MAPPING ECOSYSTEM EXTENT AND CONDITION IN WEST PAPUA, INDONESIA

Max Wright and Anurag Ramachandra

NASA Biodiversity and Ecological Forecasting meeting

5/23/2019

CONSERVATION INTERNATIONAL

PROJECT OBJECTIVES

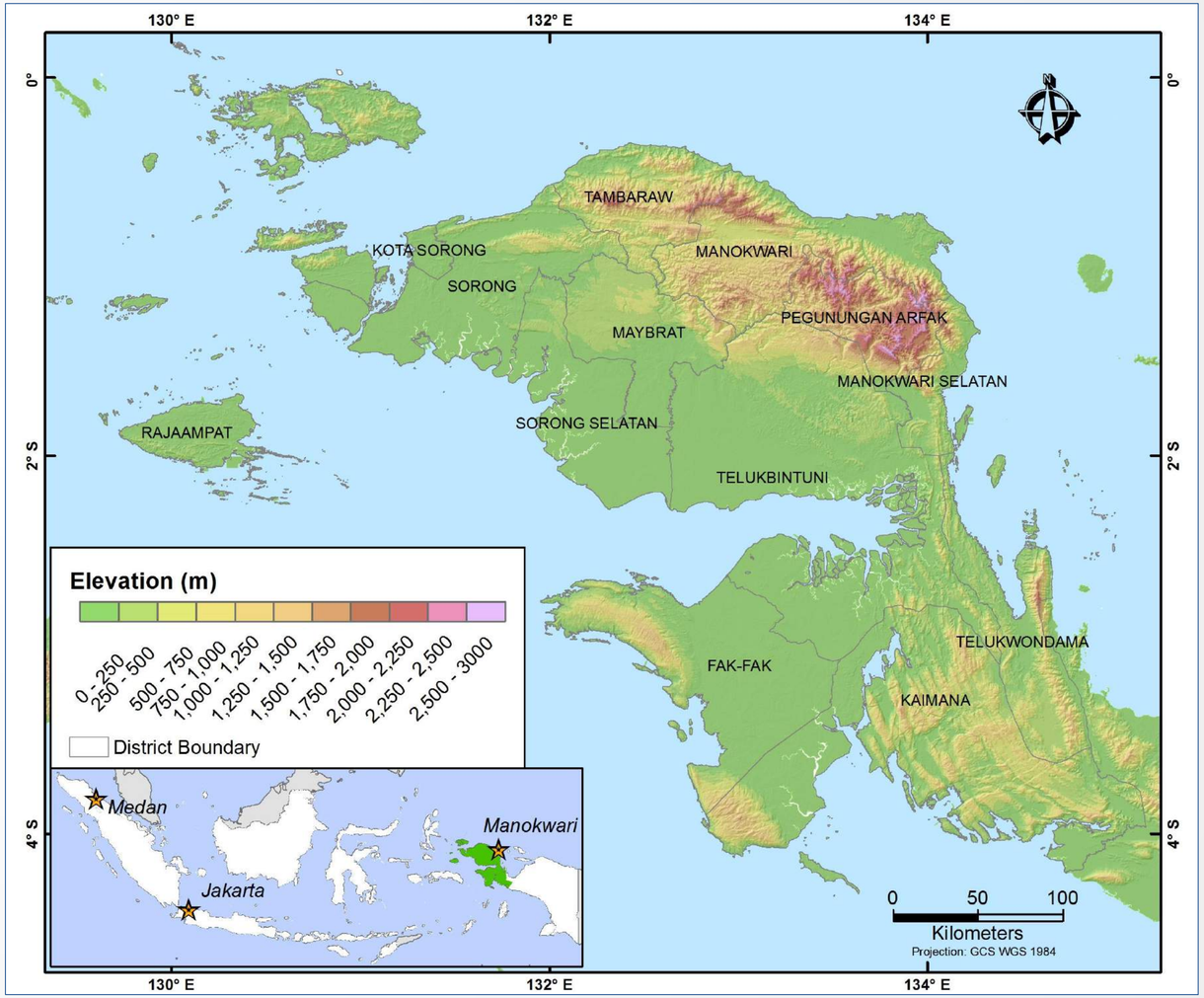
1. Develop Ecosystem Extent Account and assess feasible Condition Accounts for the province of West Papua, Indonesia.
2. Support the provincial government’s vision for conservation, green growth, and implementation of West Papua’s Conservation Province initiative.
3. Support Indonesian government plan for valuing natural capital in their accounting and planning processes.

