



Local content after a booming oil & gas cycle

Ambitions and limits of local content development

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Executive summary

A cycle of booming oil and gas exploration and production activity ended in 2015. During the decade 2005–2015, pressure on local content intensified in most oil-rich countries. The time has come to examine the economic impact of both regulations and initiatives taken by private international and national oil companies to develop local economies.

Local content is a pervasive component of the oil and gas landscape. Local content regulations (LCRs) have escalated in the last 10 to 15 years among oil-rich developing economies to an extent that it has become a critical topic for the oil and gas sector. Yet, local content is neither new nor exclusive to developing economies.

Norway enforced the development of local suppliers in the early 1970s. With the Norwegian Petroleum Code, Norway insisted on localizing a large part of international operators' R&D in the country early on¹. And recently, Scotland's prime minister inaugurated Total UK's new E&P facilities in Aberdeen, stating: *"While we realize these are challenging times for the industry and workforce, this investment and expansion from Total is a signal that the company is committed to a long-term future in Scotland."* The commitment of oil and gas companies to the development of local economies is a global reality.

Since the mid-2000s, local content regulation – as opposed to contractual incentives – has become the preferred lever in most oil-rich countries, and the intensity of legal constraints has reached a higher level. The complexity and the bureaucracy generated by local content laws have led to mixed results.

This article aims at capturing what can be learned in terms of local content success from a decade of booming oil and gas activity. Which approaches have created value locally? What have been the main pitfalls to developing local workforces and suppliers?

¹ See 4th licensing round, 1978–79, requirement of at least 50 percent of R&D necessary to develop a field had to take place in Norwegian institutions

1. Is regulation the right recipe to enforce local content

Some LCRs are extremely detailed. The Nigerian Content Development Bill (2003) reinforced targets of O&G activity localization with specific national content (NC) indicators. For example, the NC indicator for man hours in the FEED stage of a large capital project should reach 90 percent. For the tonnage, umbilicals should reach an NC indicator of 60 percent. In the Nigerian Local Content Act (2010), nationalization targets reach 90 percent for management positions, and 100 percent for junior and intermediate positions. In Brazil, regulation is so sophisticated that it requires a dedicated public administration unit to monitor its enforcement due to all the red tape involved.

Such stringent policies have delivered mixed results. In some cases, implementation has been successful and local content policies have allowed financing education programs and infrastructure, with local suppliers benefiting from national preference. However, in cases in which local content targets have been impossible to reach due to inadequate local business ecosystems or educational systems, such regulations have generated severe unintended consequences.

Angola, for example, went through a dramatic salary inflation in the mid-1990s when quotas for nationals were abruptly introduced without the local education system having been prepared (+4,145 percent in 1996, +220 percent in 1997²). In Nigeria, local content raised inflation costs sharply. As an illustration, an analysis undertaken by an oilfield service company on the cost of subsea wells pointed out 60 percent inflation due to local content regulation³. (See Figure 1.) Another illustration is the time to tendering, which has doubled on average in countries such as Angola and Nigeria because of lengthy local content procedures. Quota policies without adequate pre-existing networks of suppliers often lead to the syndrome of the *middleman*, in which local importers purchase goods and services from foreign suppliers and resell them locally at higher prices. In such situations, local content regulation becomes a hidden generator of inflation for the benefit of only a few importers.

Beyond the difficulty in aligning with quotas, companies also struggle to obtain and report local content data from their own suppliers. Indeed, under most regulations, operators are accountable for reporting accurate data based on information provided by their tier-one suppliers. Not to mention the variety of interpretation that the definition of “local company” can have. In some countries, a company is local if the equity owned by domestic stakeholders exceeds 51 percent of the capital (Kenya, Nigeria). In other countries, “local” companies are simply those incorporated in the country (Brazil). Often, the definition is missing or so vague that uncertainty prevails.

It is worthwhile to note that the most stringent and complex regulations have been passed in countries with limited economic ecosystems, by governments facing huge poverty challenges, among populations with little experience of large capital projects or understanding of the oil and gas value chain. When facing western oil giants, their first reaction is often defensive and politically driven by systematic mistrust in oil operators’ intent. What results is a lack of cooperation from day one in trying to reach balanced local content policies between stakeholders – government and international oil companies (IOCs) – that do not trust each other.

