

# DEVELOPING PRIVATE SECTOR LINKAGES TO THE NATURAL GAS VALUE CHAIN: THE CASE OF TANZANIA



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**Andrea Dall'Olio, Lead Economist (Tanzania, Uganda and Burundi)**  
**Trade & Competitiveness Global Practice**

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# Objectives of the BBL

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## 1. Project presentation

- Present what the T&C team is doing to leverage the gas discoveries in Tanzania to create jobs and develop the local private sector

## 2. Comments

- Receive comments and suggestions on the proposed approach

## 3. Way forward

- Discuss ways to leverage the analytical approach for other WBG interventions

# Tanzania – key facts

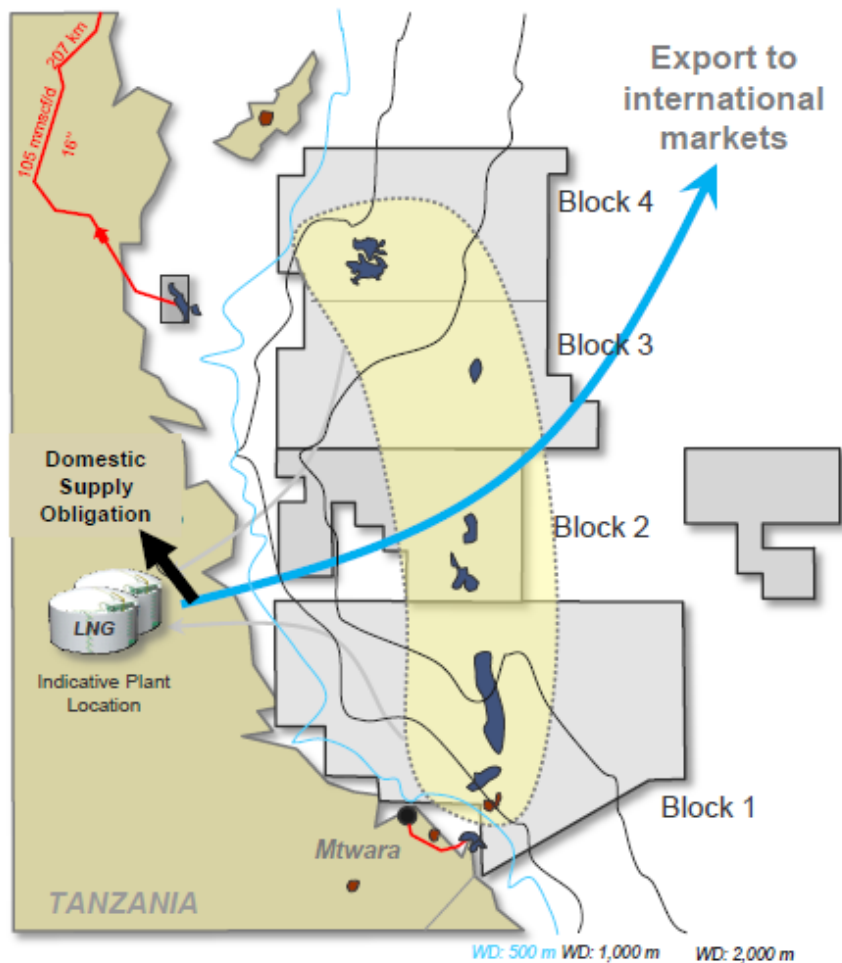


**Population:** ~ 50 mn  
**GDP:** ~US\$33 bn (~7% growth rate 2014/15)

- 28 percent of Tanzania's population is still living below the poverty line
- **~800,000 people joining the workforce every year.**
- Due to **market failures** that are hindering private sector's entry and scale-up (mainly access and reliability of power, logistic, transportation, regulation, access to finance, and skills):
  - **most jobs are informal**
  - **Industrial supply chains vertically integrated:** few large conglomerates dominate the private sector landscape.
  - In the **underdeveloped South**, the industrial base is almost absent

Source: World Bank data; Team analysis

# A natural gas “bonanza” – key facts



- Tanzania already has **on-shore gas fields** - not fully exploited
- **Off-shore natural gas** reserves (discovered in 2012) estimated at **~54 tn cubic feet**
- **Off-shore gas is located more than 2km under the sea level** (one of the deepest in the world)
- **The main market for off-shore gas will be export via liquefied natural gas (LNG)**
- **Overall gas-related FDI estimated in the range of US\$30-40 bn** over the next 20 years\*, including US\$15-20 bn for the construction of the LNG plant
- Two consortia (led by **ExxonMobil/Statoil and BG**) planning construction of a **joint LNG plant**:
- **Production starting not before 2024** and gas revenues (around US\$3 bn per year)\*\* to come only years later

\* Estimates based on other countries (PNG, Angola) and interviews to IOCs representatives

\*\* Based on MACMOD\_TZ model's assumptions

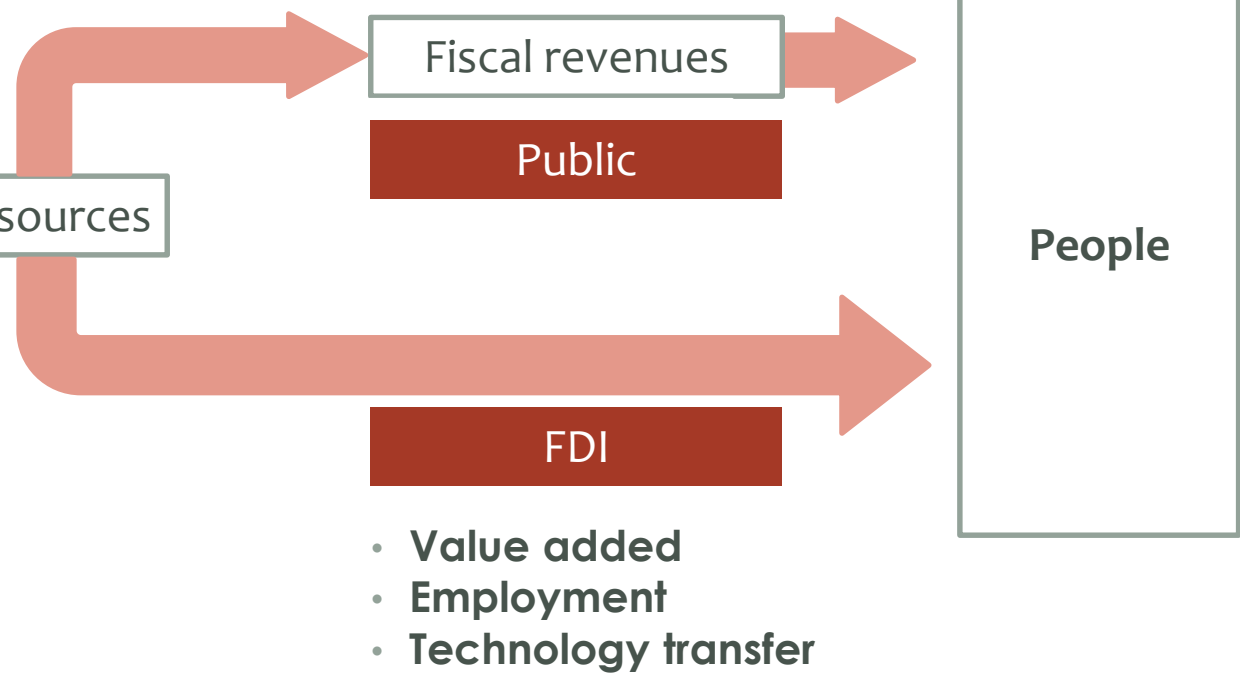
# What will benefit the average Tanzanian? Mostly Jobs ...

