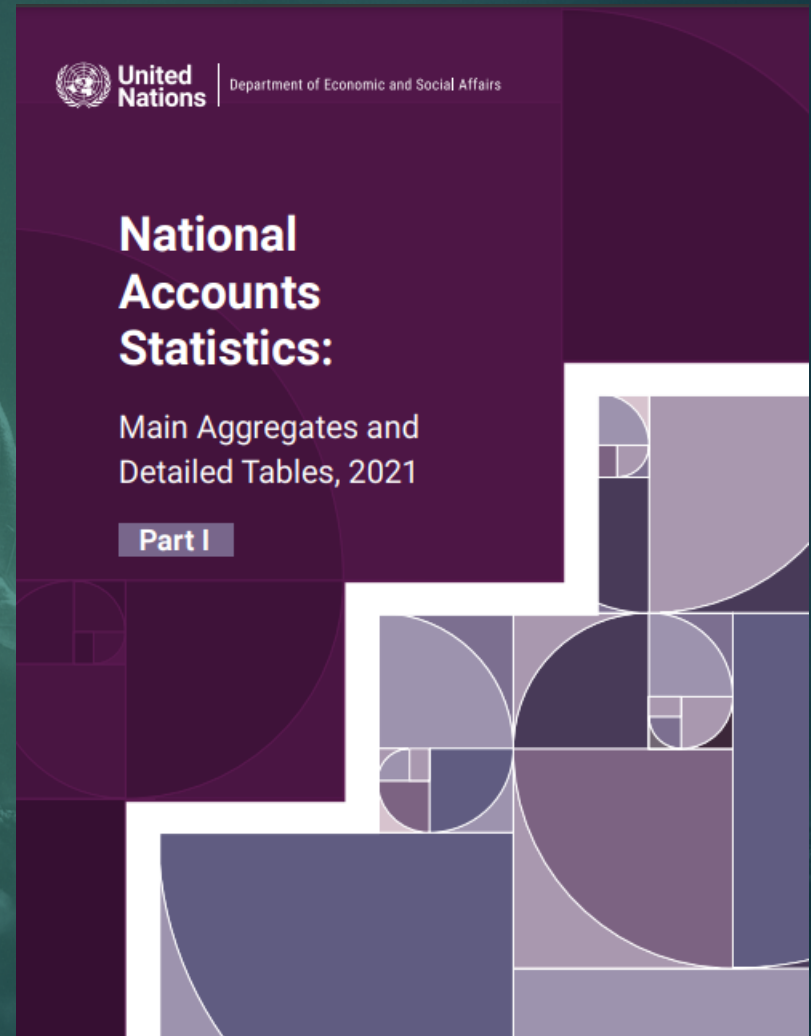


Personal Income: Percent Change for Counties, 2022-2023

Quantile percent changes:  
■ 7.0% to 24.2%  
■ 5.0% to 7.0%  
■ 3.0% to 5.0%  
■ 1.0% to 3.0%  
■ -1.0% to 1.0%  
U.S. percent change = 3.0%

