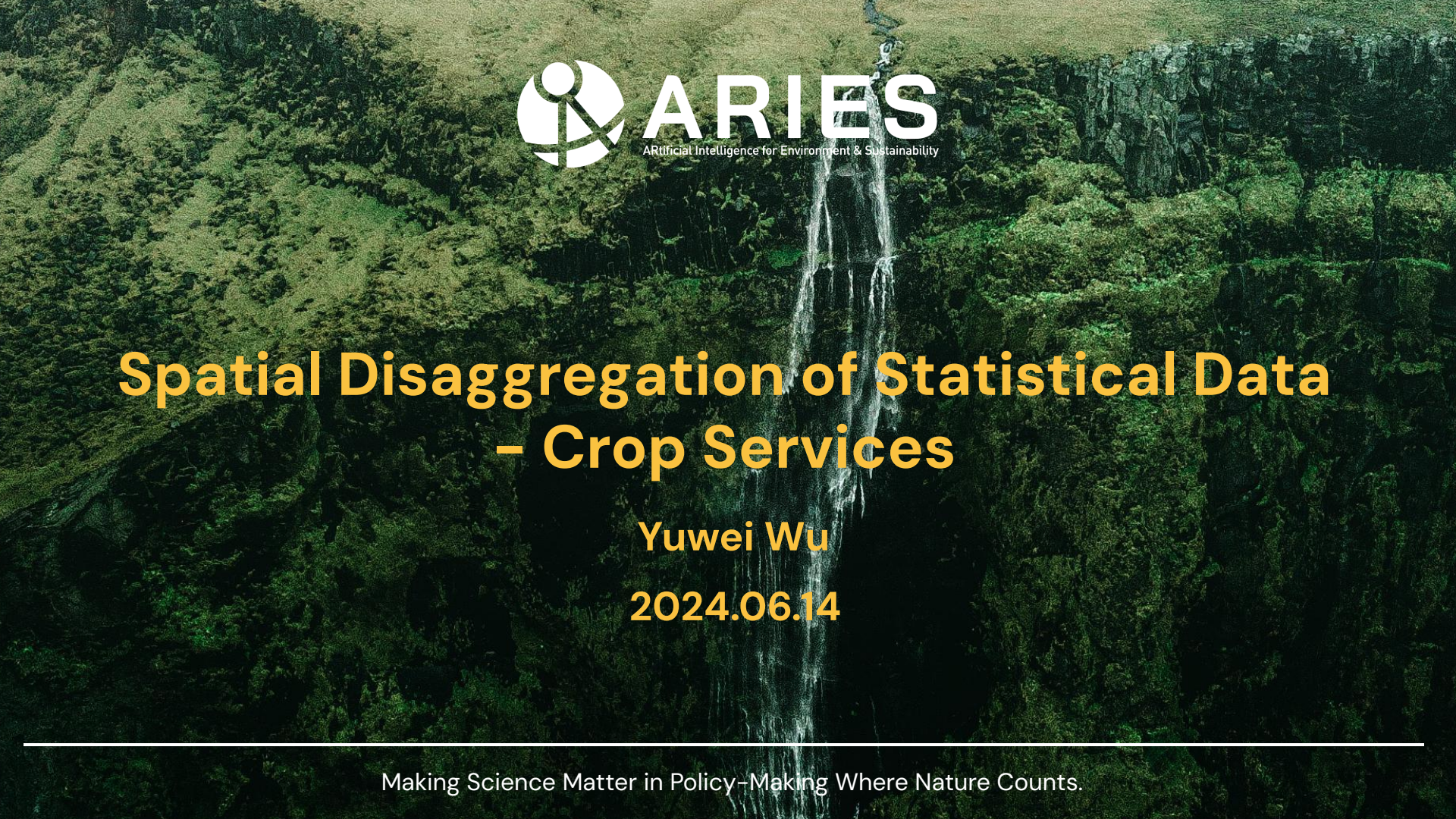

Spatial Disaggregation of Statistical Data – Crop Services

Yuwei Wu

2024.06.14

Making Science Matter in Policy-Making Where Nature Counts.

