Demonstration of PIDA Job Creation Toolkit

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TOOLKIT OVERVIEW

Overview

- An **online tool** aimed at maximizing the African jobs during preparation, construction, and operation of Africa infrastructure projects

1. ESTIMATION OF NUMBER AND TYPES OF JOBS

- Helps **project owners, technical partners, and government policy makers** to:
  - estimate the full spectrum of jobs created from their projects including:
    - **Direct jobs** (jobs created by the project)
    - **Indirect jobs** (jobs created by suppliers to the project)
    - **Induced jobs** (jobs created by spending of direct and indirect workers)
    - **Secondary jobs** (jobs created as a result of the economic impact of the completed project)
  - disaggregate job estimates by **main occupational categories and economic sectors**

2. JOB MAXIMIZATION INTERVENTIONS

  - explore the possibilities of increasing the number and quality of African to jobs
    - develop **job maximization scenarios** to test how different project inputs and country sources change the level and country location of estimated jobs
    - provide range of **job maximization policies**, **programs**, **processes**, etc. with case study examples and resource links
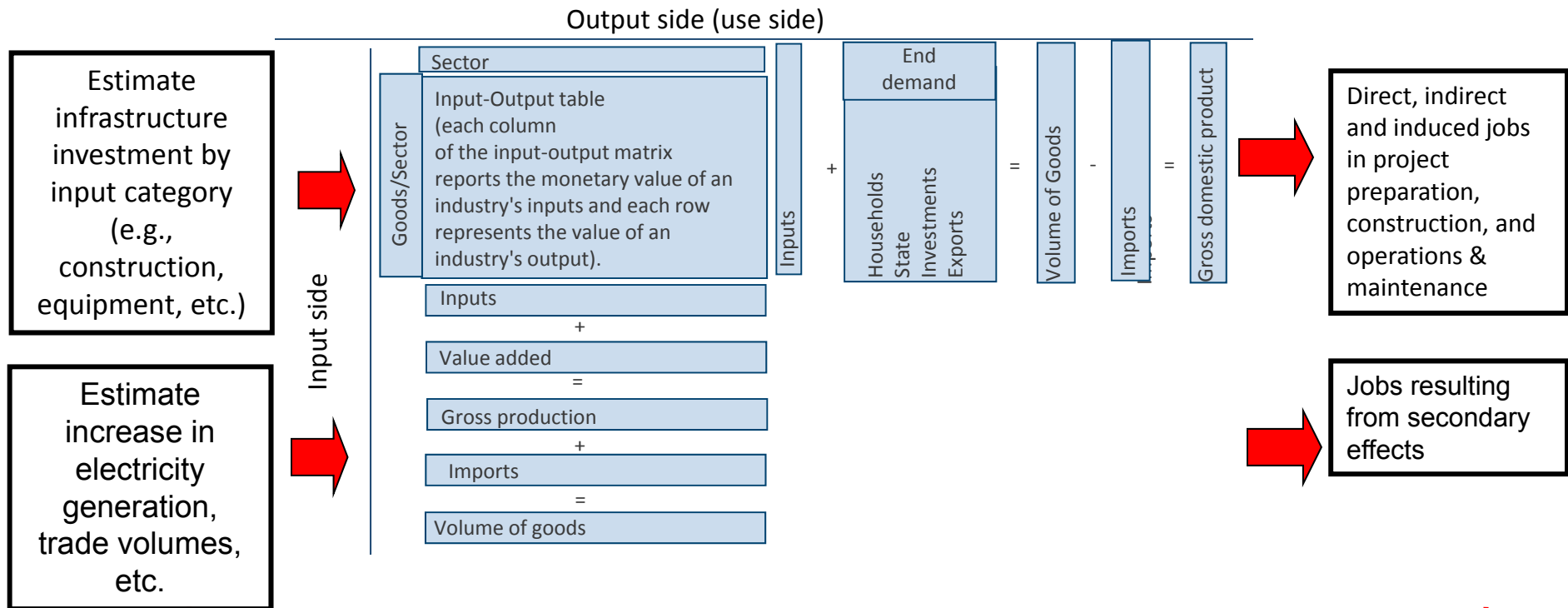
3. **CASE STUDIES**