ENVIRONMENTAL ACCOUNTING IN INDONESIA

- UNSD supporting Indonesia with its Environmental Accounting since 1990
- Indonesia's Statistical Agency (BPS) has been publishing the System of Integrated Environmental and Economic Accounts (*SISNERLING*) since 1997
- Worldbank WAVES program is working with sector ministries (MoF, Bappenas, MoEF) and the national statistical agency (BPS) to develop land accounts.
  - Islands of Sumatra and Kalimantan (Indonesian Borneo)
  - Methods and Results to be released in August 2019

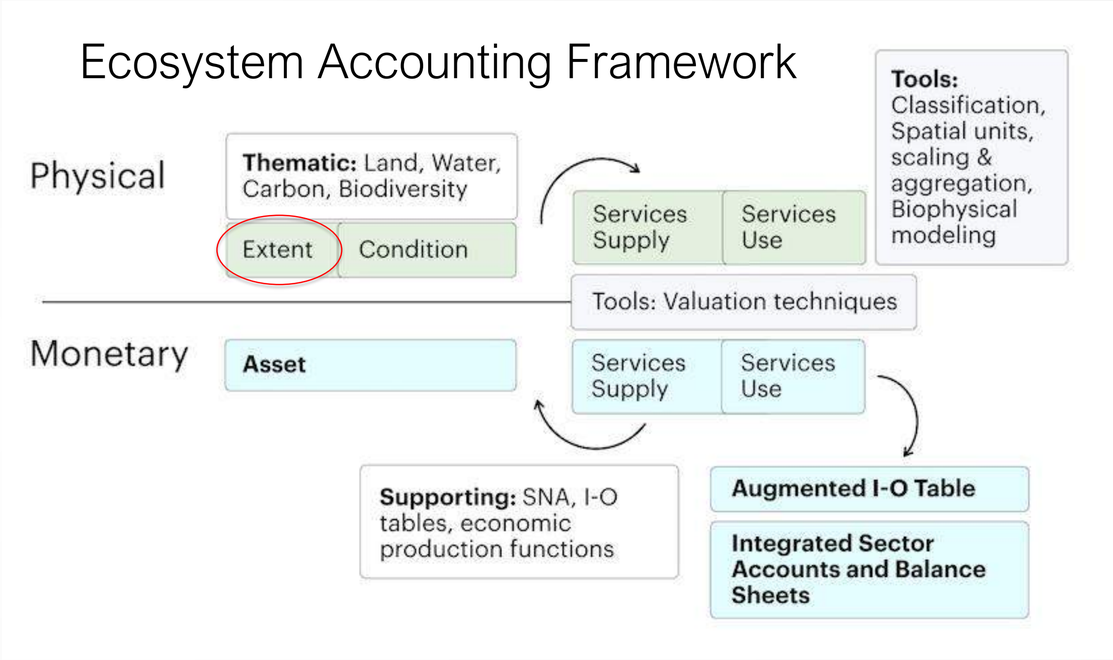
BACKGROUND ON WEST PAPUA

- Still 90% forest but now a new frontier for agriculture expansion and deforestation
- In 2015, the governor proclaimed West Papua as a Conservation Province.
- October 2015, Manokwari Declaration signed committing to the conserve 70% of the forest cover in West Papua
- Aspiration to protect at least 50% of all ecosystem types