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  Spatialization of data and current limitation
- Method:
  National statistical data spatialization
- Method:
  Sub-national statistical data spatialization
- Results

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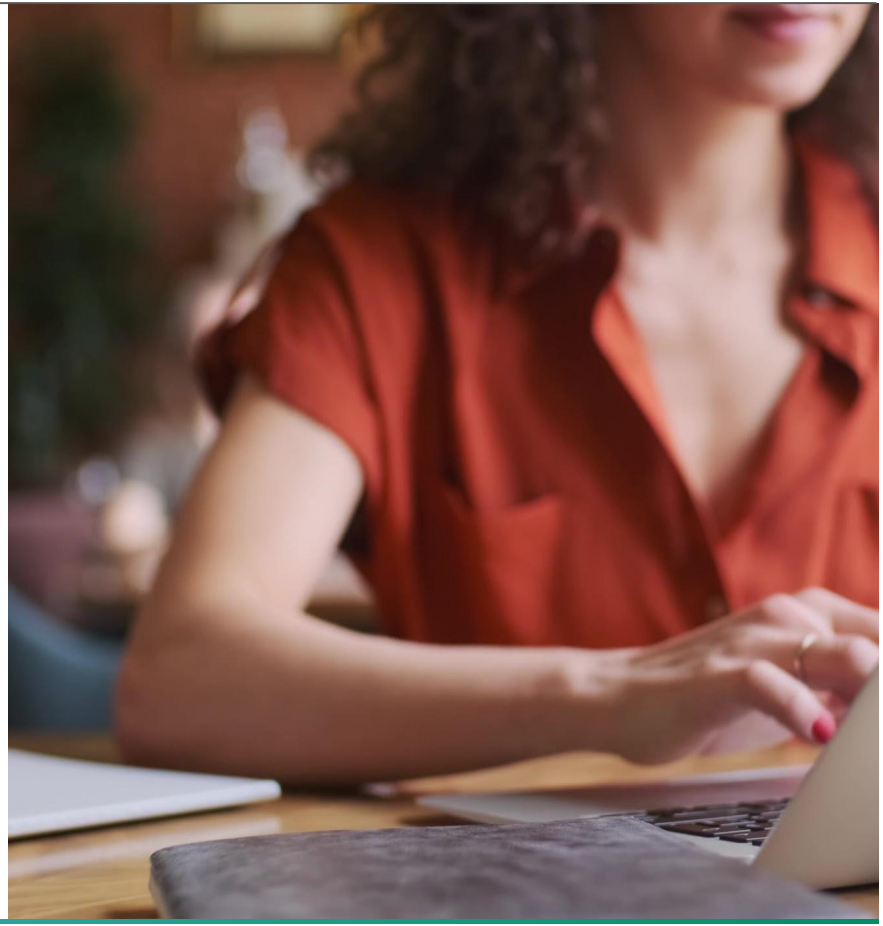
Background