Expectations amongst the population are high: riots in Mtwara in 2013

Production starting not before 2024 and gas revenues (around US\$3 bn per year)\* to come only years later

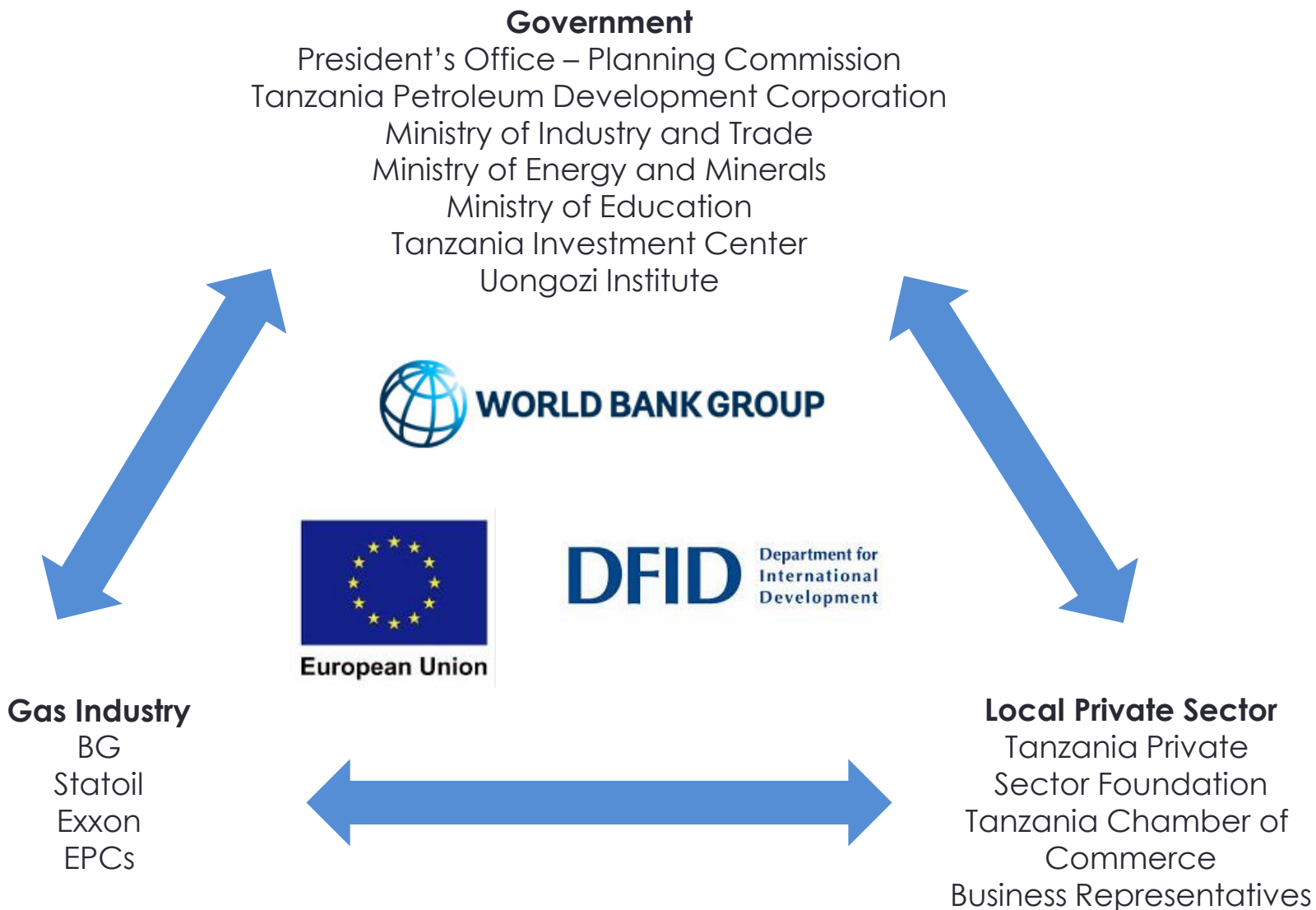
Natural resources

➤ **Indirect channel through tax revenues** - this requires an efficient and fair distribution of benefits



➤ **Direct channel through value chain development/local content** - creating linkages between the natural gas industry and the domestic private sector and promoting employment even before gas revenues start to flow in

# World Bank role as facilitator to align stakeholder incentives



## World Bank approach – a combined approach

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1. Support to policy formulation via Public-Private Dialogue (PPD)

2. Analytical work to identify priority sectors, design potential interventions and inform policy formulation

3. Preparation of a lending operation to maximize local job creation

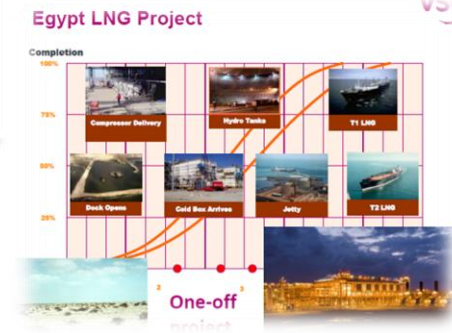
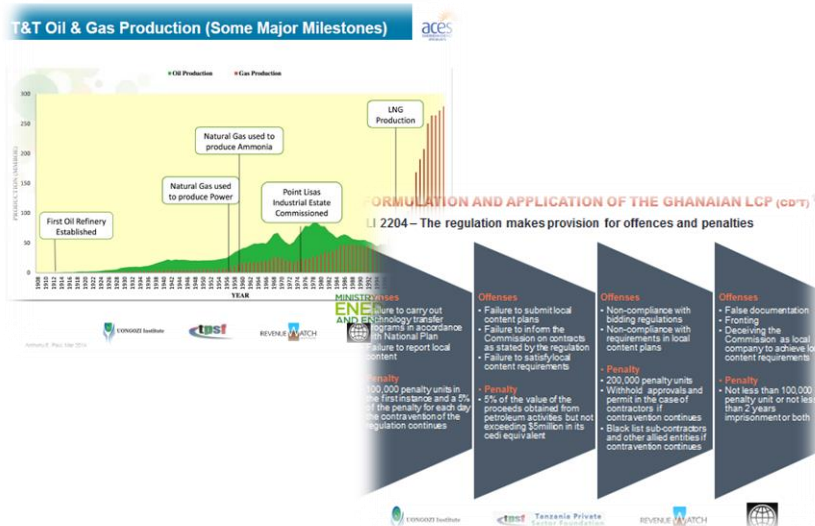
# Roundtable dinners on “local content” experience



The T&C team, in collaboration with the Uongozi Institute, the Tanzania Private Sector Foundation (TPSF) and Revenue Watch organized a series of workshops with **high level policy makers and private sector representatives.**

The workshops – in the form of roundtable dinners – are aimed at **creating a dialogue on Local Content policies by sharing experiences of other countries** which have already designed and implemented such policies.

Four countries have been covered so far: **Trinidad & Tobago, Ghana, Malaysia and Egypt.**





# Comments to the draft Local Content Policy

- The Government of Tanzania is working on the regulatory framework, including the **Natural Gas Policy adopted in 2013**, and the **Local Content Policy (LCP) currently being drafted**
- The World Bank, in collaboration with DFID, the EU and Norway Embassy, jointly provided **comments to the Draft Local Content Policy (LCP)** to the Ministry of Energy and Minerals in June 2014, summarized in **10 key recommendations**. The main messages emerging from the comments broadly suggest that:
  - The draft LCP shall focus more on setting principles and strategic directions for policy interventions, and on **addressing existing market failures hindering the development of specific sectors of the economy**.
  - The draft LCP shall reflect more clearly the relatively **limited potential for direct job creation** in the oil and gas industry, coupled with the **high potential for indirect and induced jobs**.
  - Requirements on **local ownership and/or direct government intervention shall be based on efficiency and sustainability principles**, and be informed by other countries' experience.
- The **Government is currently finalizing the LCP internally**, after having incorporated some the comments provided by stakeholders



The T&C has identified a **focal person within the Ministry of Energy and Minerals (MEM)** to ensure dialogue on the LCP and other local content initiatives remains open

# World Bank interventions

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1. Support to policy formulation via Public-Private Dialogue (PPD)

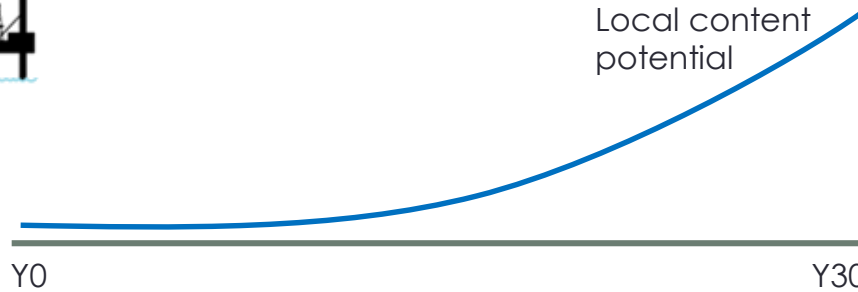
2. Analytical work to identify priority sectors, design potential interventions and inform policy formulation

