



**PETROLEUM COMMISSION, GHANA**  
Regulating, Managing & Coordinating Upstream Petroleum Activities



**Local Content**  
Conference – 2021



# *Optimising Technology Transfer in Ghana's Upstream Petroleum Industry*

**Developing Appropriate Technology & Skills Transfer Models  
in the Oil & Gas Industry**

**- Some Practical Applications**

# LCCE

Local Content Conference & Exhibition

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**15<sup>th</sup> December 2021**  
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# Economic Linkages from Natural Resources

1. **Fiscal: capturing and investing resource rents**
2. **Spatial:** using extractives related activities to put in place **critical infrastructure** that can unlock other domestic economic potential.
3. **Backward linkages:** using extractive sector demand for capital **goods, consumables and services** to drive development of locally-based supply.
4. **Knowledge:** using the extractive sector to seed **technology clusters** and as a training ground for **skilled labor** in the expectation that developing a local knowledge base will drive increased local value creation in both the extractive sector itself, as well as other sectors, new and existing.
5. **Forward linkages:** using extractive products as **fuel or feed-stocks** to foster growth of domestic **industrialization**, downstream industries and the participation of locals in the **trading and marketing** of products outside their national jurisdiction.

# Technology Transfer Channels

1. Demonstration - imitation
2. Labor mobility
3. Linkages
  - Procurement (“Backward linkages”)
  - Export channel (“Forward or downstream linkages”)
- **Absorptive capacity**
  - Local firms must have the ability to absorb the technology.
  - Initial technology gap must not be too large.

# Enabling Technology Transfer

1. Vision/Rationale for technology transfer - What is your intent?
2. Where to focus:
  1. Demand driven
  2. Strategic approach
    - National analysis: - demand, supply, visioning, goals
3. Ensuring it happens
  - Investing in Capacity Development
  - Alliances for technology & know how transfer
  - Legal Framework
    - Contracting for it
    - Enforcement
    - Monitoring and evaluation

# Entry Considerations

– each service has its own characteristics & challenges



## 1. Demand

- Consistency
- Market size
- Duration
- Access to other markets

## 2. Technology

- Stable vs off-the-shelf/ cutting-edge
- Accessibility
- Cost

## 3. Alliance Potential

## 4. People

## 5. Enterprise Capability

## 6. Degree of competition

## 7. Finance Requirements

## 8. Risk

## 9. Regulatory & Business Environment

# Sustainable Supplier Development framework

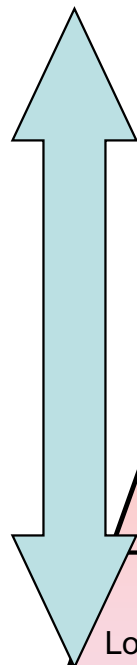
## - potential for large “indirect” impact

5 = high sustainability  
1 = low sustainability

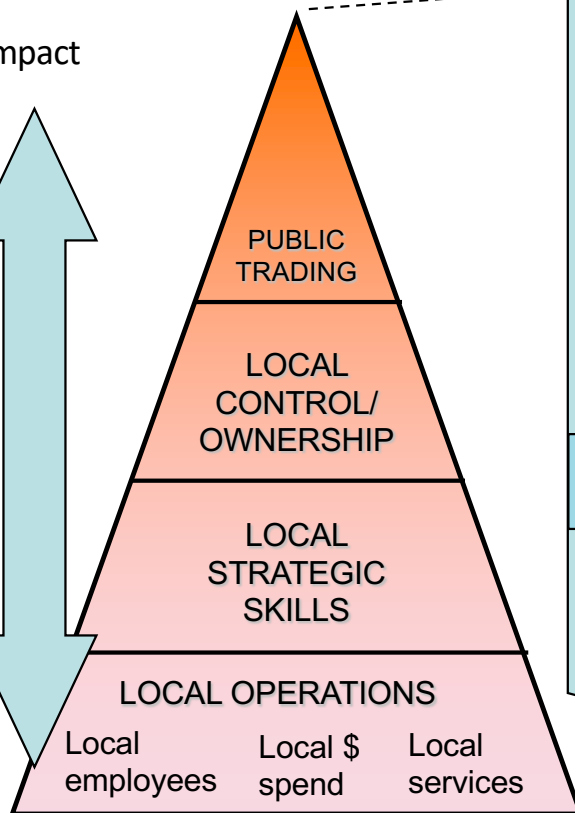
Taking the sustainability framework . . .