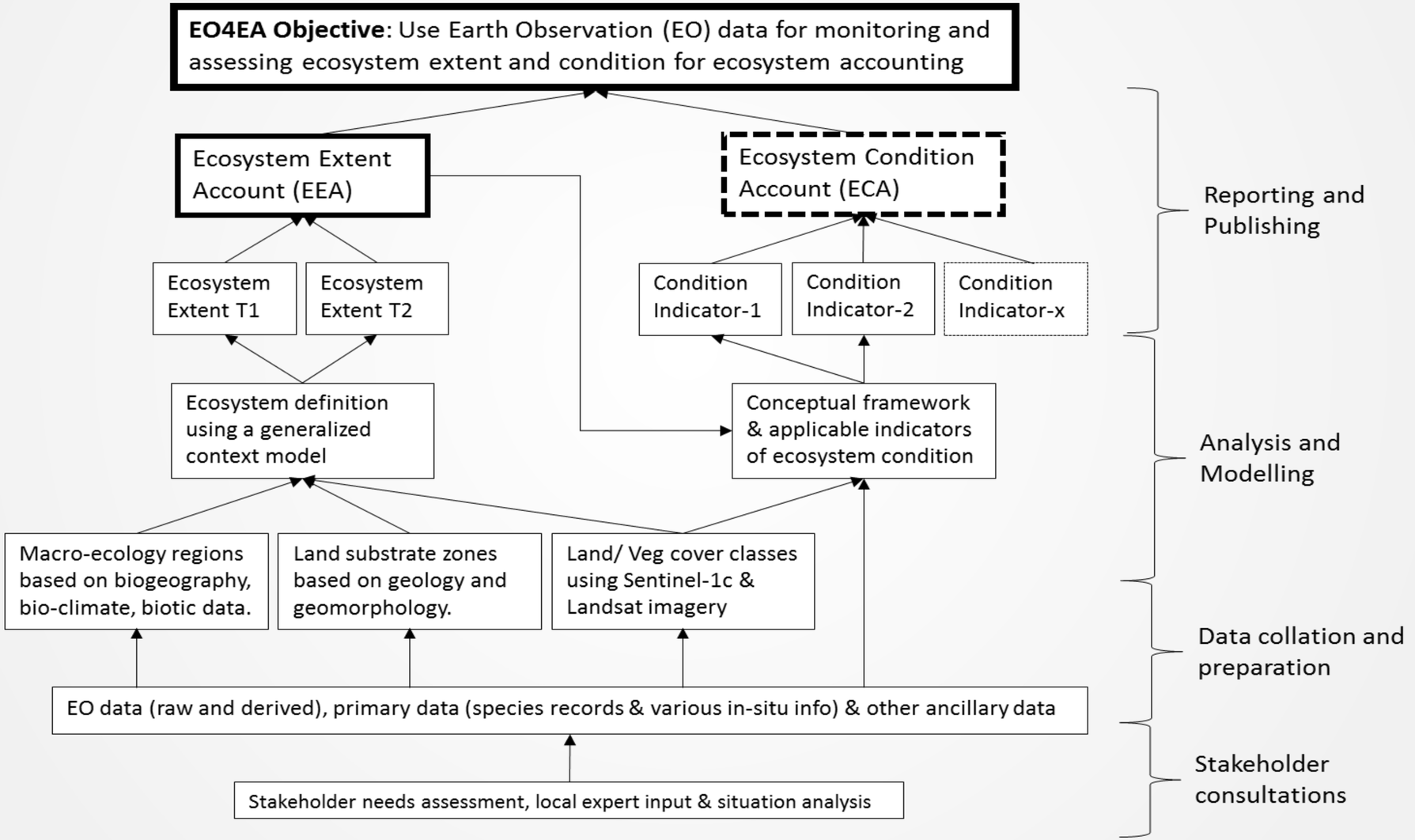
SEEA-EEA & EO4EA

- The System of Environmental Economic Accounting (SEEA) is a UN standard and includes the Experimental Ecosystem Account (EEA)
- Earth Observation for Ecosystem Accounting (EO4EA) is a GEO Initiative, supported by NASA, that seeks to leverage EO data for accounting
- Ecosystem extent is the foundational account in ecosystem accounting