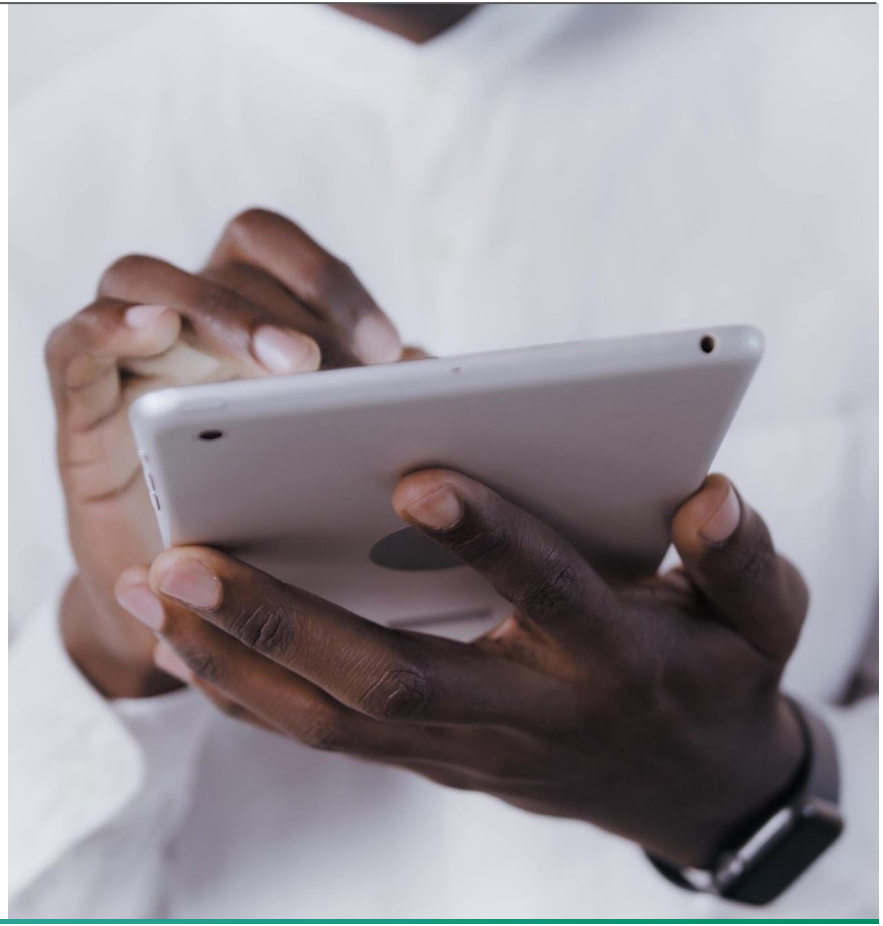
Why it is necessary to spatialize statistical data?

It's important to know **where** a service happens, in order to **produce supply** (ecosystem providing an intermediate service) and **use** (beneficiaries of the final service) **tables**.



Current status/limitation of the statistical & spatial data?

- National statistical aggregates provide national-level crop production data, but **lack of spatial distribution** information.
- Spatial data (maps) identifying production of most cultivated crops are available, but often for a **limited number of years**, **not in time series**, and **at coarse spatial resolution**.



Methodology

Method: National statistical data spatialization.

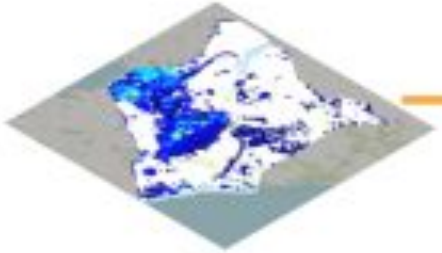
GID	Year	Maize (t)
KEN	2010	2583537.103

Crop production statistics (Reference year)

Country border (National)

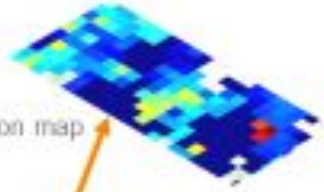
GID	Year	Maize (t)
KEN	2012	3749880
KEN	2013	3592688
KEN	2014	3513171
KEN	2015	3825000
KEN	2016	3339000

Crop production statistics (Observation year)

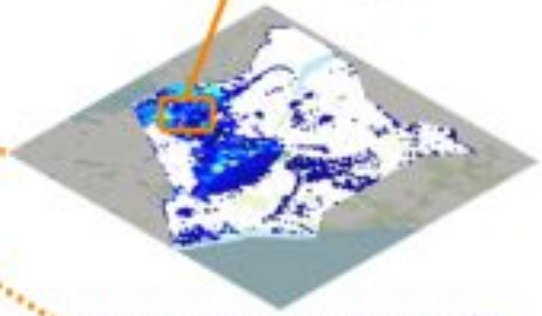


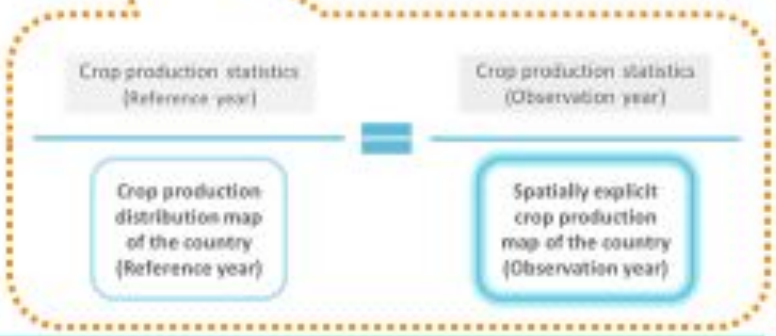
Crop production distribution map (Reference year)

Evaluate



Crop production distribution map (Observation year)





Method: Sub-national statistical data spatialization.