This initial bias against oil and gas companies is due to the historical reputation of O&G companies plundering natural resources without leaving anything positive and lasting behind, an image largely amplified and tarnished by populist local press. The defensive reaction of lawmakers is sometimes the result of ideological rhetoric against former colonial powers. Finally, the influence of the Norwegian “oil diplomacy” in a number of oil-rich developing economies is not neutral. A number of local content policies have been prepared by Norwegian advisors (most of whom are university professors or former public servants, not executives from Statoil) with a somewhat naive belief that the same policy approaches which worked in Norway could also work in Sub Saharan Africa, where nothing is similar except the presence of oil.

² World Bank

³ OneSubsea: 58 percent inflation between 2003 and 2013. Increase due to more activities in the country (project management, engineering and fabrication of Xmas tree flow bases & Xmas tree frames, final assembly and testing of the completed Xmas tree); Fabrication costs ranged from four to 10 times the cost of the same fabrication constructed in Europe or the US

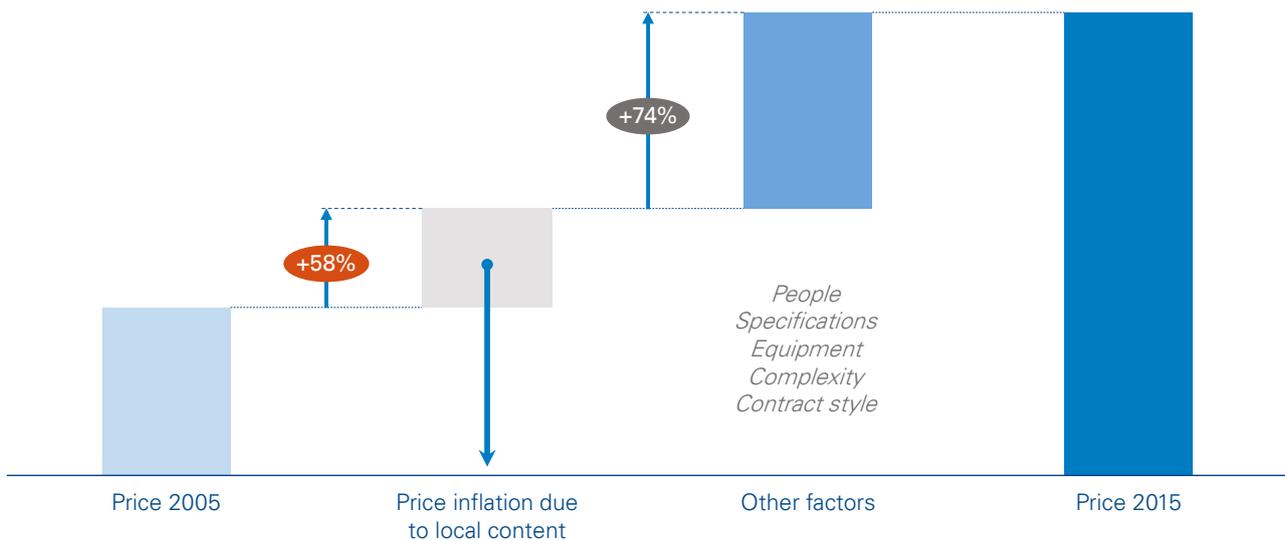
In contrast, some countries have developed more flexible regulations based on high-level targets and incentive mechanisms. Azerbaijan is a good illustration of this approach, with local content rules stipulated mostly in PSAs, as opposed to general laws. For example, for the Shah Deniz project, contractors had to provide mandatory training for nationals; however, training expenditures in excess of \$200,000 in any year were recoverable. Other examples are the UK and Norway, where encouragement to support local industry was within a sensible margin (a 10 percent higher maximum on average than that of the foreign service provider), which made it possible to contain inflation.