Utilizes national **Input-Output tables** covering African countries generated from the **Global Trade Analysis Project (GTAP)** database consisting of regional input-output data, macroeconomic data, bilateral trade flows,
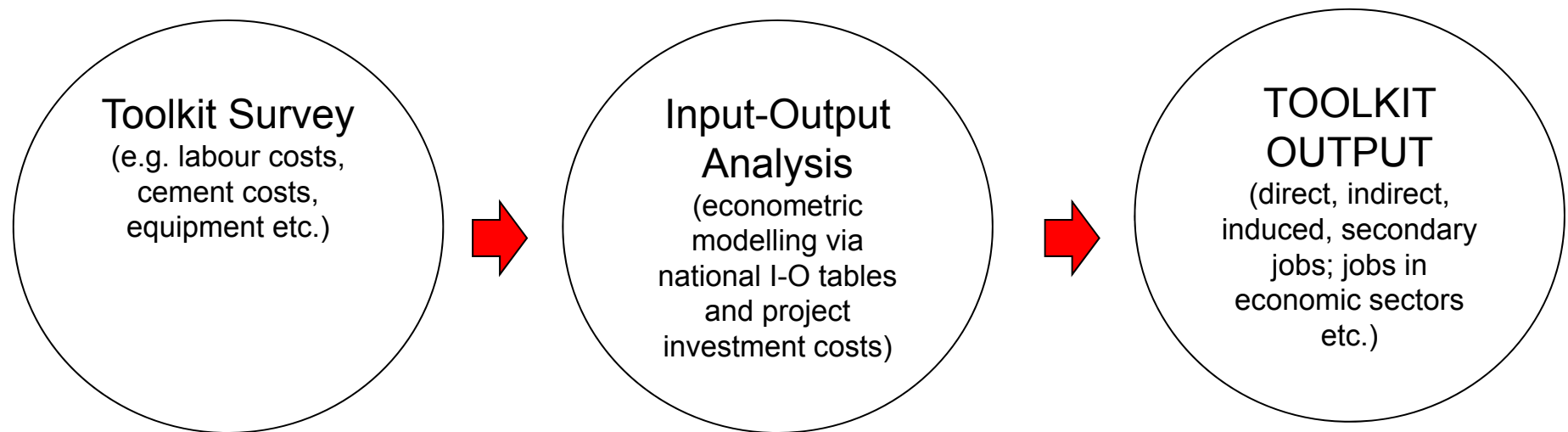
FOUNDATION: AFRICAN INPUT-OUTPUT TABLES

Output side (use side)

Input side

| Estimate infrastructure investment by input category (e.g., construction, equipment, etc.) | → | | Direct, indirect and induced jobs in project preparation, construction, and operations & maintenance |

Goods/Sector

Sector

Input-Output table
(each column
of the input-output matrix
reports the monetary value of an
industry's inputs and each row
represents the value of an
industry's output).

Inputs

+

Value added

=

Gross production

+

Imports

=

Volume of goods

Inputs + Households State Investments Exports = Volume of Goods - Imports = Gross domestic product

| Estimate increase in electricity generation, trade volumes, etc. | → | | Jobs resulting from secondary effects |

- I/O tables depict **the interdependencies between economic sectors**, and are **used to estimate the impact of positive or negative economic shocks on an economy (investment in infrastructure is a positive shock)**
- I-O Tables assumes that some inputs (investment in infrastructure) are used by sectors that produce output (intermediate output), which in turn is sold to another sector for consumption (final output); total output adds intermediate and final outputs
- By using labor productivities, one can calculate job creation from output

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Job estimation process

Toolkit Survey
(e.g. labour costs, cement costs, equipment etc.)

→

Input-Output Analysis
(econometric modelling via national I-O tables and project investment costs)

→

TOOLKIT OUTPUT
(direct, indirect, induced, secondary jobs; jobs in economic sectors etc.)

Data Entry

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THE PIDA JOB CREATION TOOLKIT

PROGRAM FOR INFRASTRUCTURE DEVELOPMENT IN AFRICA (PIDA)

Welcome to the Job Creation Toolkit aimed at maximizing the African jobs resulting from the preparation, construction, and operation of Africa infrastructure projects. Project Owners, technical partners, and government policy makers can estimate the total job impact from their projects (including indirect, induced, and economic spill-over jobs) and also think through possible ways to increase the number and quality of African jobs. Click one of the four buttons below to estimate jobs, access the job database, review options to maximize jobs, and telescope into case studies.