3. Preparation of a lending operation to maximize local job creation

# Natural gas value chain – a differentiated approach

## Upstream

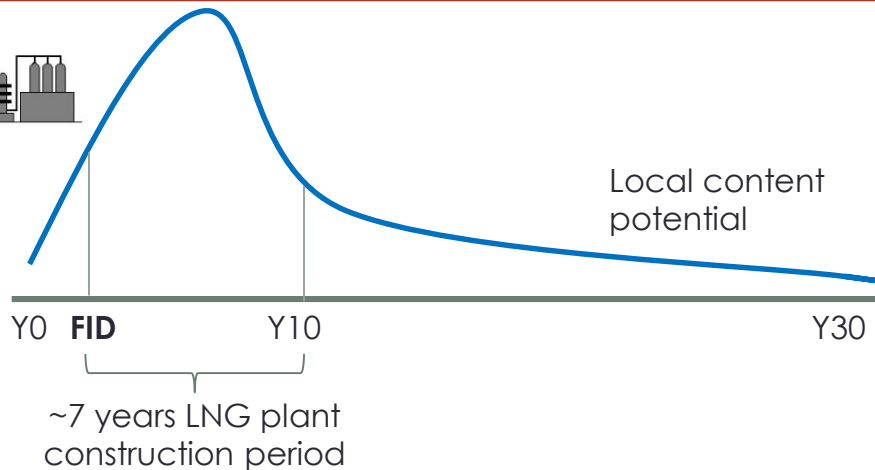
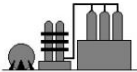
(exploration, test drilling and extraction)



Limited potential for local content in the first years, but long term timeframe ensuring higher sustainability

## Midstream

(processing and liquefaction of gas through a liquefied natural gas [LNG] facility)



High potential for local content in a short and near timeframe



**Focus of our analysis, as this segment offers the greatest opportunity to develop linkages with the local private sector, exploiting the concentrated demand**

## Downstream

(distribution to end-use markets)



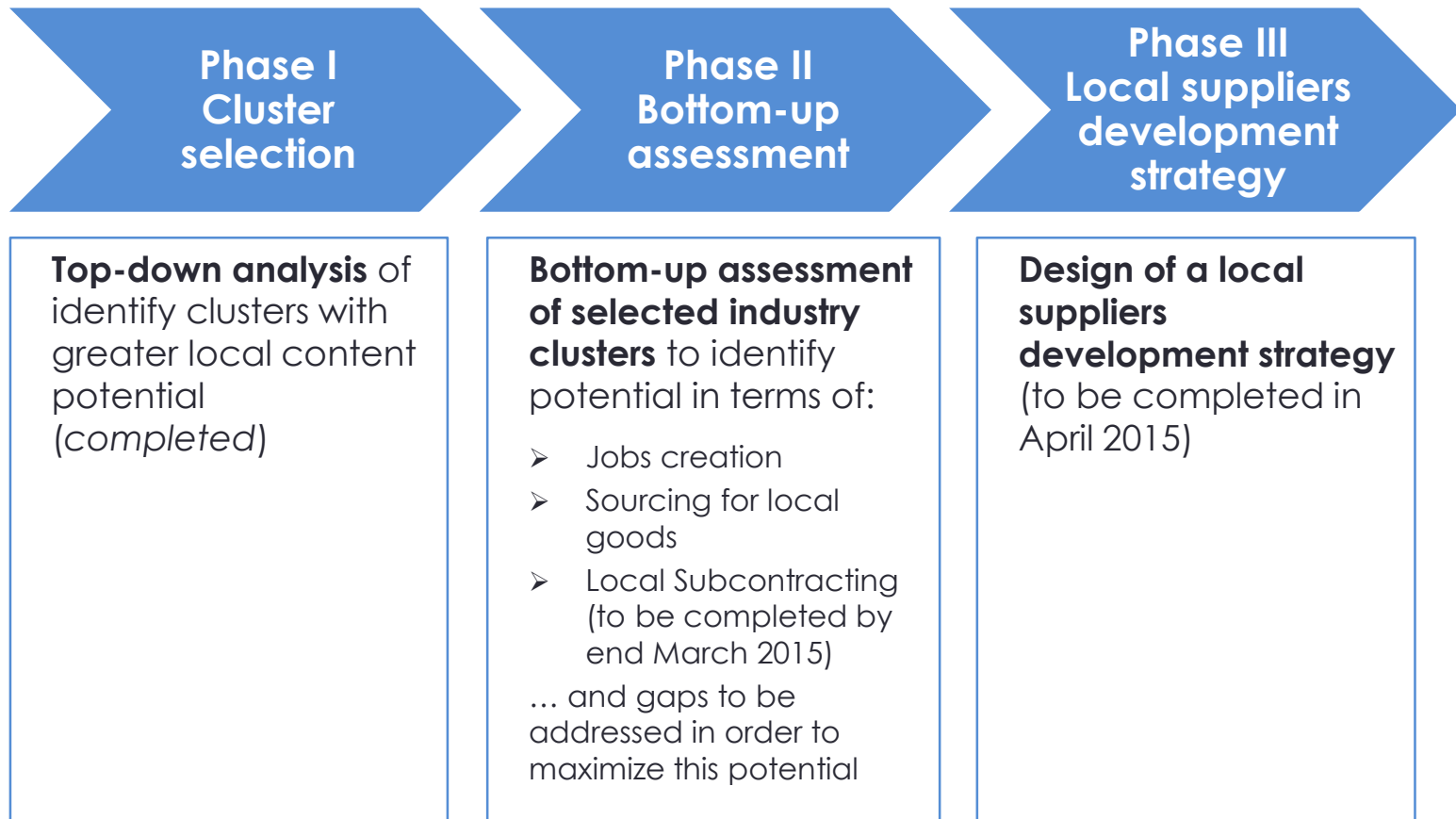
Potential for local content depending on the uses of gas and relative demand

# LNG Plant in Lindi – this is what will look like ....



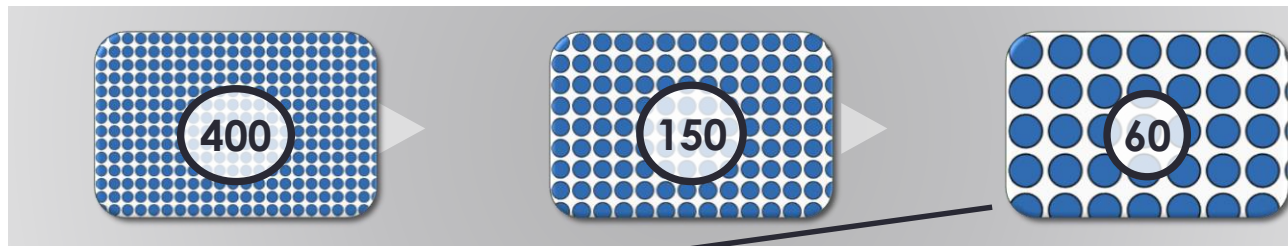
# Industry gap analysis on midstream/LNG linkages – Approach

A **comprehensive, industry gap-analysis** to identify the key industry clusters which could benefit most from developing linkages with the midstream gas industry (i.e., construction of the LNG plant):