Detailed heavy local content regulations do not bring expected outcomes without a proper ecosystem composed of minimum education infrastructure and local suppliers. Otherwise,

such regulations will most likely feed inflation, weaken local manufacturing industries, exacerbate wealth gaps and social tensions, and worsen endemic corruption. This does not mean such regulations should not exist, as they often represent the only lever for governments to enforce requirements for oil and gas companies to contribute to development in the countries and communities where they operate. However, they should be conceived in a more open spirit than the politically driven objective of "making the IOCs pay for our soil".

The reality is that oil and gas companies alone are not the essential pillar of local development. Through an analysis of successful initiatives, we will seek to capture the conditions for local content regulations to be impactful and not counterproductive.

Figure 1: Subsea well price comparison



- Increase due to more activities in the country: project management, engineering and fabrication of Xmas tree flow bases & Xmas tree frames, final assembly and testing of the completed Xmas tree.

- Fabrication costs can range from 4 to 10 times the cost of the same fabrication constructed in Europe or the US.

Source: OneSubsea

2. The need for holistic approaches to ecosystem development

Leveraging direct, indirect and induced reservoirs of job creation

Oil and gas companies generate a small amount of jobs compared to their suppliers. An illustration of this situation is the Norwegian oil and gas labor force: in 2015, 28,000 people were employed by oil and gas companies, while more than 117,000 were in the oil-field services and manufacturing industries⁴. In the construction phases of large projects, EPCs and their suppliers generate more than 95 percent of the jobs required. In the production phase, O&G operators do not represent more than one-third of the jobs needed to run operations.

Given this reality, imposing recruitment quotas on IOCs is necessary, but will not create more than a few thousand local jobs at best. In addition to these unfavorable comparisons, the lead times to develop capable engineers in oil and are up to 10 years, far longer than for developing competent technicians and engineers in other sectors.

Beyond the capacity of operators and oilfield suppliers to create jobs locally, the overall sector is not as labor-intensive as others can be. Research reveals that when one job is created in the oil and gas industry (seismic studies, drilling, well services, etc.), two to four jobs are generated in indirect activities (mechanical engineering, freight services, cement manufacturing, electrical engineering, civil engineering, construction material, etc.) and six to eight jobs are created in the induced industries (medical, hotel, IT & communication, education, banking, insurance, etc.)⁵. In light of these ratios, which represent tremendous opportunities to establish lasting local activity, the objective of any local content policy or private initiative should be to ensure that these ratios have materialized in the local economy.

This is what Norway and the UK did in the 1970s by creating regional clusters (Stavanger, Aberdeen) and putting the emphasis on oilfield services and manufacturing. In two decades, Norway was able to create world-scale suppliers largely oriented towards exports (Aker, Seadrill, etc.). Even better, initial Norwegian local content regulation incentivized

IOCs to place R&D centers in Norwegian clusters. A few years later, strong partnerships were established between Statoil and local suppliers, and suppliers started to develop technologies through private or semi-public collaboration. The degree of integration between state funding, universities, and Statoil and its suppliers within dedicated clusters has been an instrumental factor of success for the country.

Another example, which is more applicable to developing economies, is Trinidad and Tobago, where an industry of topside manufacturing was developed in the late 1990s. Thanks to an initial push from the government of Trinidad and Tobago, together with BP and other private investors, the topside of the *Cannonball* project was fabricated locally instead of being only assembled. The beauty of this industrial initiative was that after *Cannonball*, topsides for nine major offshore O&G capital projects were fabricated by the local company TOFCO for both local and export markets. In the Kingdom of Saudi Arabia, the petrochemical complex of Jubail followed the same approach.

From corporate social responsibility to supply procurement

O&G companies have changed their approaches to local content. Until recently, majors and independents considered regulations a burden to projects and operations, a hidden tax to be good citizens and have the right to operate. IOCs used to corner their local development initiatives into “corporate social responsibility” (CSR) departments, for intense public relations and production of impeccable brochures on the company’s commitment to creating a better world. Local content initiatives in such environments had limited impact and were at best superficial and at worst counterproductive, since they were placing communities under dependence of the company (social infrastructures, direct financial support).