. . . and applying it to specific sectors

Indirect impact

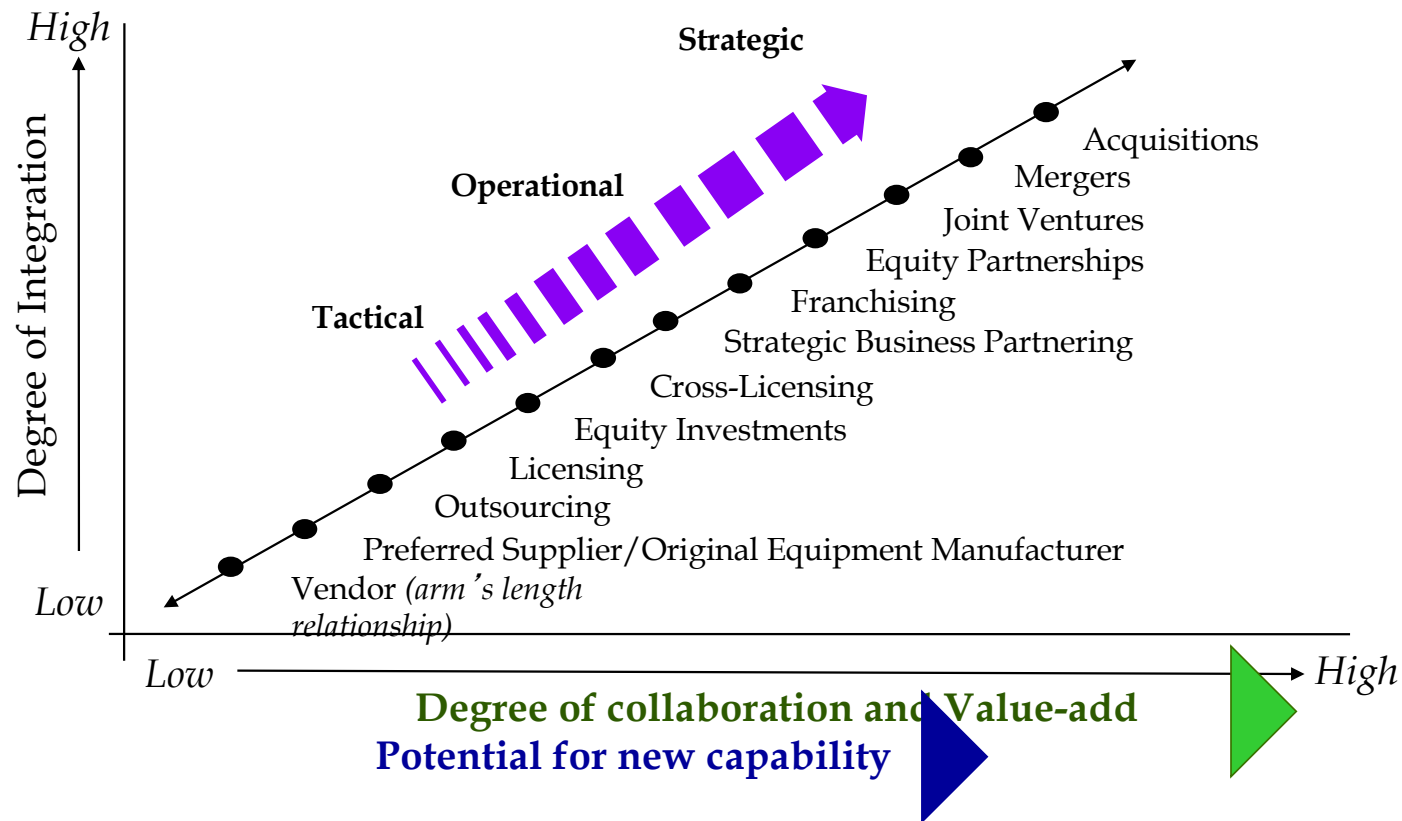


Direct impact



Activity	Local operations	Local strategic skills		Local owner-ship	Public trading	SD poten-tial
		Technol-ogy tools	Local leadership	Local control	Access to wealth	
Equipment maintenance	3	3	3	2	2	Medium
Maintenance services	4	4	4	4	2	High
MROs	5	5	5	5	2	High
IT-enabled services	5	5	5	4	4	High

## Partnering for Success - Increased Collaboration delivers increased transfer of technology & know-how



# Fiscal & Contractual Considerations

## Tools Available to Governments:

1. O&G operators procure a wide range of goods and services, including technology –
  - Equipment, software, research, studies, business procedures, know-how, etc.
2. All goods and services procured are **cost recoverable**
  - Therefore **Country pays** for it.
  - Should Country **take ownership after** the contracts end?
3. If so, how does country get access and take control?
  - **Nature of contracts**, sub-contracts, licences
    - **Government** informed? Gave approval, Has access?
  - If proprietary and “**can’t be shared with Government**”
    - **should it be cost recoverable?**
    - **Under what circumstances?**
4. **Where should work be done?**
  - In Country or outside?
  - Pros and Cons



# Legal Framework in Ghana

- The **LI provides for the formation of Joint Ventures** to:
  - enable Ghanaian companies to gain access to opportunities, by being **part of a bigger, higher capacity entity**;
  - increasing the **experience and capabilities** of Ghanaian companies, through the transfer of technology and know-how;
- **Guidelines set by the PC** should specify:
  - **Type and nature of JVs** specific to situation
  - **Services / activities** to be undertaken
  - **level of local equity and board and management control**, **Guidelines for Management Control/Systems and Shareholder Agreements**
  - **The capacity and gaps of the Co-venturers and the capacity that is intended to be developed in the local partner(s)**
  - **the Implementation strategy** for capacity development, including **knowledge and technology transfer**.
  - **Targets and metrics** for measuring performance in development of the local company.
- **Contracting** the JV. This is the role of the Operating company (Operator/Petroleum Agreement holder)
- **Monitoring** the operations of the JV. This is the role of the Operator and can be audited by the PC or its certified agent.