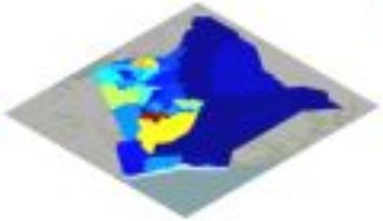
GID	County	Year	Maize (t)
KEN.1	Baringo	2017	26997.45703
KEN.2	Bomet	2017	48397.76172
KEN.3	Bungoma	2017	133009.0156
KEN.4	Busia	2017	31233.05664
KEN.5	Elgeyo	2017	42910.23438

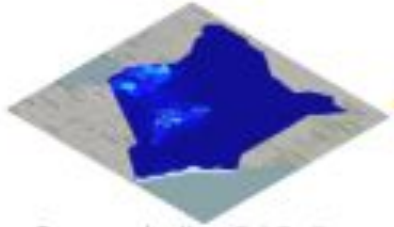
Crop production statistics (Reference year)

County borders (Sub-national)

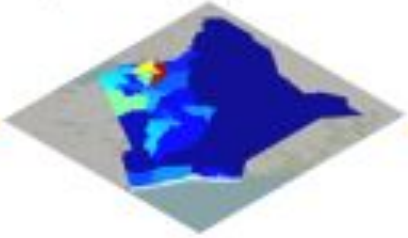
GID	County	Year	Maize (t)
KEN.1	Baringo	2015	83313
KEN.2	Bomet	2015	38720
KEN.3	Bungoma	2015	260268
KEN.4	Busia	2015	86526
KEN.5	Elgeyo	2015	78020

Crop production statistics (Observation year)



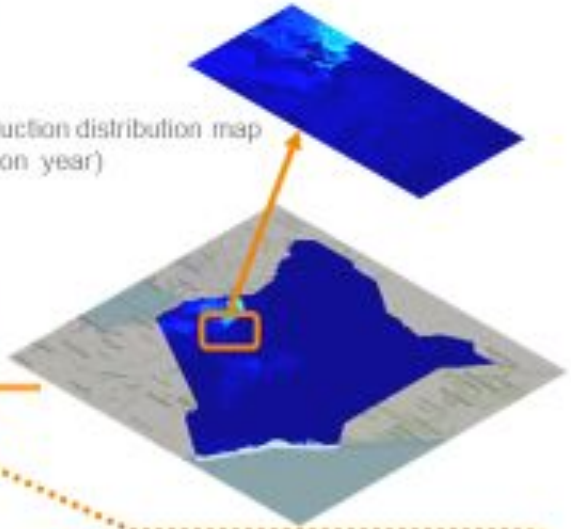


Crop production distribution map (Reference year)



Evaluate

Crop production distribution map (Observation year)



Sub-national crop production statistics (Reference year)

Sub-national crop production statistics (Observation year)

Crop production distribution map of the country (Reference year)

Sub-national crop production distribution map (Observation year)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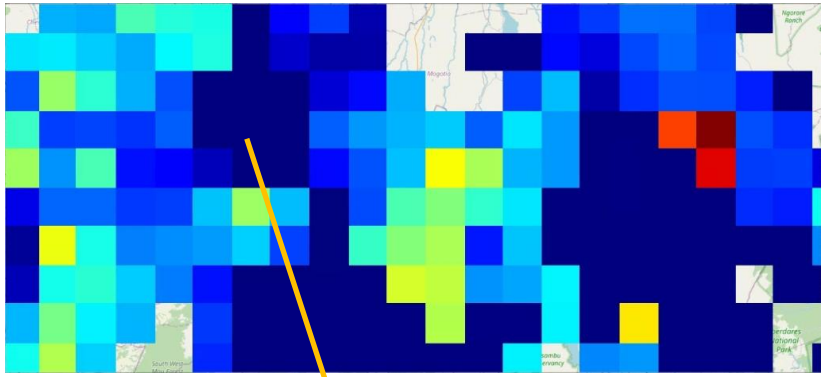
Results