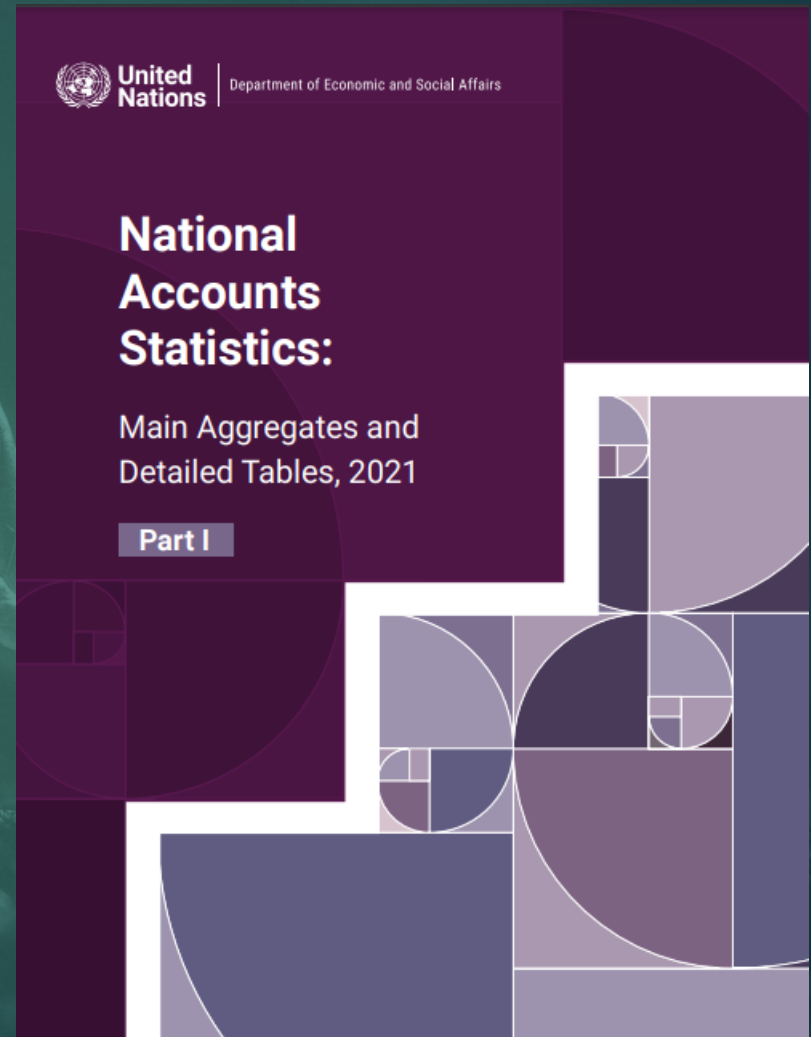
# Framework to Consider the SEEA-NAS

- The UN has its System of National Accounts (SNA) an international standard system of national accounts that provides a integrated, system of accounts for economic analysis, decisions making and policy making, it results in higher international comparability



# Framework to Consider the SEEA - NAS

- Accounts include:
  - Current accounts, to record the production of goods and services
  - Production accounts, to record the activity of producing goods, Value added
  - Accumulation accounts record acquisition & disposal of assets
  - Balance sheets, the value of assets and liabilities



# Something Similar for Environment?

- The System of Environmental and Economic Accounting (SEEA):
  - Follows similar accounting structure to the System of National Accounts, but it also includes broader forms of wealth like natural capital and ecosystem services
  - Is comparable across time and nations making it a useful monitoring framework for global environmental and development initiatives (like the UN's Sustainable Development Goals & the Paris Agreement)
  - Provides actionable information for policy making by organizing environmental and economic data

# System of Environmental Economic Accounting (SEEA)

- Developed by the United Nations Environment Programme, beginning in the early 1990s
- A framework to compile statistics linking environmental statistics to economic statistics,
- Provide comprehensive, consistent and comparable policy relevant information to decision makers
- In 2012 the UN Statistical Commission adopted the SEEA as a Statistical Standard