VPIC

ESTIMATE JOBS HERE	ACCESS JOB PROJECTIONS	MAXIMIZE JOBS	TELESCOPE INTO CASE STUDIES

SEARCH/FILTER ⌄

Ruzizi III

This hydro power project creates an estimated average of 2,400 annual jobs

Batoka Gorge

This hydro power project creates an estimated average of 34,000 annual jobs

Brazzaville – Kinshasa Toll Bridge

This rail bridge project creates an estimated average of 3,746 annual jobs

Implemented by **giz**

Batoka Gorge Hydro Electric Power Scheme

Project ▼   Estimate Jobs

Show Instructions   Benchmark Estimates   Detailed Survey

Name:* [Batoka Gorge Hydro Electric Power Scheme]

Programme: Batoka Gorge Hydropower

Regional Economic Community(ies): SADC

Sector:* [Energy ▼] [Hydropower Plants ▼]

Host Countries:* Zambia
Zimbabwe

[Select a country ▼] [Add Country]

Beneficiary Countries:*

Angola 🗑
Botswana 🗑
Congo, Dem. Rep. 🗑
Lesotho 🗑
Malawi 🗑
Mozambique 🗑
Namibia 🗑
South Africa 🗑
Swaziland 🗑
Tanzania 🗑

[Select a country ▼] [Add Country]

Phase	Cost (US$MM)	Duration (Years)*	Start Date		
Preparation TOTAL COST	14 ⓘ	4 ⓘ	2014	▼	Use Benchmark
Construction TOTAL COST*	3,602.657 ⓘ	7 ⓘ	2018	▼	Use Benchmark
Operation & Maintenance AVERAGE ANNUAL COST	29 ⓘ	50 ⓘ	2025	▼	Use Benchmark

How many megawatts will this project generate or distribute? [0] MW

How will the megawatts be distributed in the host/beneficiary countries and at what price? Please indicate the price per kilowatt hour in USD for each country.

Country				
Zambia	0 MW	NaN %	0	USD/kWh
Zimbabwe	0 MW	NaN %	0	USD/kWh
Angola	0 MW	NaN %	0	USD/kWh
Botswana	0 MW	NaN %	0	USD/kWh
Congo, Dem. Rep.	0 MW	NaN %	0	USD/kWh
Lesotho	0 MW	NaN %	0	USD/kWh
Malawi	0 MW	NaN %	0	USD/kWh
Mozambique	0 MW	NaN %	0	USD/kWh
Namibia	0 MW	NaN %	0	USD/kWh
South Africa	0 MW	NaN %	0	USD/kWh
Swaziland	0 MW	NaN %	0	USD/kWh
Tanzania	0 MW	NaN %	0	USD/kWh

Benchmark Estim

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Batoka Gorge Hydro Electric Power Scheme

Project ▼

Estimate Jobs

Show Instructions

Save & Previous   Save & Next

	US$MM	Percent			
Project Preparation Cost	**14**	100%			
Project Management Cost: ℹ	5.72	40.82	African Source ▼	Non-African Source ▼	Add Source
Use Benchmark					
Zambia 🗑	2.86	50.0			
Zimbabwe 🗑	2.86	50.0			
Technical Support Cost: ℹ	7.22	51.60	African Source ▼	Non-African Source ▼	Add Source
Use Benchmark					
European Union 🗑	2.38	33.0			
South Africa 🗑	4.84	67.0			
Other Preparation Cost: ℹ	1.06	7.58	African Source ▼	Non-African Source ▼	Add Source
Use Benchmark					
European Union 🗑	0.53	50.0			
Other 🗑	0.53	50.0			

Save & Previous   Save & Next

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Batoka Gorge Hydro Electric Power Scheme

Project ▼

Estimate Jobs

Show Instructions

Save & Previous   **Save & Next**

	US$MM	Percent
Project Construction Cost	3,602.657	100%

Basic Material Inputs

Cement, gravel, concrete, etc.: ⓘ	547.16	15.19	African Source ▼	Non-African Source ▼	Add Source

Use Benchmark

China 🗑	547.16	100.0
Zimbabwe 🗑	0	0
Zambia 🗑	0	

Iron and steel: ⓘ	50.44

Use Benchmark

Zambia 🗑	25
Zimbabwe 🗑	25

Oil: ⓘ	0

Use Benchmark

Equipment Inputs

Motor Vehicles: cars, lorries, trailers and semi-trailers: ⓘ	72.05	2.00	African Source ▼	N