# Phase I – Cluster Selection: Methodology (1/2)

1  
Aggregate the estimated demand into 60 industry clusters (based on 4-digit ISIC codes)

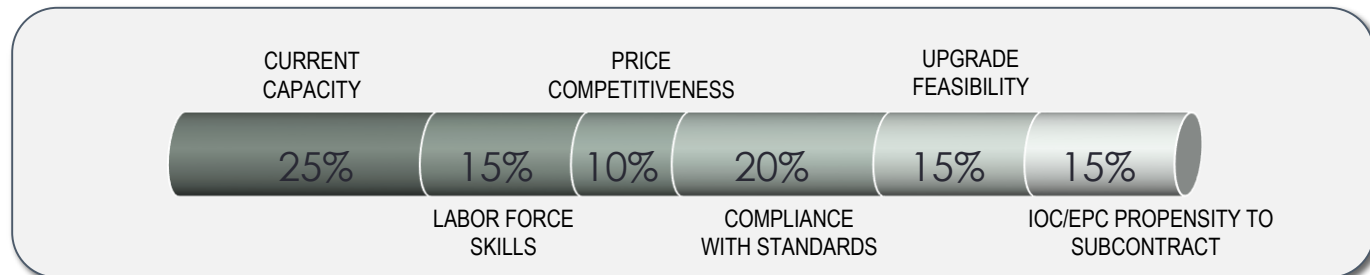


LEGAL SERVICES	ACCOUNTING SERVICES	RESEARCH AND DEVELOPMENT SURVEY SERVICES	PRE-FEED AND FEED DESIGN SERVICES	LNG TESTING, ANALYSIS, CERTIFICATION	BANKING SERVICES	INSURANCE SERVICES	HOTEL SERVICES (SHORT-TERM STAY)	CATERING SERVICES
RESTAURANT SERVICES	FREIGHT SERVICES (BY WATER)	FREIGHT SERVICES (BY ROAD)	PASSENGER TRANSPORT SERVICES	CHARTER SERVICES	WAREHOUSING AND STORAGE SERVICES	CARGO HANDLING SERVICES	MOTOR VEHICLE SALES	MAINTENANCE AND REPAIR SERVICES
TEMPORARY EMPLOYMENT AGENCY SERVICES	OTHER HUMAN RESOURCES (I.E. PERSONNEL HIRING)	EMPLOYMENT PLACEMENT AGENCIES	TRAVEL AGENCY	SECURITY SERVICES	LANDSCAPE AND MAINTENANCE SERVICES	FACILITIES MANAGEMENT	CLEANING SERVICES	OFFICE ADMINISTRATION
MEDICAL SERVICES	DATA PROCESSING SERVICES	WEB PORTAL AND DEVELOPMENT SERVICES	WIRED TELECOM SERVICES	WIRELESS TELECOM SERVICES	COMPUTER PROGRAMMING SERVICES	SITE PREPARATION SERVICES	FOUNDATIONS / MASONRY / CRANES / SCAFFOLDING	ROADS/LANDIN G STRIPS CONSTRUCTION
UTILITY PROJECTS CONSTRUCTION	DOCKS/JETTIES	BUILDING/CAMP CONSTRUCTION	PLUMBING AND HVAC	ELECTRICIAN SERVICES	PRE-CAST CONCRETE FORMING SERVICES	LNG TRAIN CONSTRUCTION / INSTALLATION OF PREFAB EQUIPMENT	WATER SUPPLY SERVICES	HVAC REPAIRS
POWER SUPPLY OPERATIONS	HEAVY EQUIPMENT MAINTENANCE	IRON AND STEEL MANUFACTURING	STEEL / PIPE CASTING / SHAPING / FORMING	FABRICATED METAL PRODUCTS- PIPES / VALVES / FENCING	METAL FRAMEWORKS FABRICATION	METAL REPAIR AND REFINISHING	INDUSTRIAL MACHINERY REPAIR	PUMPS / COMPRESSORS / VALVES MANUFACTURING
	LNG STORAGE TANKS FABRICATION / INSTALLATION	PRE-FABRICATED GAS TURBINES	LNG REFRIGERATION / EXCHANGERS / PREFAB MANUFACTURING	SANITATION AND SEWERAGE SERVICES	NON-HAZARDOUS WASTE TREATMENT AND DISPOSAL SERVICES	HAZARDOUS WASTE TREATMENT AND DISPOSAL SERVICES	POLLUTION CONTROL ACTIVITIES	

# Phase I – Cluster Selection: Methodology (2/2)

2

Assessing the current level of competitiveness (using a CAM) of each industry cluster,

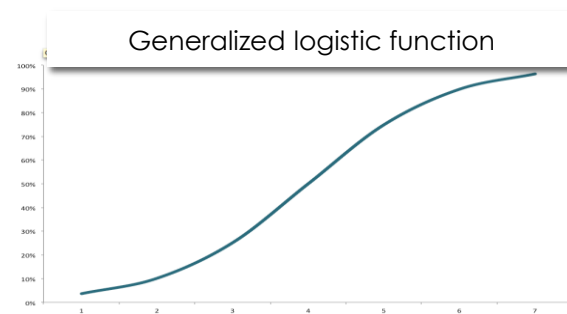


3

Translating CAM summary scores into likely percentage captured in the local market

The process of gaining **market potential** is akin to a learning diffusion process, as industry clusters gain capacity by upgrading.

A **logistic function** describes the standard pattern for such learning/diffusion processes, in line with the literature.



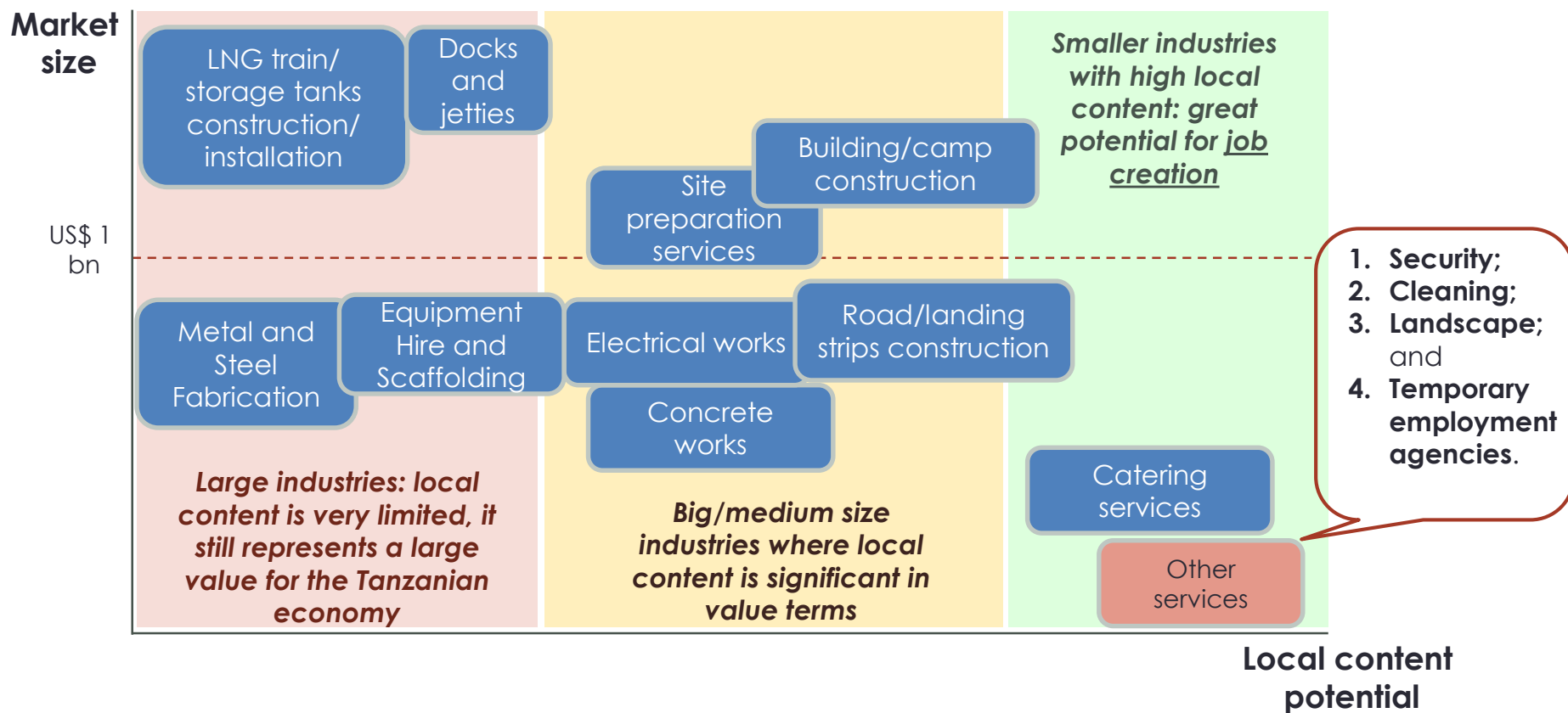
4

**Gauging sustainability for each industry cluster:** Only goods and services that will still be demanded (nationally or internationally) after the construction of the LNG plant are considered for Phase 2.

**“Sustainability/transferability”:** availability of market demand for goods and/or services outside the O&G sector; applicability of skills for providing goods and services in other industries.”