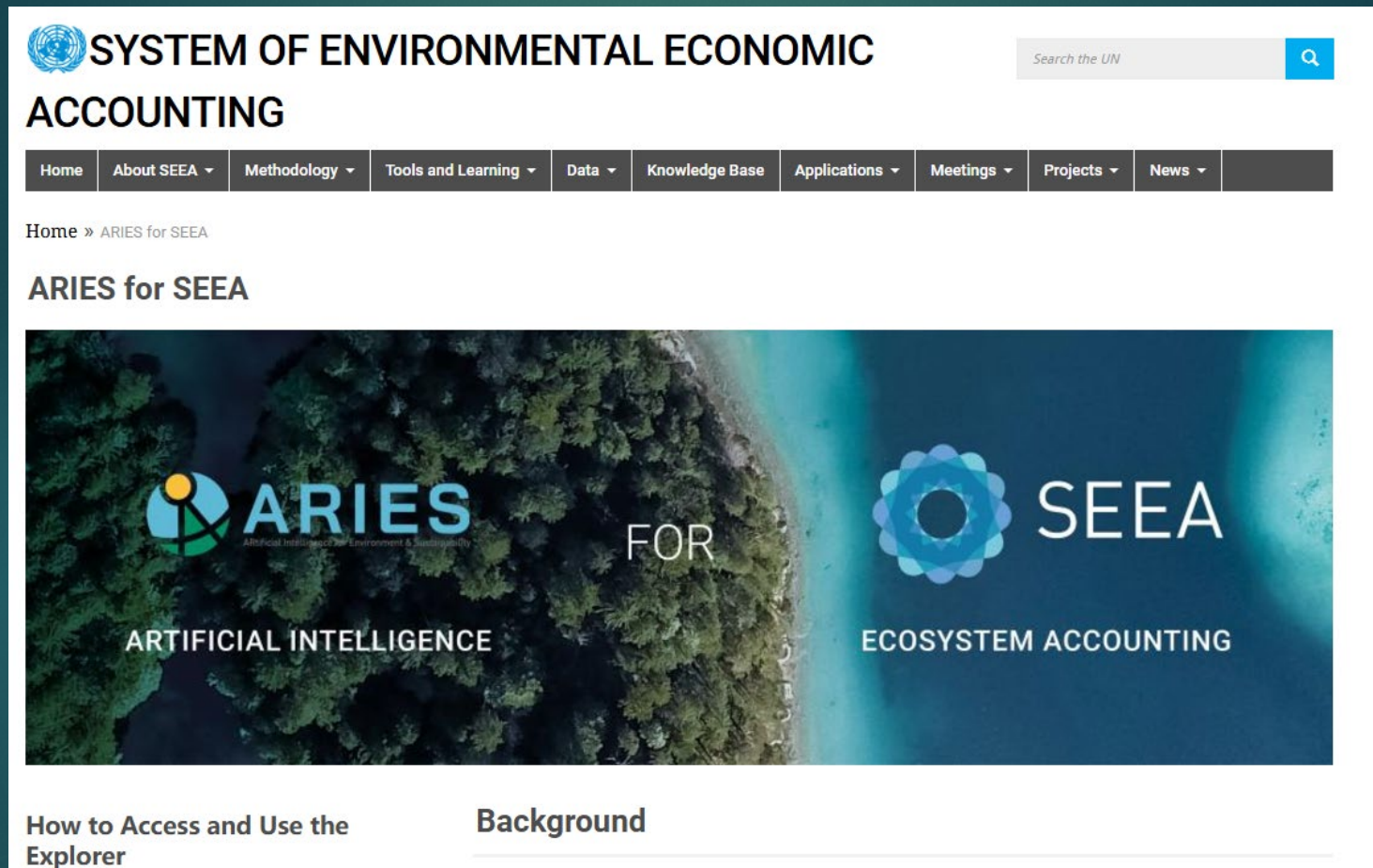


# SEEA builds from data, to accounts to indicators



Source: <https://seea.un.org/content/frequently-asked-questions>

# Artificial Intelligence for Data



The screenshot shows the top navigation bar of the System of Environmental Economic Accounting (SEEA) website. The main title is "SYSTEM OF ENVIRONMENTAL ECONOMIC ACCOUNTING". A search bar is located on the right. Below the navigation bar, the breadcrumb "Home » ARIES for SEEA" is visible. The main heading is "ARIES for SEEA". The central banner features an aerial view of a forest and ocean, with the ARIES logo (Artificial Intelligence for Environment & Sustainability) on the left and the SEEA logo (Ecosystem Accounting) on the right. Below the banner, there are two tabs: "How to Access and Use the Explorer" and "Background".

