

The PIDA Job Creation Estimation Methodology

What?

The *Programme for Infrastructure Development* (PIDA) is a continental strategic framework for infrastructure development, which was adopted by all African Heads of State and Government in 2012. PIDA comprises 51 cross-border infrastructure programs including more than 400 single projects in the sectors of energy, transport, transboundary water management and information and communication technology (ICT).

As the implementing agency for PIDA, the NEPAD Agency, with support from the German Government via the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) developed an econometric methodology that estimates the labor market effects of PIDA projects. This demonstration of labor market effects helps to raise political and financial commitment necessary for PIDA project implementation. In terms of the cross-border and large scale nature of infrastructure projects in Africa, the development of such a consistent and practical methodology is unprecedented. Moreover, PIDA project owners and their partners can use this new cross-border infrastructure job creation methodology as a policy instrument to assess how alternative project designs may impact African job creation.

How?

The PIDA Job Creation Estimation Methodology estimates direct, indirect and induced labor market effects during the planning, construction and operation & maintenance (O&M) phases of PIDA projects. Additionally, the methodology estimates secondary job effects, which are those jobs that are being created in other sectors of the economy due to the operational infrastructure service (e.g. improved energy access). All employment results are expressed in terms of job years (the number of jobs for one year) and are estimations based on certain assumptions as explained in the detailed methodology document.

For example, the methodology was used to estimate the potential employment effects of the PIDA Project Ruzizi III (a hydropower project serving Burundi, the Democratic Republic of Congo, and Rwanda). Potential employment across the three host countries was estimated at around 135,200 total job years over the project's useful life and construction period broken down as follows: Around 25,000 direct, indirect and induced job years during the project's construction phase; around 6,500 job years for the O&M phase; and around 103,700 secondary job years as a result of improved energy access across the three countries.

The methodology's underlying foundation is based on the assumption that project total investment costs will lead to the purchase of goods and services within an economy, which will then create employment. To categorize between type of jobs and project phases, the total investment costs are broken down into preparation; construction and O&M costs. These project costs are considered as industry inputs to the economy, which will yield outputs in the form of direct, indirect and induced jobs i.e. project costs → investment split between inputs → purchase of goods and services.

To generate these estimated outputs national Input-Output (I-O) tables are created. Used by governments, development institutions, and international organizations worldwide as best practice, I-O tables describe the sale and purchase relationships between producers and consumers in an economy. Given the lack of I-O tables for African countries, national I-O tables have been generated with information obtained from the Global Trade Analysis Project (GTAP 9 Database). GTAP Africa is based on country economic inter-sectorial data with three data reference years (2004, 2007, and 2011). As I-O tables depict the inter-industrial flow of

goods and services per input to the economy, inter-sectoral coefficients can be used to estimate the additional employment being generated by the project investments (*purchase of goods and services*) on each host country's national economy. The Methodology accounts for a lack of detail on project investments in each of the three phases. As not all projects provide the investment breakdown for preparation, construction and O&M costs, sub-sector specific industry ratios per project phase serve as a benchmark to provide the needed investment input to the economy (e.g. on average 55.2% of the total hydropower plant costs are dedicated to civil works in hydropower construction).

The estimation of secondary job effects is sector specific and uses chain ratio analysis to estimate the economic spill-over effects based on the specific sector. For example in the case of energy generation, the methodology begins by subtracting distribution and transmission losses from the projected additional power supply of the respective project. This adjusted number is then converted to the dollar value of additional supply per kWh to calculate the total electricity input in USD value, which is then entered as additional electricity input in the I-O table to calculate its overall economic impact. The secondary job impact of a PIDA Project is usually the greatest, given its transformative impacts, such as increasing a country's supply of energy or the ability to increase trade flows across countries.

Way Forward?

The NEPAD Agency with the technical support of GIZ plans to develop an online PIDA Job Creation Toolkit. This toolkit allows project owners to login and insert the respective project data (*project name, project location, sector and sub-sector, project phase, preparation costs, construction costs, annual O&M costs*) to obtain job estimations for their respective project. This is followed by an overview that specifies what types of jobs can be created within and outside of Africa. Moreover, the PIDA project owners and their technical partners can use the Toolkit to test alternative project designs to maximize African job creation. To enable PIDA project owners and partners to consider alternative project designs and policies, the **Best Practice Job Maximization Guide** will be part of the Job Creation Toolkit, detailing possible employment-generating interventions at both national and regional levels, leveraging best practices of job maximization for infrastructure projects worldwide.

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