EARTH OBSERVATIONS FOR ECOSYSTEM ACCOUNTING

THEORETICAL FRAMEWORK

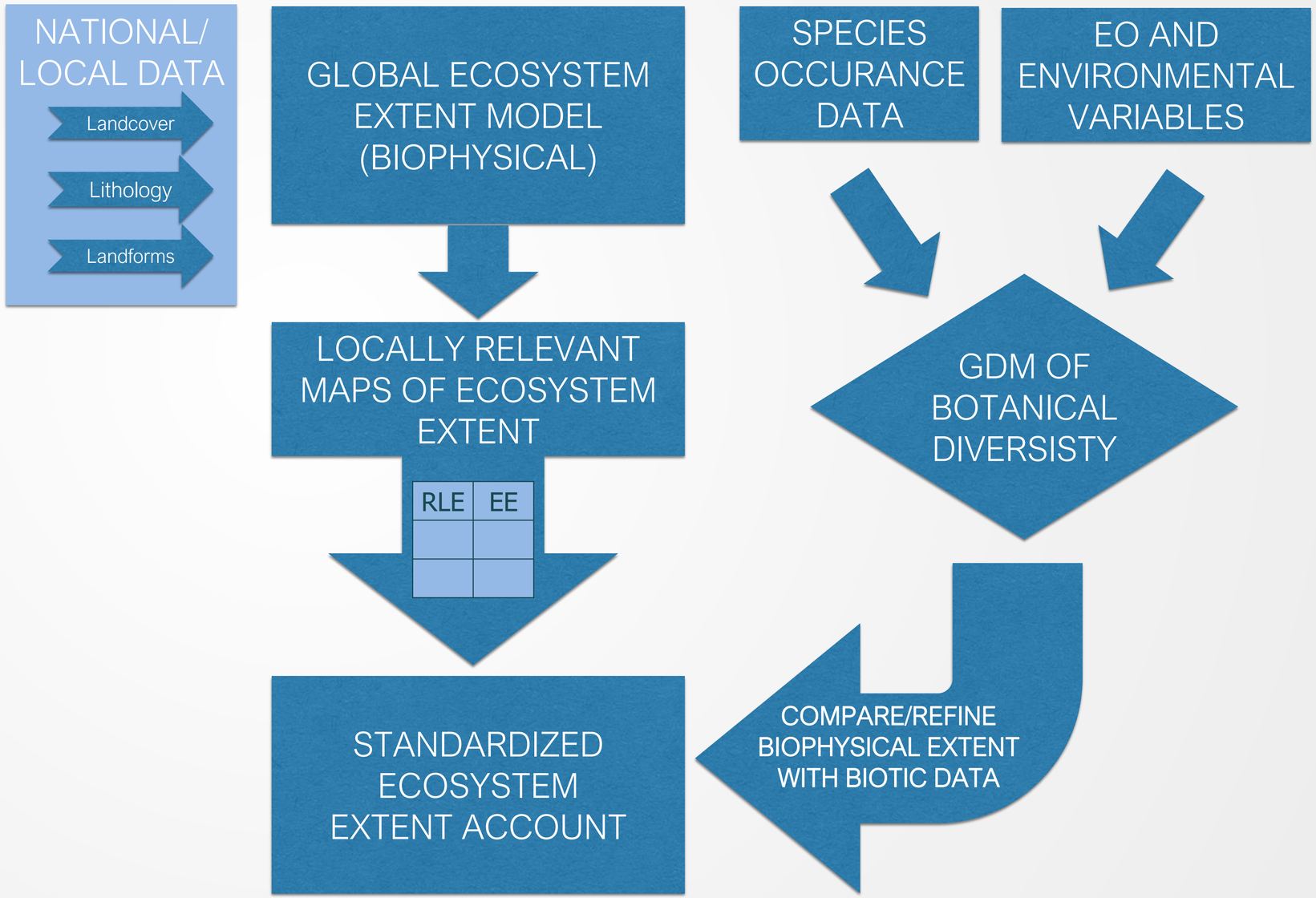


EXISTING DATASETS AND PRODUCTS

- Indonesian national data (LULC, lithology, landforms, etc.)
- Modeled datasets of biodiversity (species richness, GDM, etc.)
- Species occurrence data (GBIF, BIEN, KEW)
- Global maps of ecosystem and biophysical zones