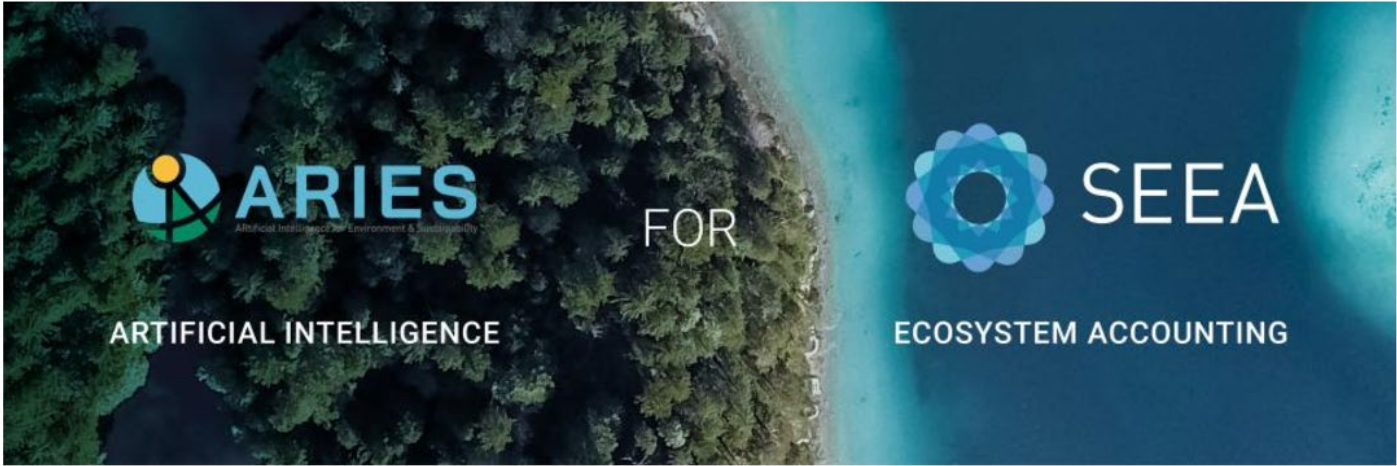
**SYSTEM OF ENVIRONMENTAL ECONOMIC ACCOUNTING**

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Home » ARIES for SEEA

## ARIES for SEEA



ARIES FOR SEEA

ARTIFICIAL INTELLIGENCE ECOSYSTEM ACCOUNTING

How to Access and Use the Explorer Background

Source: <https://seea.un.org/content/aries-for-seea>

Demo: <https://aries.integratedmodelling.org/>

# Ecosystem Accounting

- Five core accounts, compiled with spatially explicit data:
  1. ECOSYSTEM EXTENT account, measures total area
  2. ECOSYSTEM CONDITION account, measures condition
  3. & 4. ECOSYSTEM SERVICES flow accounts (physical and monetary) record the supply of ecosystem services
  5. MONETARY ECOSYSTEM ASSET accounts inform on stocks and changes in stocks
- also 'thematic accounting', organizes data around policy-relevant environmental themes, such as biodiversity, climate change, oceans and urban areas.
- Demo: <https://seea.un.org/ecosystem-accounting>

# Using SEEA for Indicators

Provides actionable information for policy making by organizing environmental and economic data

Demo:<https://seea.un.org/content/indicators-and-natural-capital-accounting>

Assessing the linkages  
between global indicator  
initiatives, SEEA Modules and  
the SDG Targets  
Report of the NCAVES Project