Sustainability was selected as a singular filter given the importance in ensuring the inclusion of viable **industry clusters that have continuing market potential outside of the oil and gas industry.**

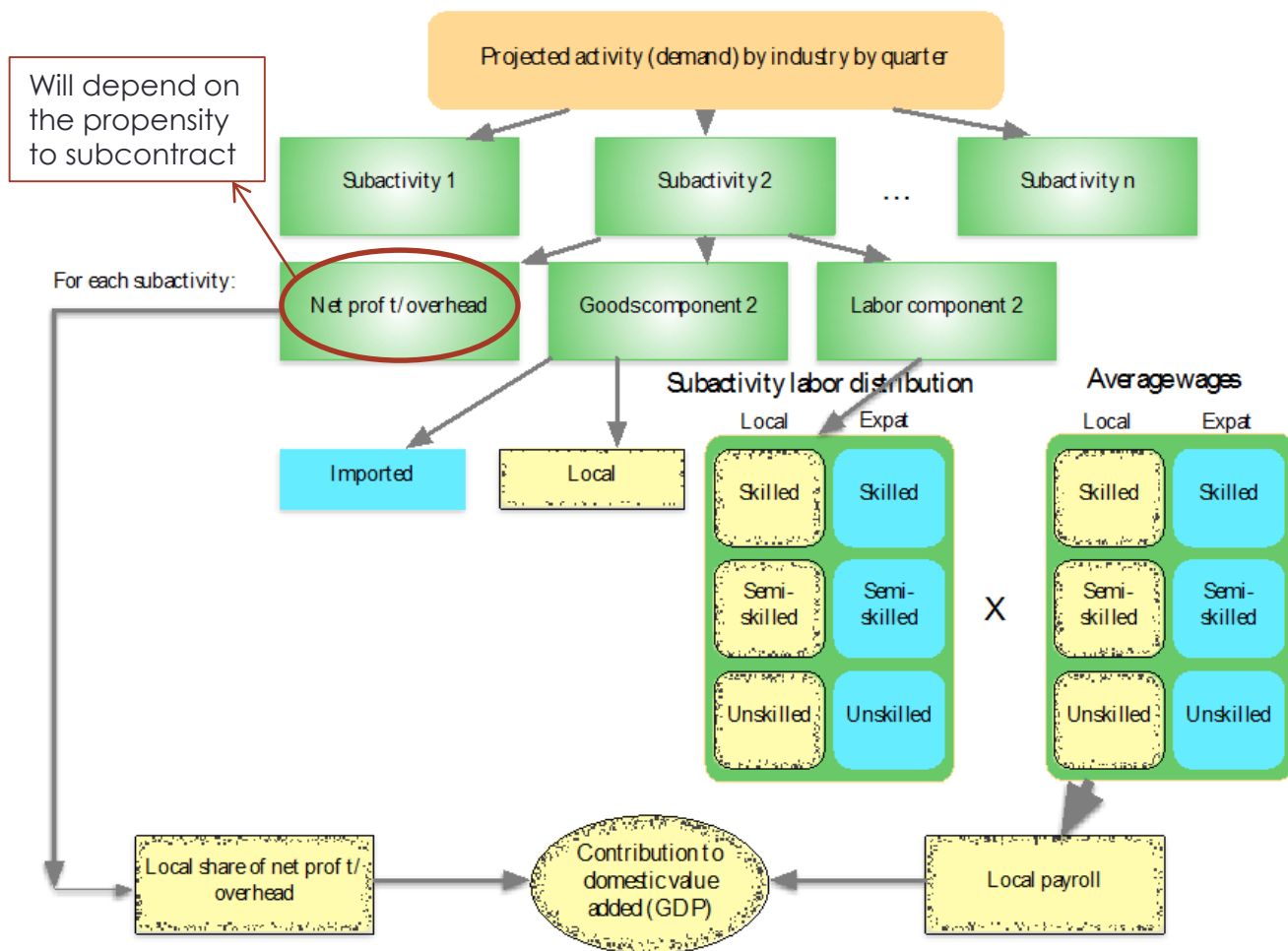
# Phase I – Cluster Selection: prioritization





# Phase II – Bottom-up Analysis: Methodology (1/2)

Decomposition of cluster demand into subactivities



## Phase II – Bottom-up Analysis: Methodology (2/2)

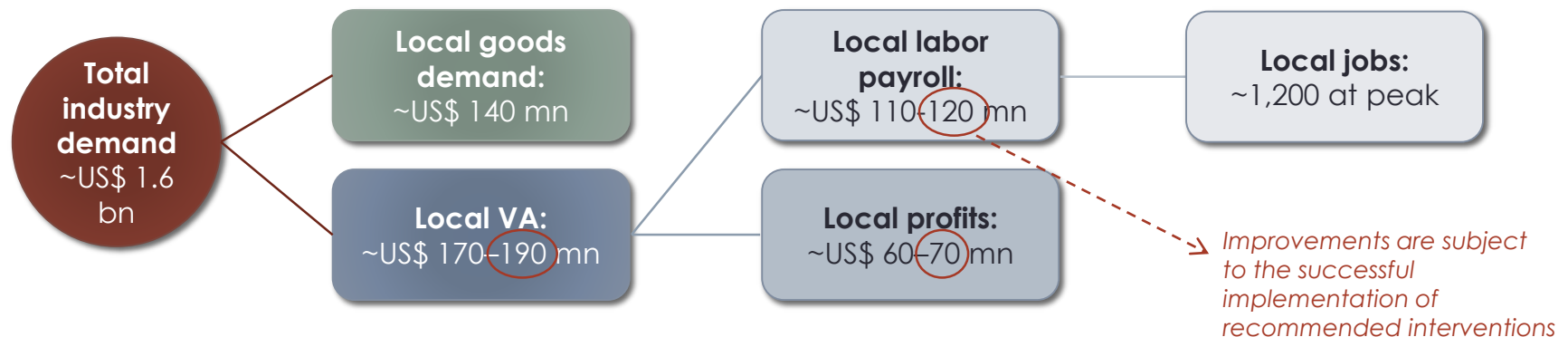
The approach allows for **analyzing subactivities in each industry** to estimate:

**Goods component** (both local and imported)

**Domestic Value Added** (wage bill for domestic labor, plus profits accruing to locally owned businesses)

**Distribution of labor by skill category and origin** (local or expatriate)

### Example from Building/Camp Construction industry



### **⚠️ Limitations of the bottom-up approach:**

- 1) The model relies on **specific assumptions** regarding subactivities breakdown, imports of goods, labor skills split and wages;
- 2) The model **does not** estimate the potential for indirect and induced job creation;
- 3) The model **does not** capture the value addition contained in the goods component;
- 4) The model **does not** separate VA generated through subcontracting vs. self-performance of the subactivities.

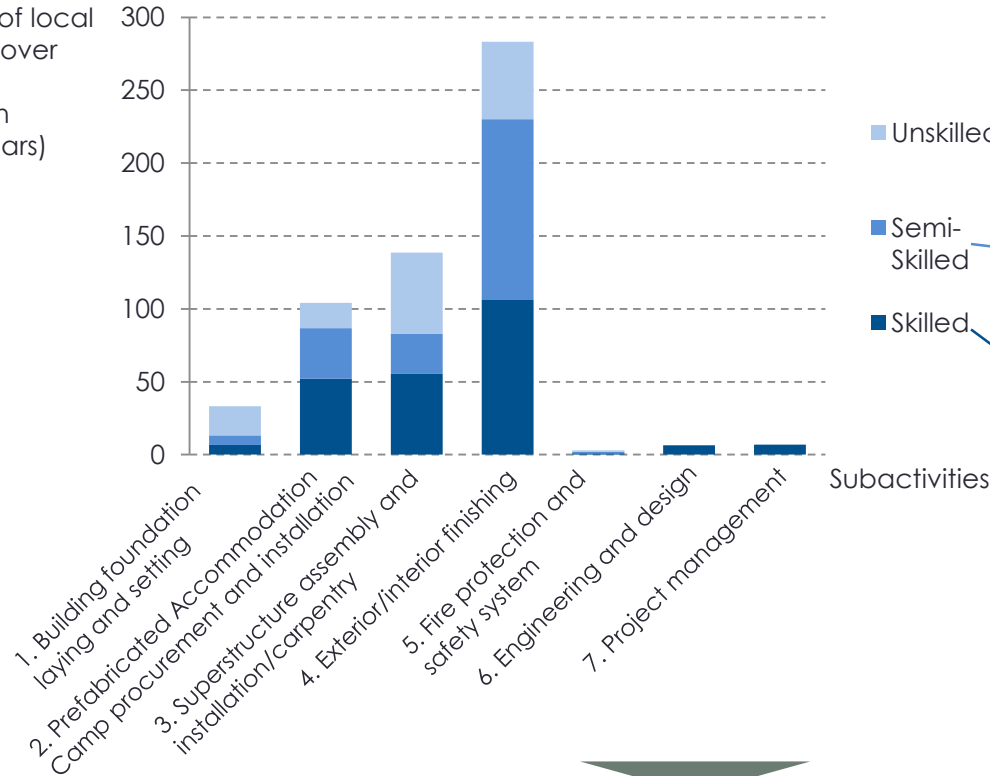
## Phase II – Bottom-up Analysis: Preliminary Findings (1/3)