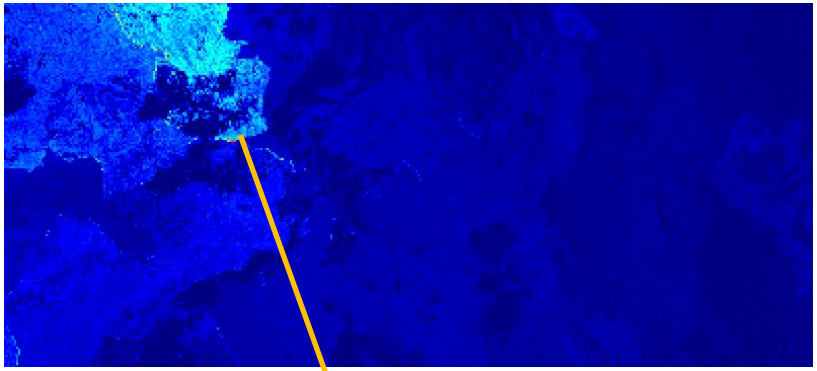
Spatial Disaggregation Results

Using National Statistics & SPAM Ref.



Maize production
(2015): 0 t

Using Sub-national Statistics & High resolution Ref.



Maize production
(2015): 2.033 t

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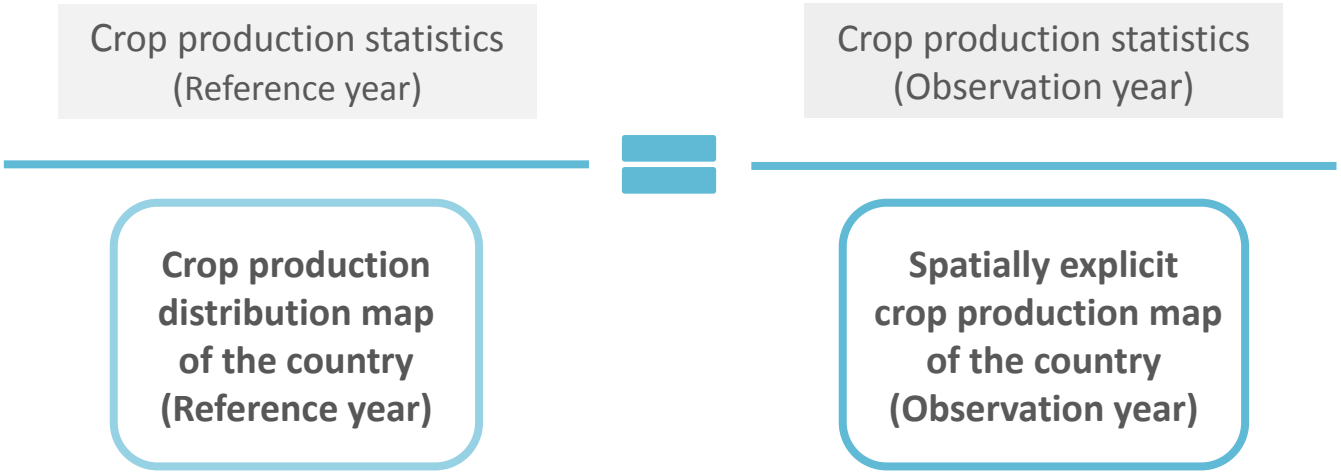
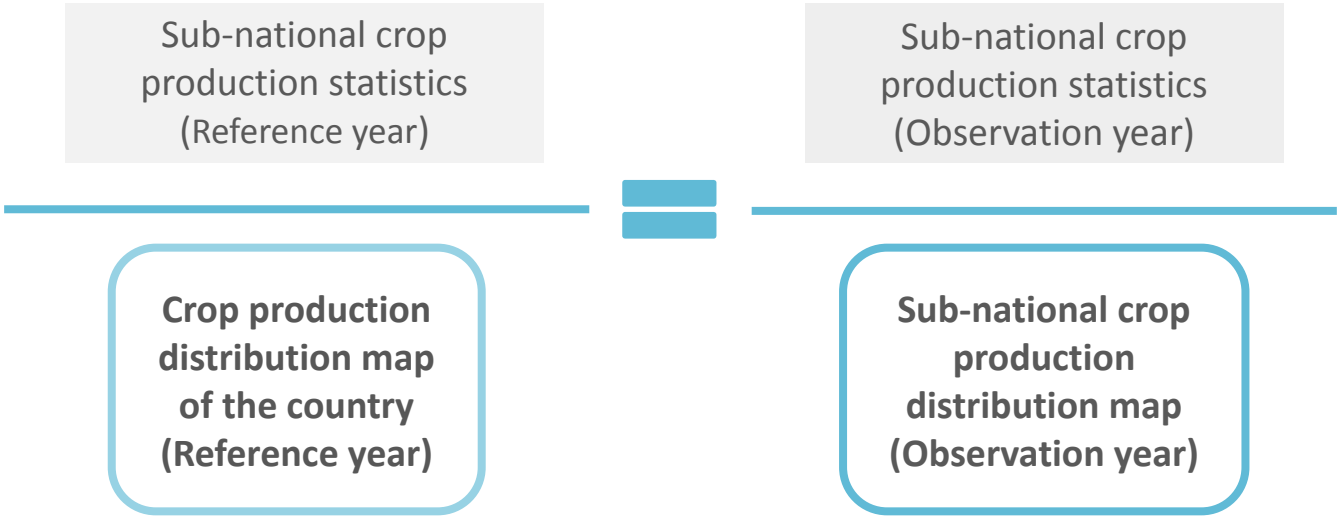
Thank you!