PROPOSED METHOD AND CONSIDERATIONS

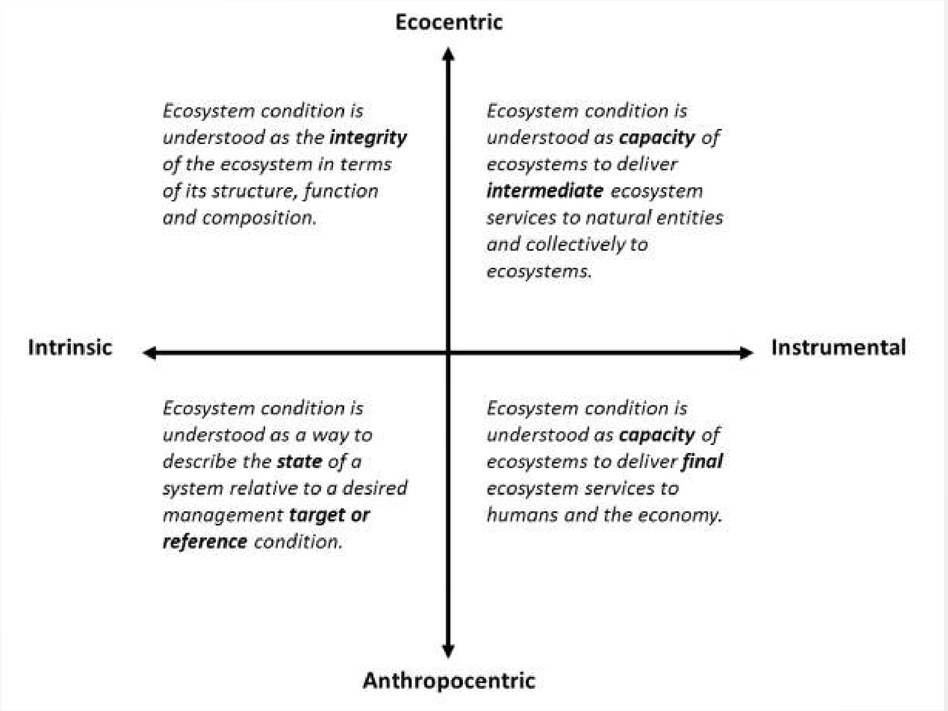
- Methods consistent with SEEA guidelines
- Globally consistent product with pathway for incorporating local data
- Compare abiotic and biotic outputs to inform EA method development
- Crosswalk ecosystem extent account with RLE standard



ECOSYSTEM CONDITION

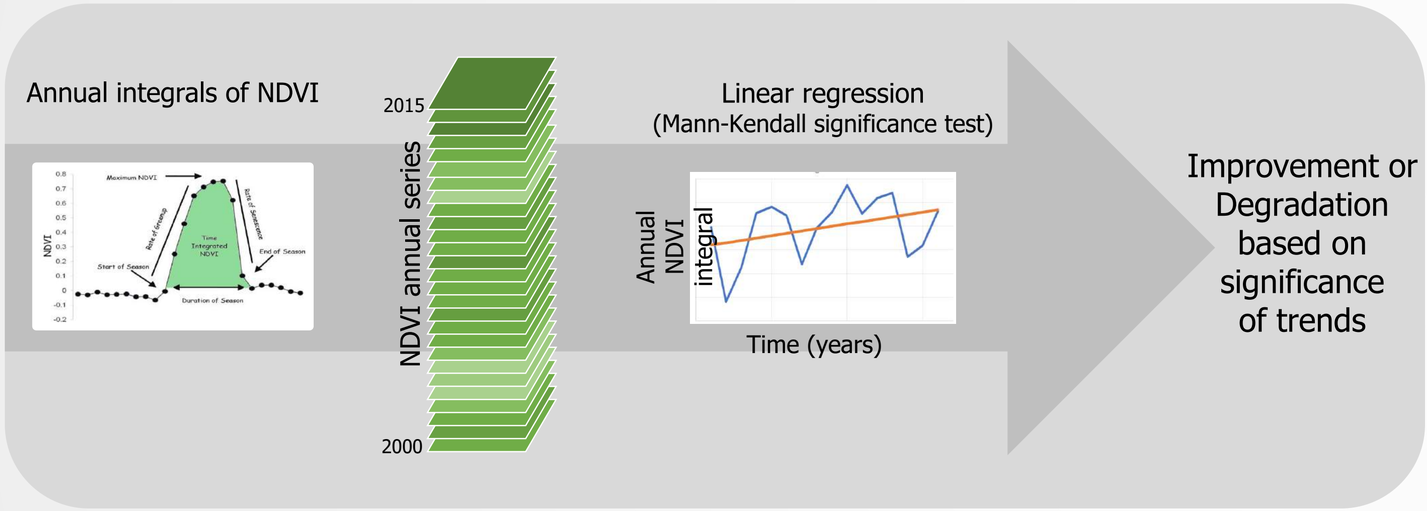
- The SEEA defines condition as “the overall quality of an ecosystem asset in terms of its characteristics. Measures of ecosystem condition are generally combined with measures of ecosystem extent to provide an overall measure of the state of an ecosystem asset. Since ecosystem condition also underpins the capacity of an ecosystem asset to generate ecosystem services, changes in ecosystem condition will impact on expected ecosystem service flow”

