Supply & Use
Tables (SUTs)

Input/Output
Tables (IOTs)

SUT/IOT
Converter

IO Converter

3-5 OCTOBER 2022, GENEVA, ONLINE

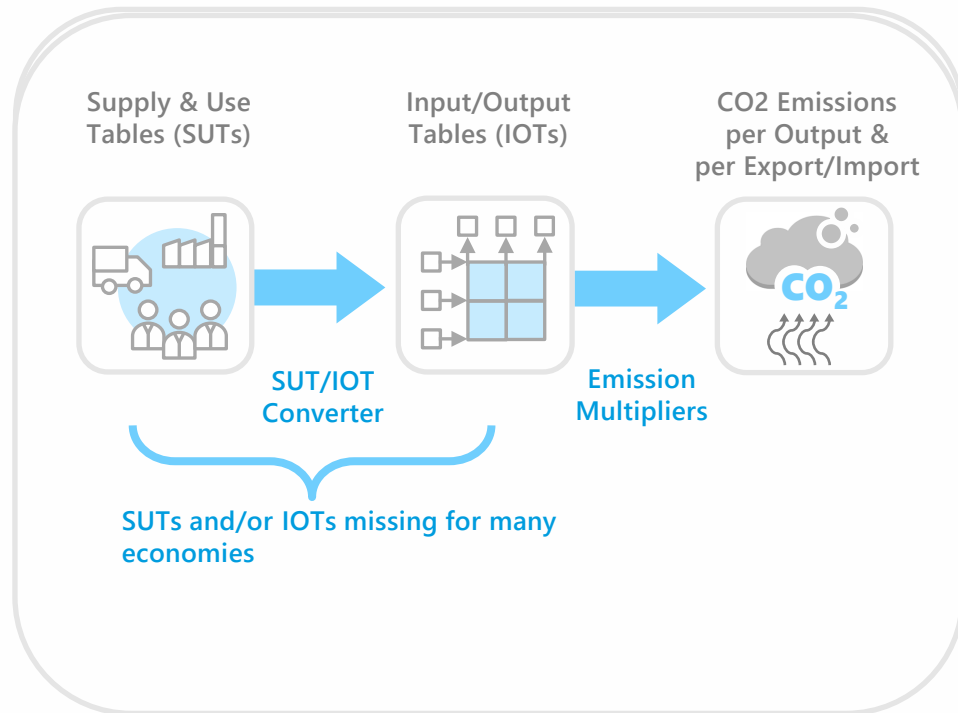Achille Pegoue   Real Sector Division
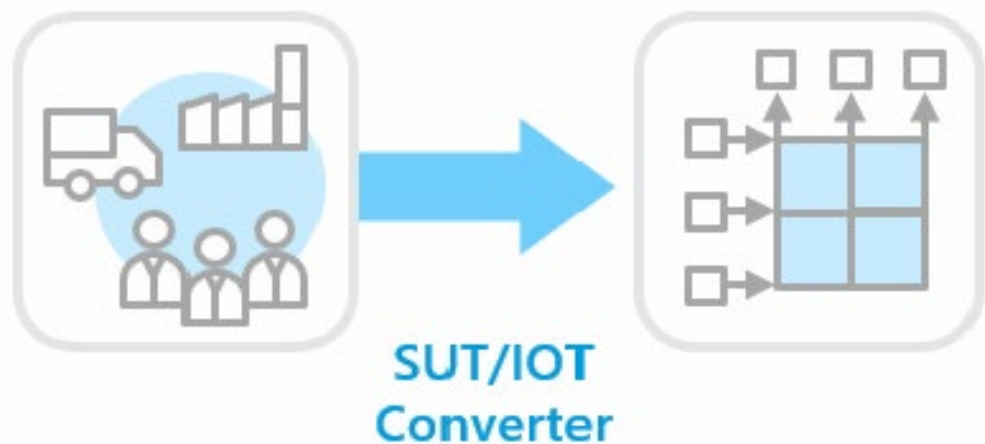
Outline

- **Background**

- **Main features**
  - ➢ **Mapping SUT transactions and Data**
  - ➢ **Mapping SUT and IOT classifications**