Industry	Jobs		Goods		Subcon'	
	Now	Y3	Now	Y3	Now	Y3
Building/Camp construction	Yellow	Green	Red	Yellow	Yellow	Green
Site preparation services	Yellow	Green	Red	Yellow	Red	Yellow
Fabricated metal/steel products	Yellow	Yellow	Red	Red	Red	Red
Docks/jetties	Yellow	Yellow	Red	Red	Red	Red
Road/landing strips construction	Yellow	Green	Yellow	Yellow	Red	Yellow
LNG train/tank construction/installation	Yellow	Yellow	Red	Red	Red	Red
Catering services	Green	Green	Yellow	Green	Yellow	Green
Electrician services	Yellow	Green	Yellow	Yellow	Yellow	Green
Concrete Works	Yellow	Green	Yellow	Green	Yellow	Yellow
Equipment Hire and Scaffolding	Yellow	Green	Red	Yellow	Red	Yellow
Services Industry (Security, Cleaning, Landscape services, Temporary employment agencies)	Green	Green	Yellow	Green	Yellow	Green

# Phase II – Bottom-up Analysis: Preliminary Findings (2/3)

## Local employment generation – Example from Building/Camp Construction industry

Average # of local employees over LNG plant construction phase (7 years)



Unskilled work include: manual labor (site clearing, rebar placement, carrying tools)

Semi-skilled work include: carpenters, framers, painters, welders, electricians, plumbers, technicians

Skilled work include: experienced technical supervisors, project managers

A total of **~1,200 local people** will be employed in the Building/Camp Construction industry at peak (between Y3 and Y5)

## Phase II – Bottom-up Analysis: Preliminary Findings (3/3)

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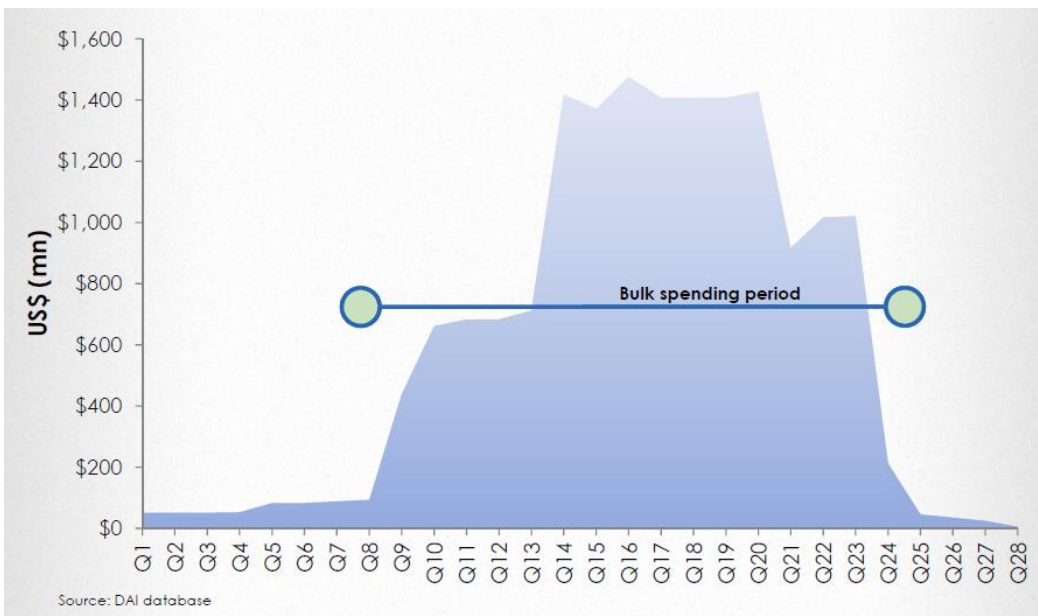
Main **conclusions** from the bottom-up analysis:

- The **potential for local content in relation to the natural gas industry is high**, especially in terms of local job creation. In addition, **indirect and induced positive effects** on the rest of the economy can be generated and maximized through the proposed interventions (ex. additional employment for the local communities can be generated by expanding the agri-business value chain)
- However, **this potential is not guaranteed**. In order to capture these opportunities, the government and the private sector will need to put in place a structured approach to remove bottlenecks through **targeted interventions aimed at upgrading the current capacity and skills level of the local market**. Examples of such interventions include:
  - Establishing a **practical training center (PTC) in partnership with the private sector** to bridge the “practical training” gap between the VETCs and employment
  - Establishing an **Agro-processing Zone (APZ)** in Mtwara to increase local production of food inputs;
  - Establishing a **goods certification center** in Tanzania that can provide affordable goods certification and accreditation services;
  - **Update supplier databases** with audited and verified data.
- All these sectors presented are not directly related to gas: the focus is on developing **transferable skills** that local labor force can then be remarketed in other more sustainable industries (ex. real estate and industrial construction works, catering for mining sector, etc.)

# Demand intensity during LNG plant construction phase offers opportunity to overcome investment barriers in a few sectors

- The construction of LNG facility promises a **concentrated and stable source of demand** that local firms can capture
- Focus on sectors where even if demand drops sharply thereafter, the returns reaped during construction phase should generally be sufficient to **recover initial cost of investment**
- **Sustainability** has to be considered, but once the private sector is aware of the demand, then it will be able to make its own calculations

Anticipated timing of demand during project

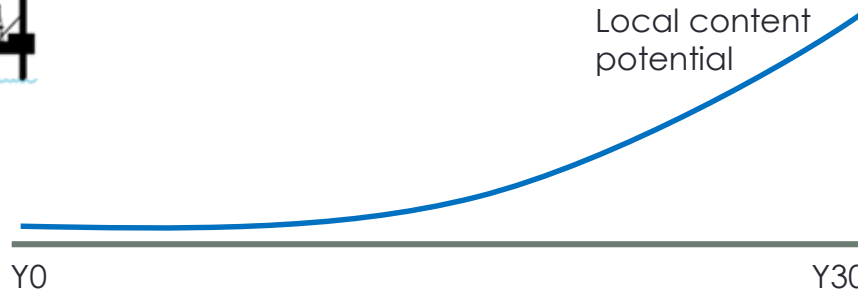


Total estimated cost of LNG project about **US\$15-20 billion** over 7 years, with bulk spending occurring between Q8 and Q24

# Natural gas value chain – a differentiated approach

## Upstream

(exploration, test drilling and extraction)



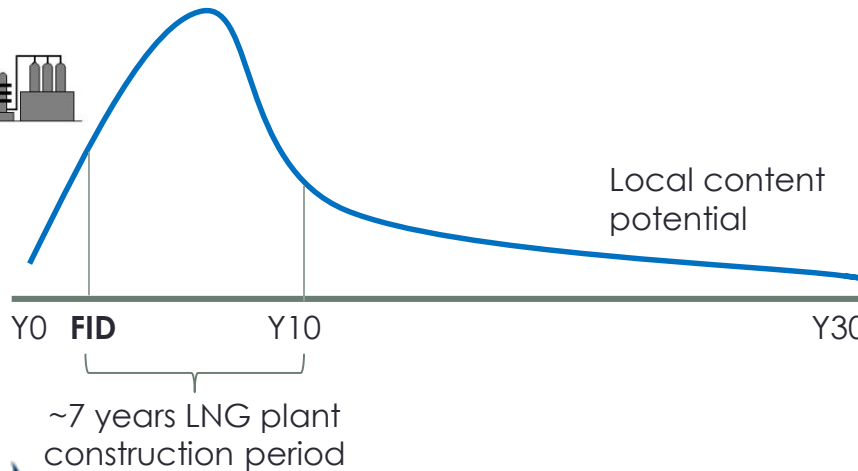
Limited potential for local content in the first years, but long term timeframe ensuring higher sustainability



**Included in our analysis, as upstream activities are already ongoing in the Mtwara area**

## Midstream

(processing and liquefaction of gas through a liquefied natural gas [LNG] facility)



High potential for local content in a short and near timeframe

## Downstream

(distribution to end-use markets)



Potential for local content depending on the uses of gas and relative demand

## Mtwara Port – IOCs plans (1/2)

Ongoing upstream project(s) by the IOCs will need an independent logistic base with the following functions:

- 250-400,000 m<sup>2</sup> area, 350 m quayside
- Access channel dredged to -12m CD
- Marshaling/ warehousing of project materials
- Marine support to construction spread(s)
- Fabrication of subsea structures (PLETs, manifolds, spools)
- Stack-up/testing of SPS equipment
- Possible fabrication of PAUs for LNG project
- Support to drilling operations (currently plan to use existin Mtwara port facilities)
- 24/7 availability, including sailing hour
- **Contractor ‘village’ – Enterprise zone**

### Potential for local content:

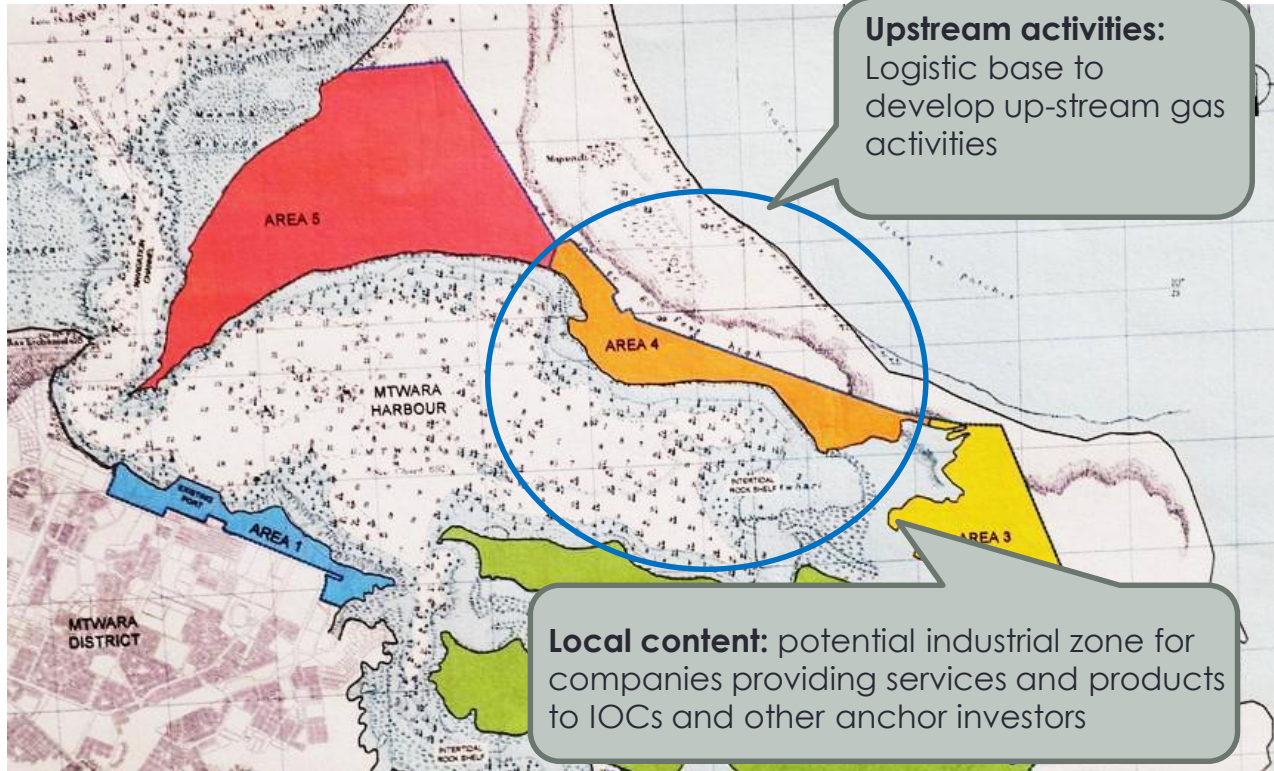
- **Local jobs** during construction phase
- **Local supply of goods and services** during operations

**Potential for WBG intervention** to finance selected infrastructure



# Mtwara Port – Upstream gas activities as anchor investment for an industrial zone?

**Upstream costs implies an investment ranging 20-25 billion US\$ over the lifetime of the fields (up to 30 years)**



- Outstanding infrastructure needs:**
- Industrial masterplanning and investor attraction
  - Offsite infrastructure
  - Links with Mtwara city
  - Labs / testing facilities for supplier development programs (to capture local content opportunities)

# World Bank interventions

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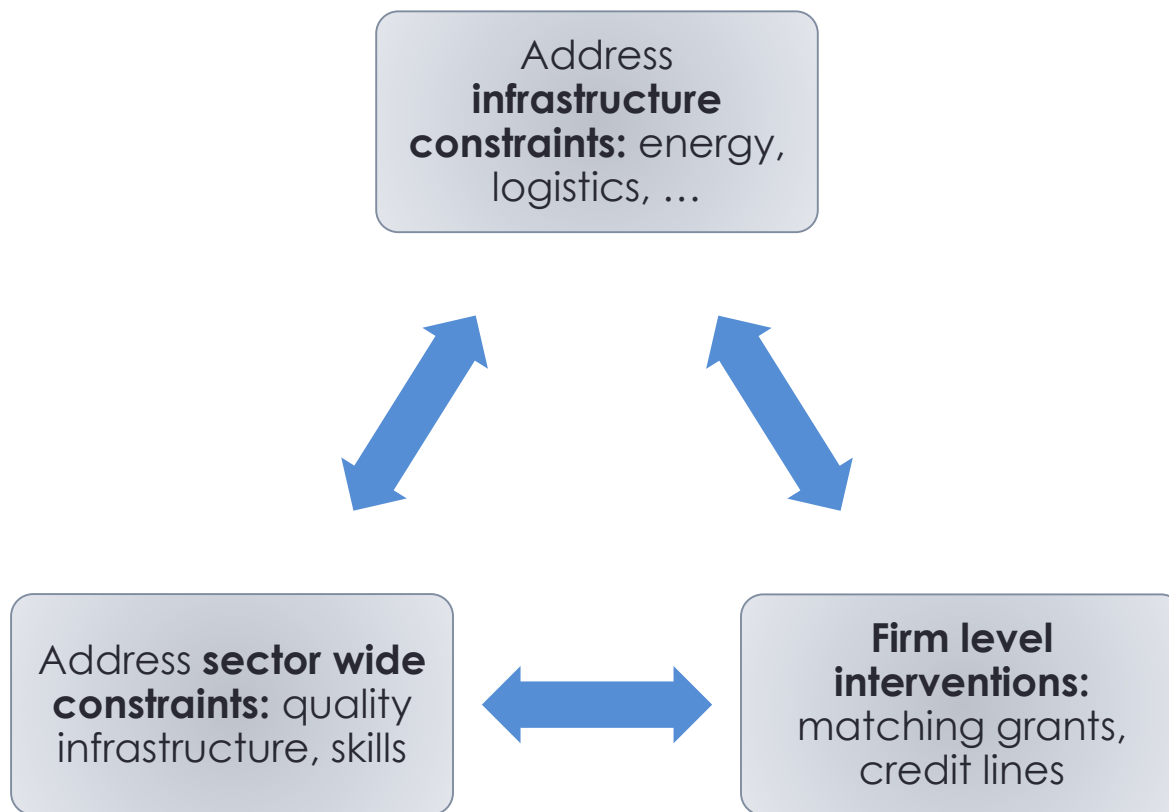
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# Interventions to improve value chain competitiveness

The T&C team is considering **3 types of interventions** to improve the value chain competitiveness:



# Potential interventions to tackle market failures in the South

## Physical infrastructure

- Industrial master planning, land management plan and zoning for Mtwara Port SEZ
- Financing for on-site physical infrastructure provision in Mtwara Port SEZ (e.g. water, feeder roads, grid electricity, sewage, warehousing, desalination, power plant upgrading). Potentially viability gap funding for port upgrade PPP
- TA to crowd-in private investments (incl. FDI, PPP etc.)