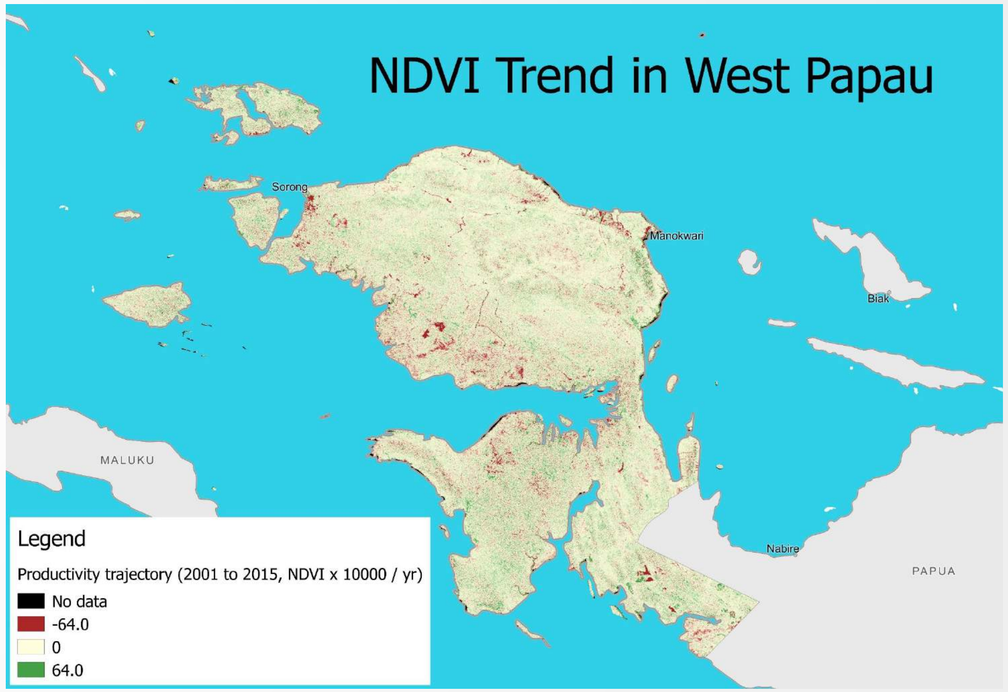
- However, in the latest revisions of the SEEA a more inclusive definition is recommended which encompass a more nuanced understanding of ecosystem condition



EXAMPLE USING TRENDS.EARTH

TRENDS.EARTH
tracking land change





- This is an example of one metric that could be used for condition, more research is needed

CONCLUSIONS

- The project provides an opportunity to pilot ecosystem extent accounting at the sub-national level
- Cross walking ecosystem extent accounts with national and international standards ensures replicability and comparability
- The comparison of ecosystem extent mapping methods will advance the ongoing development of accounts
- The results of this project will directly contribute to the activities of the EO4EA initiative workstream on ecosystem extent and condition

NEXT STEPS

- Develop preliminary products by August
- Present to stakeholders in Indonesia
- Refine outputs with additional field data collection

THANK YOU

CONSERVATION INTERNATIONAL

GEO | EARTH OBSERVATIONS FOR ECOSYSTEM ACCOUNTING

Max Wright
twright@conservation.org

Anurag Ramachandra
aramachandra@conservation.org

NASA