Use Benchmark

Other 🗑	72.05

Electronic Equipment: office, accounting and computing machinery: ⓘ	121

Use Benchmark

China 🗑	121

All other Machinery & Equipment:	424.01

Labour Inputs

Construction labour: ⓘ	1044.77

Use Benchmark

Other 🗑	417.91
Zambia 🗑	313.43

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Batoka Gorge Hydro Electric Power Scheme

Project ▼

Estimate Jobs

Show Instructions

Save & Previous   Save & Estimate Jobs

	US$MM	Percent
Project Operation Cost	**29**	100%

Basic Material Inputs

Cement, gravel, concrete, etc.: ⓘ	0	0.00	African Source ▼	Non-African Source ▼	Add Source

Use Benchmark

Iron and steel: ⓘ	0

Use Benchmark

Oil: ⓘ	0.29

Use Benchmark

Other 🗑	0.15
Zambia 🗑	0.07
Zimbabwe 🗑	0.07

Gas: ⓘ	0

Use Benchmark

Non-Ferrous Metals: ⓘ	0

Equipment Inputs

Motor Vehicles: cars, lorries, trailers and semi-trailers: ⓘ	0.29	1.00	African Source

Other 🗑

Electronic Equipment: of accounting and computi... ⓘ

Other 🗑

All other Machinery & Eq
electrical machinery and
not included above (incl.
equipment, operation eq...

Labour Inputs

Construction labour: ⓘ	14.79	51.00

Use Benchmark

Other 🗑	0	0
Zambia 🗑	7.4	50.0
Zimbabwe 🗑	7.4	50.0

Professional and Business Services (incl. management costs, engineers, administration, etc.): ⓘ	2.9	10.00

Use Benchmark

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Job Estimates

AVERAGE ANNUAL JOB ESTIMATE

Exhibit 2: Average Annual Job Estimates by Project Phase for Batoka Gorge Hydro Electric Power Scheme

TYPE OF JOB CREATION	Project Preparation	Construction	Operation & Maintenance	Total*
NUMBER OF YEARS IN EACH PROJECT PHASE	5	7	50	62
Direct Jobs	120	4,262	861	1,185
Indirect Jobs	38	2,188	375	552
Induced Jobs	50	4,171	738	1,070
Secondary Jobs	—	—	—	2,449,256
TOTAL AVERAGE JOBS	208	10,621	1,974	2,452,064

JOB ESTIMATES BY COUNTRY

Exhibit 4: Average Annual Job Estimates by Country for Batoka Gorge Hydro Electric Power Scheme

	Annual Over Project Development Time		Annual Over Project Useful Life		
	Preparation	Construction	O&M	Secondary	Total*
Zimbabwe	102	4,314	843	0	1,193
Zambia	101	6,200	1,131	0	1,645
South Africa	35	0	0	0	2
Tanzania	0	0	0	0	0
Swaziland	0	0	0	0	0
Namibia	0	0	0	0	0
Mozambique	0	0	0	0	0
Malawi	0	0	0	0	0
Lesotho	0	0	0	0	0
Congo, Dem. Rep.	0	0	0	0	0
Botswana	0	0	0	0	0
Angola	0	0	0	0	0
Total	238	10,514	1,974	0	2,840

** **Total** column shows annual jobs over the life cycle of the project. Project life cycle is the total duration of preparation, construction and operation phases.*

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MAXIMISE JOBS MODULE

- The objective is to provide guidance on how to maximise jobs:
  - Ways to Maximize Overall Employment (Youth & Gender)
  - Ways to Improve Policy & Regulatory Support
  - Ways to Integrate Training & Skills Development (TVET), also curricula in high schools, universities, etc.