Method: National statistical data spatialization.



Method: Sub-national statistical data spatialization.



Statistical data (National vs. Sub-national)

GID	Year	Maize (t)
KEN	2012	3749880
KEN	2013	3592688
KEN	2014	3513171
KEN	2015	3825000
KEN	2016	3339000

GID	Year	Maize (t)
KEN	2010	2583537.103

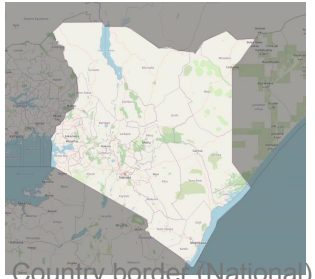
GID	County	Year	Maize (t)
KEN.1	Baringo	2015	83313
KEN.2	Bomet	2015	38720
KEN.3	Bungoma	2015	260266
KEN.4	Busia	2015	86526
KEN.5	Elgeyo	2015	78020

GID	County	Year	Maize (t)
KEN.1	Baringo	2017	26997.45703
KEN.2	Bomet	2017	48397.76172
KEN.3	Bungoma	2017	133009.0156
KEN.4	Busia	2017	31233.05664
KEN.5	Elgeyo	2017	42910.23438

Method: National statistical data spatialization.

GID	Year	Maize (t)
KEN	2010	2583537.103

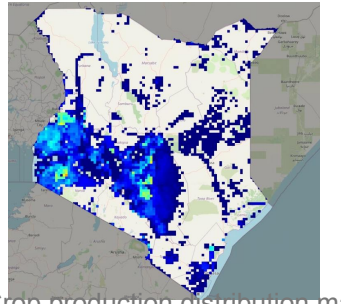
Crop production statistics (Reference year)



Country border (National)