- **Dry run**
  - ➢ **Inclusion of subsidies**
  - ➢ **Inclusion of imports**

- **Refinement**
  - ➢ **Force consistency for basic prices and domestic transactions**

- **A way forward**

- **DEMO**

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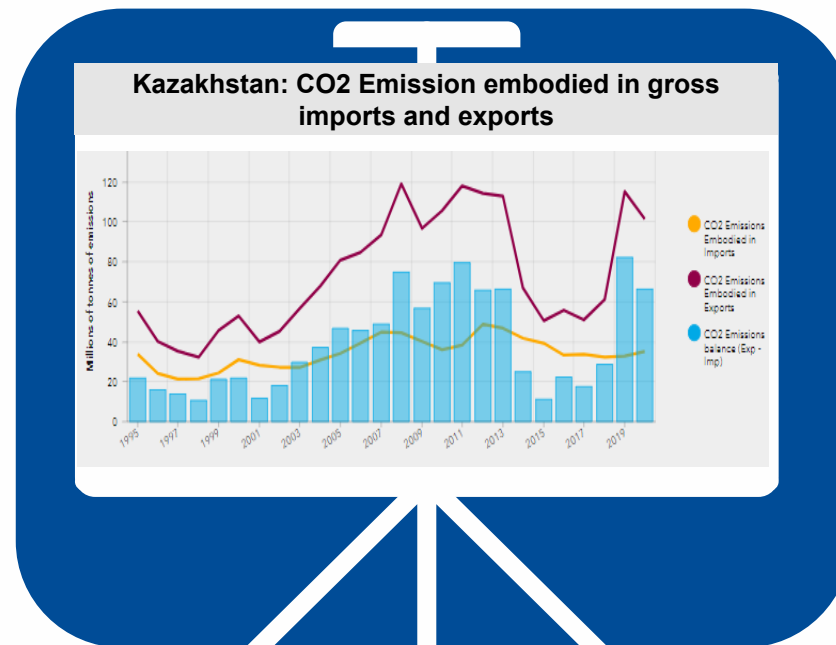
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From SUTs to IOTs Benefits for Measuring Climate

STA
Develop Climate Indicators with Authorities & Improve Coverage of Climate Indicator Dashboard

IMF Climate Indicators Database & Dashboard (CID)

Supply & Use Tables (SUTs)

Input/Output Tables (IOTs)

CO_2 Emissions per Output & per Export/Import

SUT/IOT Converter

Emission Multipliers

SUTs and/or IOTs missing for many economies

Kazakhstan: CO2 Emission embodied in gross imports and exports

- CO2 Emissions Embodied in Imports
- CO2 Emissions Embodied in Exports
- CO2 Emissions balance (Exp - Imp)

Urgency of adjustment to low/no carbon

CO_2

Impact of International trade and globalization

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Mapping SUT transactions and Data

Help the IO Converter to Recognize your Data

Note:
- **A single vector for imports is accepted**
- **Valuation adjustment and final demand can be broken down**
- **Choose to include either only total or only subcomponents**

Where are data?

What is the transaction?

Mapping SUT and IOT classifications

Help the IO Converter to convert rectangular matrix into square matrix.

	A	B	C	D	E	F	G	H	I	J	K	L
1	SUT_Code	SUT_Description	IOT_Code	IOT_Description	Coefficient		IOT classification could be larger than SUT one					
2	A1-2	Agriculture	A	Agriculture	1		Coefficient will be used to make aggregation (1) or breakdown (less					
3	C1	Manufacturing	C	Manufacturing	1							
4	U1	Services1	U	Service	1							
5	U1-2	Services2-3	U	Service	1							

Will be used to sort IOT classification"

Check that the sum of coefficient for each SUT category adds up to 1

Do not change tab name

Parameters | SUT | Code_Mapping | **Mapping_Activity** | Mapping_Product

Note:

- **Use meaningful IOTs Codes: they will be sorted**
- **Use coefficients to allow breakdown and aggregation**

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Sign of subsidies and basis to allocate imports to use