- Examples:
  - Integrate job creation focus into each phase of project (e.g., ToRs in all contracts – feasibility studies, ESIAs, PPP, EPC, OEM, etc.)
  - Requirements by governments, RECs, development partners, private sector contractors and PPP partners, etc. (maximise jobs, use Toolkit)

- Module Structure:
  - Action
  - Action Steps
  - Examples & links to resources

MAXIMISE JOBS MODULE

10 JOB MAXIMISATION ACTIONS

- ACTION 1: Develop African Infrastructure Skills
- ACTION 2: Implement a Project Social Impact Management Plan
- ACTION 3: Create a Project Local Content Policy
- ACTION 4: Selectively Implement Labour-Intensive Methods
- ACTION 6: Focus National Procurement Policies on Youth & Gender
- ACTION 7: Launch Sector Investment Programme with Local Content Requirements or Incentives
- ACTION 8: Implement Tax Incentives to Increase Local Content
- ACTION 9: Adapt & Scale Educational Programmes
- ACTION 10: Crowd in Investors that Prioritize African Job Creation

EXAMPLES OF TOOLKIT USE AS A PLANNING & MANAGEMENT TOOL

- **Labor Planning: Plan for skills development, recruitment, & placement**
  - For each host and benefaciary country, calculate estimated job needs by economic sector by project phase (see "Chapter 5 Estimated Jobs by Economic Sector")
  - Provide job descriptions for estimated **direct and indirect jobs** to local and national governments, business organizations, highschools, TVETs, universities, others as appropriate
  - Provide estimated **induced and secondary jobs** by econmic sector to local and national governments, business organizations, and educational
  - Plan for **recuitment and transfers of employees** from project preparation & construction to other jobs

- **Supplier Planning: Plan for local sourcing of materials, services, equipment**
  - Liaise with local suppliers (international, national, and SMEs) early to realize local employment and save costs
  - Liaise with government agencies to plan ahead and ensure local labour can be absorbed when it is needed (e.g. with national and RECs on industrial policy)

- **Prepare a stronger negotiation position based on the provision of local services/benefits backed by Toolkit estimations (e.g., reflect in ToRs requirements)**

- **Double check local employment benefits provided by investors/credit providers with Toolkit estimations**

TOOLKIT LIMITATIONS

- As a scalable job estimation model, the Toolkit automates best practices based on I-O Tables, in contrast to one-off studies of infrastructure projects, requiring lengthy and resource intensive processes

- The Toolkit foundations are the Input-Output matrices for countries developed from the available 2011 GTAP database

- Input-output methodology depicts a static view of a country's economy, potentially underrepresenting additional spillovers due to the dramatic impact of infrastructure

  - This limitation is compensated partially by supplementing job estimates with secondary effects

- The accuracy of Toolkit estimates is a function of the quality of data inputted for each project (cost and allocation by input)

- Job estimates are **potential** – *actions to realize jobs are required!*

TOOLKIT VALUE PROPOSITION AS AN SDM ADVISORY SERVICE

Why Integrate Job Creation into Project Preparation?

1. Infrastructure backbone to economic development and regional integration - *Enables economic spillover effects (secondary jobs)*

2. Limited African infrastructure pipeline of Bankable projects – *Requires African ecosystems of skilled professionals who can prepare projects (project developers, financial advisors, etc)*

3. Project preparation is when African job creation can be fully integrated into the specific design of the project – *The fulcrum point for changing the ecosystem!*

4. "Business as usual" does not result in African job creation – *Process of project preparation does not systematically assess opportunities & strategies for African jobs*

5. New approach needed – *Integrate job maximsation approach with project investability as integral part of feasibility studies, ESIAs, etc (ToRs include incentives, training, etc)*

NEPAD's Service Delivery Mechanism
therefore needs to systematically integrate African job creation
into its support of PIDA Projects

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SDM Job Creation Advisory Services for Project Owners

1. Orientation: Job Maximisation *Guide – Provide overview on how infrastructure can create jobs & 10 Actions for Job Creation (see Toolkit Job Maximisation Module)*

2. **Assessment of Project Opportunities for Job Creation** *– Conduct project-specific diagnostic of possible African sources of inputs (raw materials, equipment, labour, etc)*

3. **Project Job Estimates** *– Use the Toolkit to assess project's potential for African jobs, testing alternative scenarios*

4. **Terms of References** *– Based on results, customize the terms of references (feasiblity studies, transaction advisory, ESIA, procurement for construction, PPP contracts, etc)*

5. **Project Promotion** *– Integrate job estimates and development impact into promotion for project preparation funding, long-term finance (debt, equity) from public & private sectors*

NEPAD's Service Delivery Mechanism
Can systematically deliver on both Afrcan Job Creation & Investability

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