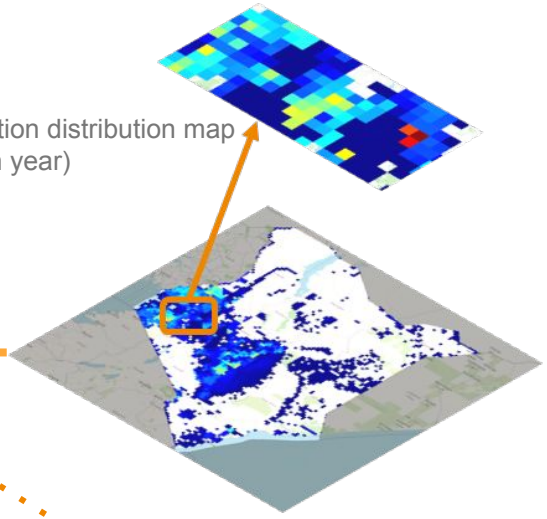
GID	Year	Maize (t)
KEN	2012	3749880
KEN	2013	3592688
KEN	2014	3513171
KEN	2015	3825000
KEN	2016	3339000

Crop production statistics (Observation year)



Crop production distribution map (Reference year)

Evaluate



Crop production distribution map (Observation year)

Crop production statistics (Reference year)

Crop production statistics (Observation year)

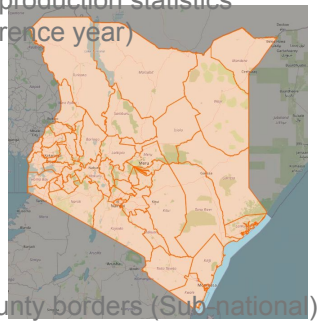
Crop production distribution map of the country (Reference year)

Spatially explicit crop production map of the country (Observation year)

Method: Sub-national statistical data spatialization.

GID	County	Year	Maize (t)
KEN.1	Baringo	2017	26997.45703
KEN.2	Bomet	2017	48397.76172
KEN.3	Bungoma	2017	133009.0156
KEN.4	Busia	2017	31233.05664
KEN.5	Elgeyo	2017	42910.23438

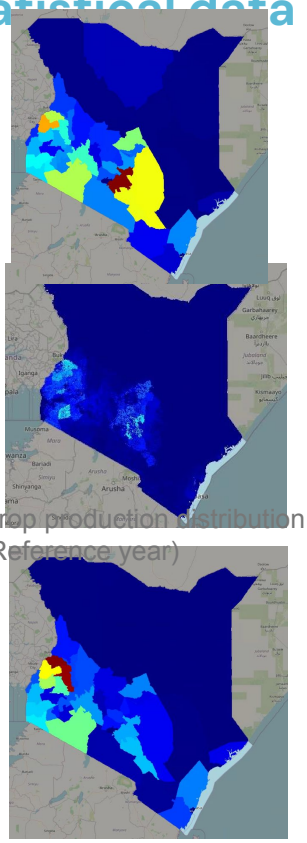
Crop production statistics (Reference year)



County borders (Sub-national)

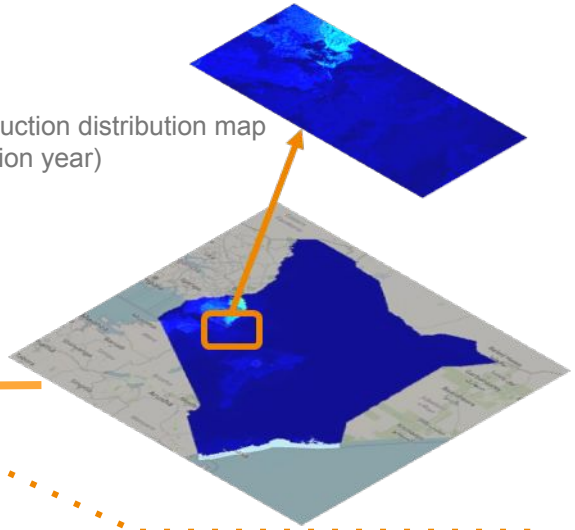
GID	County	Year	Maize (t)
KEN.1	Baringo	2015	83313
KEN.2	Bomet	2015	38720
KEN.3	Bungoma	2015	260266
KEN.4	Busia	2015	86526
KEN.5	Elgeyo	2015	78020

Crop production statistics (Observation year)



Crop production distribution map (Reference year)

Evaluate



Crop production distribution map (Observation year)

Sub-national crop production statistics (Reference year)

Sub-national crop production statistics (Observation year)

Crop production distribution map of the country (Reference year)

Sub-national crop production distribution map (Observation year)