# Using SEEA for Indicators

## Using the SEEA EA for Calculating Selected SDG Indicators

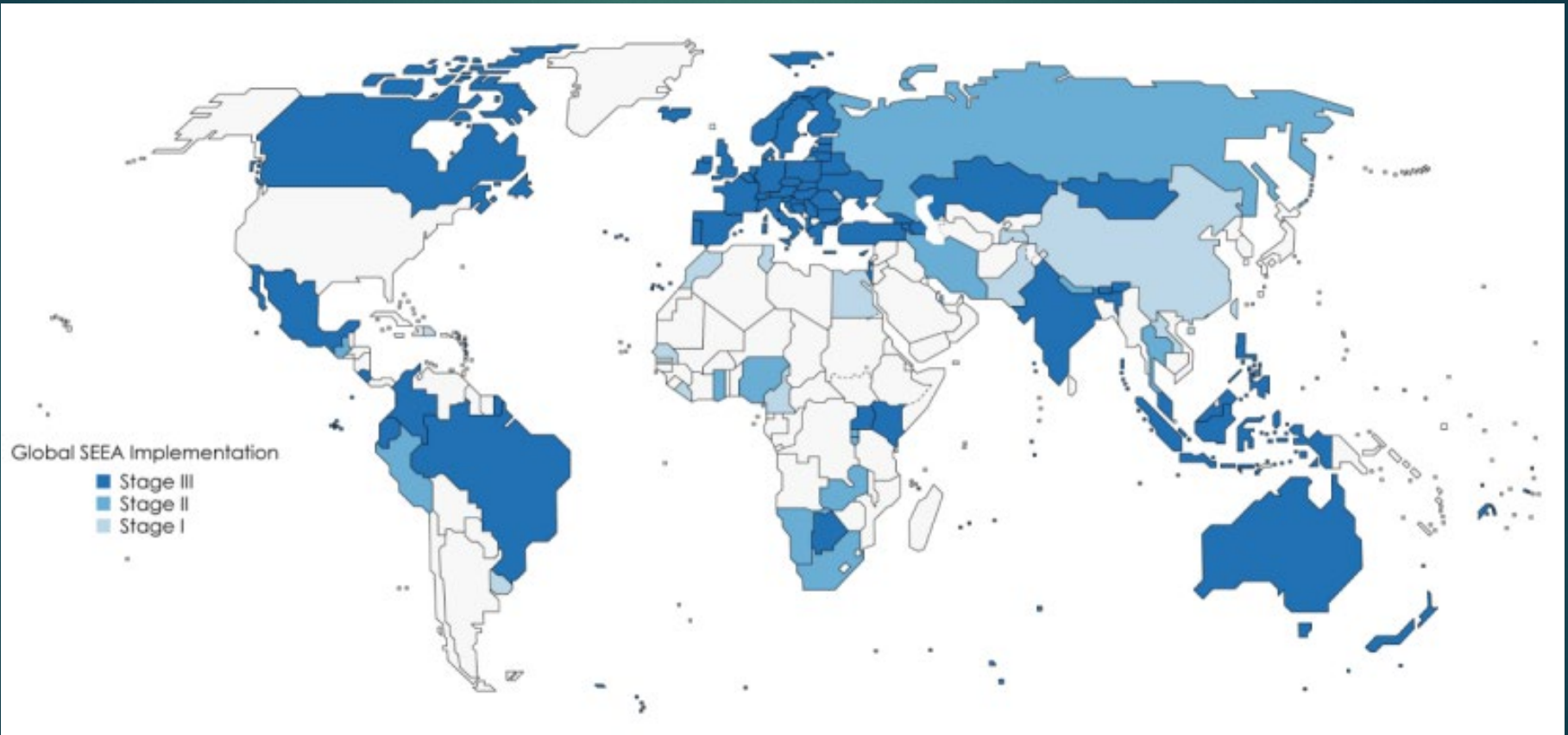
### 1 Introduction

This document presents a set of technical notes describing approaches to calculate four priority Sustainable Development Goal (SDG) indicators, as described in Section 1.2. These SDG indicators were identified as priorities based on an initial report: *Assessing the linkages between global indicator initiatives, SEEA Modules and the SDG Targets*, also produced by UNEP-WCMC and UNSD as part of the NCAVES indicator work stream (see UNSD, 2019). The technical notes presented in this document concern the following global SDG Indicators:

- SDG Indicator 15.1.1 – Forest area as a proportion of total land area.
- SDG Indicator 15.3.1 - Proportion of land that is degraded over total land area.
- SDG Indicator 6.6.1 – Change in the extent of water-related ecosystems over time.
- SDG Indicator 11.7.1 – Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities

# Early Adopters?

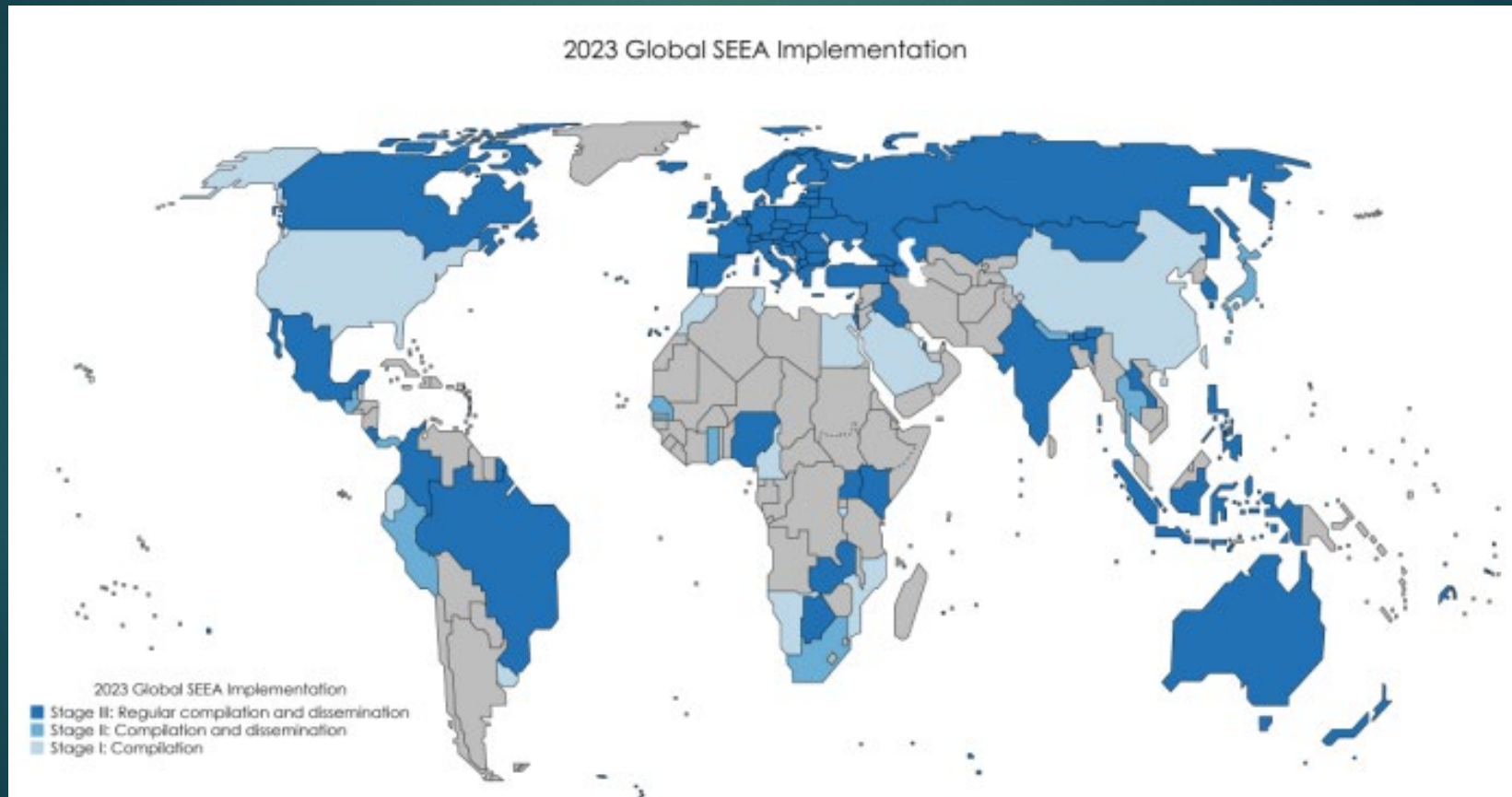
As of 2021 90 countries have compiled SEEA accounts...



Source: <https://seea.un.org/content/frequently-asked-questions>

# Continued Adoption...

By 2023 the US began compilation and dissemination...



Source: <https://sea.un.org/content/global-assessment-environmental-economic-accounting>

# US Contribution and Implementation



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NEWS

Artificial Intelligence for Ecosystem Accounting (ARIES for SEEA)

ARTIFICIAL INTELLIGENCE



SEEA

ECOSYSTEM ACCOUNTING

“In collaboration with the United Nations (U.N.) and Basque Centre for Climate Change, the USGS built a tool called ARIES for SEEA. ARIES for SEEA enables countries to more rapidly assemble natural capital accounts using the best-available data and models. ARIES for SEEA improves the reusability of scientific data and models. ...

Source: <https://www.usgs.gov/special-topics/year-of-open-science/news/artificial-intelligence-ecosystem-accounting-aries-seea>



# The Conversation and Beyond

- Is it possible?
- Where/how would you implement this?
- At the next ACES could we have a session showing where its being implemented?