**Infrastructure constraints:** addressed at the local level

## Policies / regulations

- Creating a friendly business environment with transparent and clear policies and regulations to attract private investments
  - E.g. cost and ease of doing business regulations, efficient access to industrial land, harmonized tax regime
- **Other WBG projects (e.g. Business Environment DPO, Private Sector Competitiveness Project) will address these issues**

**Sector wide constraints:** addressed at the national level

## Skills

- Creation of enterprise development center with focus on gas and related (upstream / downstream) opportunities
- Creation of supplier / vendor development programs for SMEs through TVET in gas and related (upstream / downstream) sectors based on local content analysis

## Technology & quality standards

- Re-vamping of quality certification and accreditation process to meet international quality and export standards (and to meet IOC standards in South Pole)
- Support to MIT / TBS for strengthening lab testing network

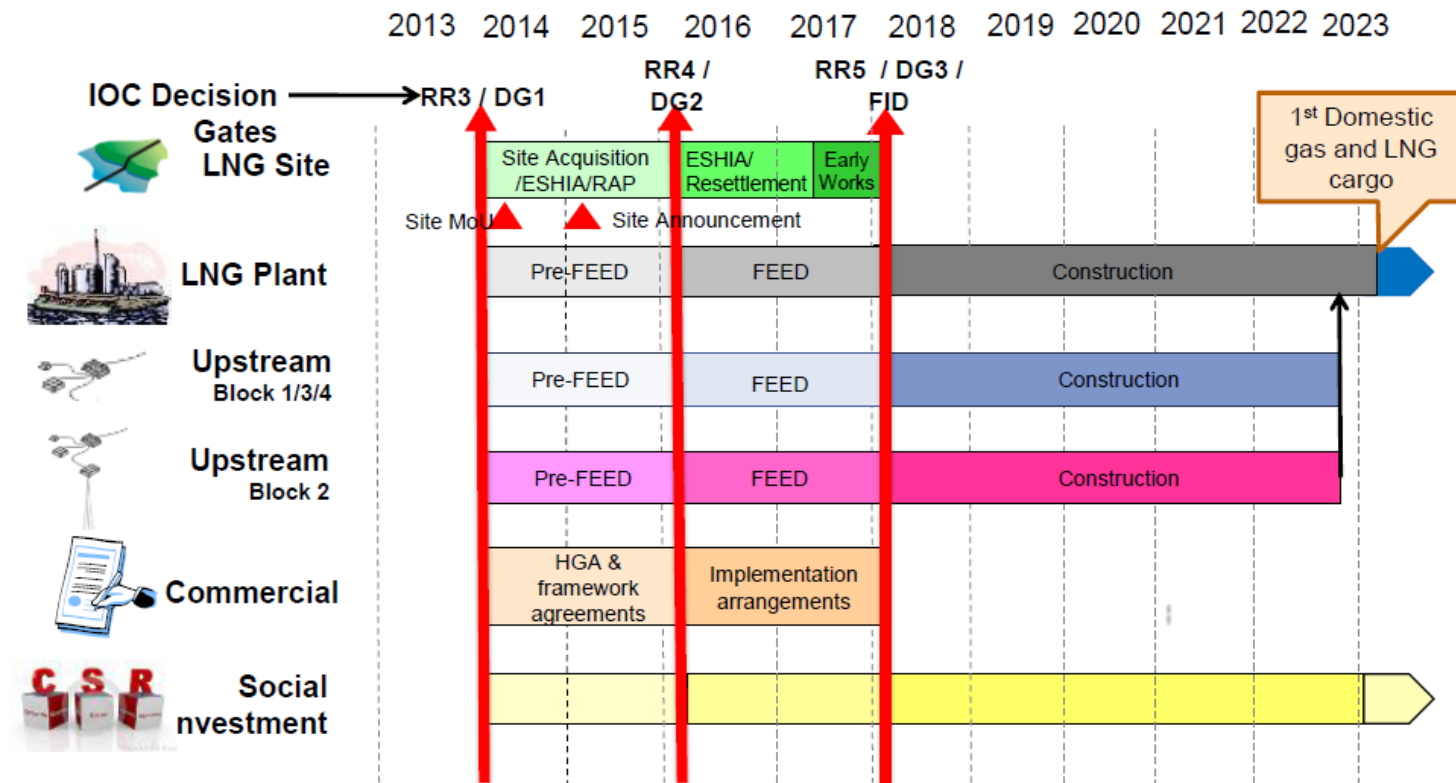
## Access to Finance

- Extend SME focused credit line to commercial banks
- Catalytic funds program for SMEs.
- Improve risk and business assessment skills in financial institutions; Invest in collateral registry and financial infrastructure
- Extend financial inclusion via producers' cooperatives
- Support reform of SME and export credit guarantee schemes

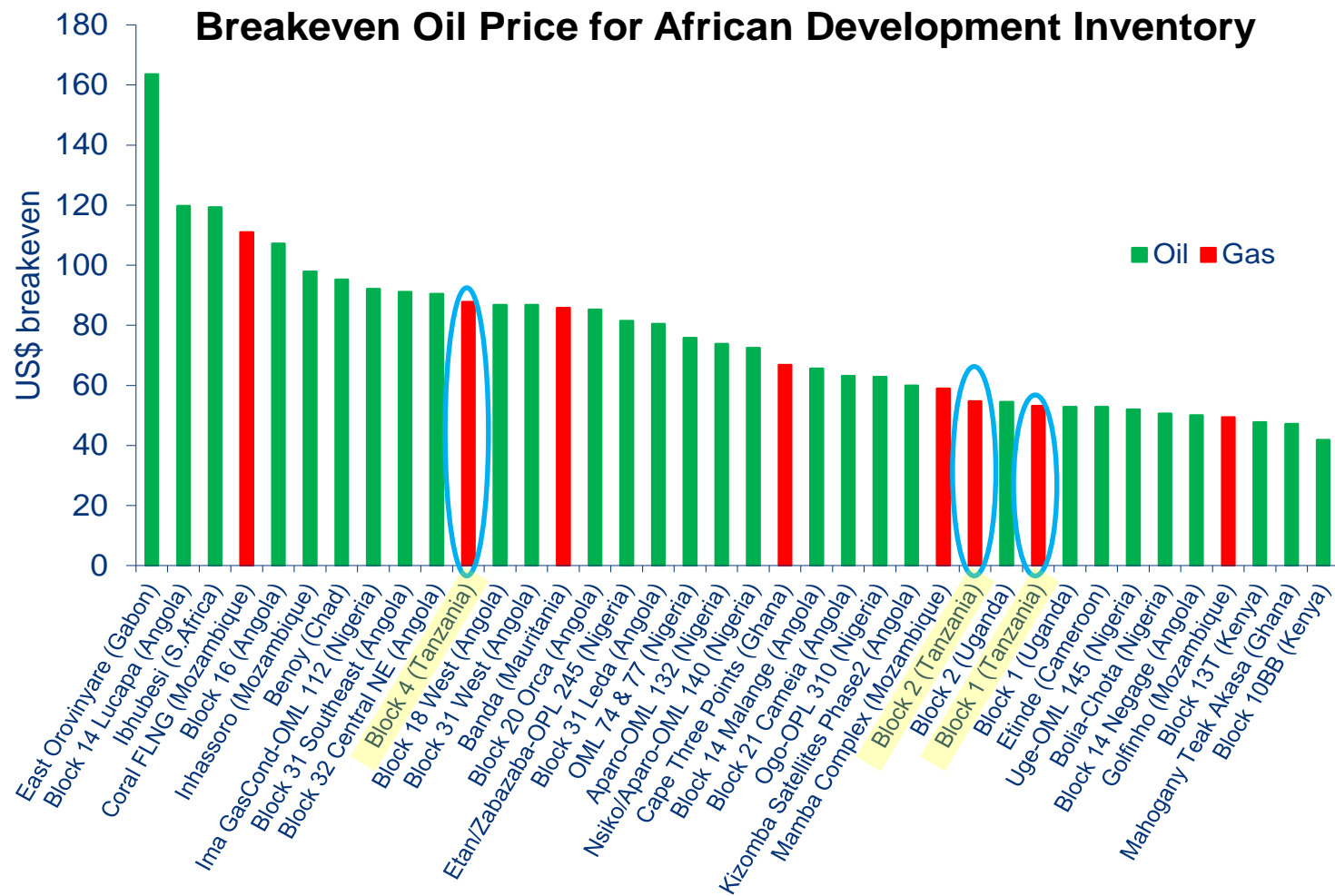
**Business constraints:** addressed at the firm level

# Timing of intervention is critical

- Key moment to assist local firms in understanding and anticipating the demand for goods and services associated with natural gas industry is **years before gas production actually commences**
- The longer such capacity building is delayed, the smaller the likely multiplier impact



# ... oil prices may cause a delay in the LNG project



Source: Wood Mackenzie

# What is new in our approach?

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What is **new** in this approach?

**Timing**  
WBG  
intervening “in  
advance”

**Combination  
of analytics,  
policy making  
and  
investment  
lending**

**Bottom-up  
approach**

**Scaling up  
opportunities  
outside oil and  
gas**

## How to leverage this work?



Expand  
scope

1. To other sectors (ex. mining)

2. To other resource rich  
countries

3. To the region (EAC, but also  
Mozambique)