Help the IO Converter to properly include subsidies and imports

Generate IOTs

Request the IO Converter to generate IOTs (domestic + imported product).
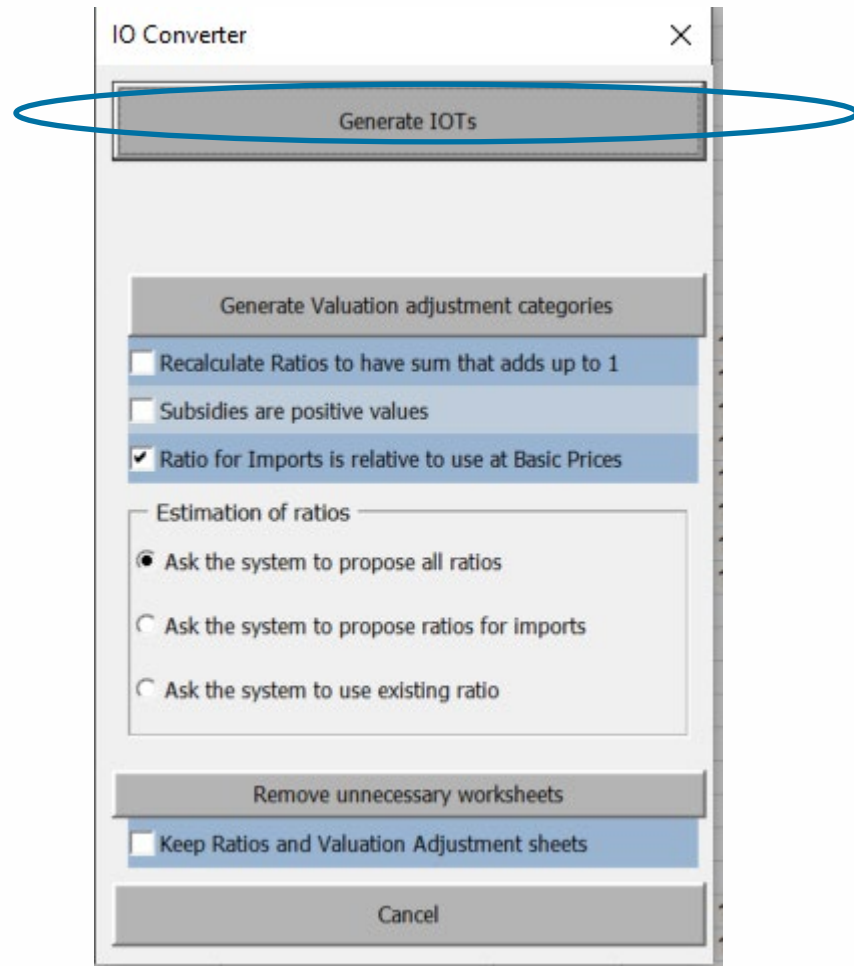
Case of an industry output of zero value :

The transformation matrix is $\boldsymbol{D} = \boldsymbol{V} \cdot (\tilde{x}^{-1})$

where $(\tilde{x}^{-1}) = \begin{bmatrix} \tilde{x}^{-1}{}_{11} & \cdots & \tilde{x}^{-1}{}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{x}^{-1}{}_{n1} & \cdots & \tilde{x}^{-1}{}_{nn} \end{bmatrix}$ and

$\tilde{x}^{-1}{}_{ij} = \begin{cases} {}^{1}\!/x_i \ 1 \ if \ i = j \ and \ x_i \neq 0 \\ \quad 0 \ elswhere \end{cases}$.

$(\tilde{x}^{-1})$ is slightly different from $(x)^{-1}$ as defined in the literature.

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Include self-computed ratios

Request the IO Converter to use exogeneous information

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Future developments

- Additional checks on classification and consistency (SUTs, intermediary steps, IOTs)
- Replicate SUT format including total Improve
- Implement the remaining models
  - ► industry by industry approach using industry sales structure
  - ► product by product IOTs using product technology assumption
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  - ► Hybrid model
- Add an impact analysis module
- Add a TiVA module

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