These times are changing. Many IOCs are taking local content in a more professional way, and often integrate it within contract & procurement or dedicated “local industrial strategy” entities

⁴ Centre for Applied Research at the Norwegian School of Economics, see <http://www.norskpetroleum.no/en/economy/employment/#overall-employment>

⁵ Analysis by Schlumberger on job creation in “stand-alone” oil and gas cities (Stavanger – Norway, Aberdeen – UK, Macaé – Brazil, Trinidad & Tobago) over the last decades, by industrial sector

earlier in the development phase. This approach also reflects a shift from financing social infrastructures or paying the communities in the premises of field operations, as they did for decades, to a more contractual approach whereby companies only pay for services delivered. In other terms, they incentivize lasting capabilities rather than paying for short-term social peace that inevitably deteriorates over time.

By doing so, companies also open the door to cost recovery of local content investments. Indeed, CSR activities are systematically excluded from recoverable expenses in most PSAs. If a larger project of local suppliers is being developed as part of the development phase of a capital project, cost recovery becomes possible and the scale of LC initiatives changes.

Addressing the local content regulation paradox

A paradox of LCRs is that they mostly target (and blame) O&G companies, while these companies cannot meet the high expectations of governments and local suppliers on their own for three reasons.

First, O&G companies are too large and rigid to make steps towards small and medium-sized local suppliers. Oil majors and large independents are full of cumbersome internal rules and global processes targeting systematic compliance with financial and legal criteria. Contracts issued by IOCs include terms and conditions accumulated over decades of projects,

specifying drastic conditions that only international suppliers can meet and from which local suppliers are *de facto* excluded. For example, a typical request is that the value of a contract should not exceed 20 percent of the total asset value of a supplier. Or, proper financial accounts over the previous five years must be made available at all times by the supplier. In the same vein, large capital projects and operations require equipment with complex specifications that are difficult to produce in developing economies. For example, O&G operators only accept trucks with drastic safety protections, and well cement for drilling must have specific quality – it is the same for cranes and personal protective equipment (PPE). In many cases, especially when environment and people’s safety are at stake, O&G companies must respect international norms and cannot accept any trade-offs. However, in other cases, such as financial requirements, absence of flexibility is the result of internal policies and therefore could be more flexible.

Second, awareness of technical specifications and financial requirements is not shared early enough for local companies to invest and be ready for the early construction phase. A lot of materials and equipment could be produced locally with good preparation. Too many times local construction equipment suppliers have invested in equipment that was refused by O&G operators or their EPCs because specifications had not been known in advance. These cases led to bankruptcies, and generated scandals in local press and public frustrations. In the

Figure 2: The need for a community of stakeholders dedicated to local content



Source: Arthur D. Little

end, IOCs incurred much higher costs than they would have invested in anticipated communication of future needs, planning, and technical and safety specifications of equipment.

With transparent planning of construction and operation phases shared well in advance, preparation for O&G projects and services could be anticipated and localized in the countries of operation. It looks so obvious and simple. Why don't O&G companies systematically proceed in such an anticipated and open way? Because they seldom enter into business with small local suppliers. Large O&G companies talk to large suppliers.

The third reason is that the players most exposed to local suppliers in the development phase of large capital projects are engineering, procurement and construction contractors (EPCs) much more than IOCs. Large international EPCs rely as much as they can on local suppliers and services, in particular during construction phases. Liaising with small to medium-sized local companies is part of their *savoir-faire*. Every time they enter a new country, EPCs study in depth the local network of suppliers, and gain perfect knowledge of what can be leveraged locally at the best cost, what will need to be imported, and sometimes which activities could be groomed locally.

A strong limiting factor of success for local content development is late publicizing of large tenders. O&G operators wait for the final investment decision (FID) from the government to launch the construction phases of capital projects. They cannot commit to multi-billion-dollar investments without government approval. Once the FID is confirmed, O&G operators issue large tenders to international EPCs, which usually have around six to 12 months to answer before earth works start. In other words, the

information related to goods, equipment, and services in terms of quantity and quality (specs) usually arrive too late for local suppliers to acquire the required capabilities. Local value-added activities are therefore made difficult for local suppliers to deliver on time. Before the FID, operators are uncertain and do not communicate; after the FID it is too late for local suppliers.

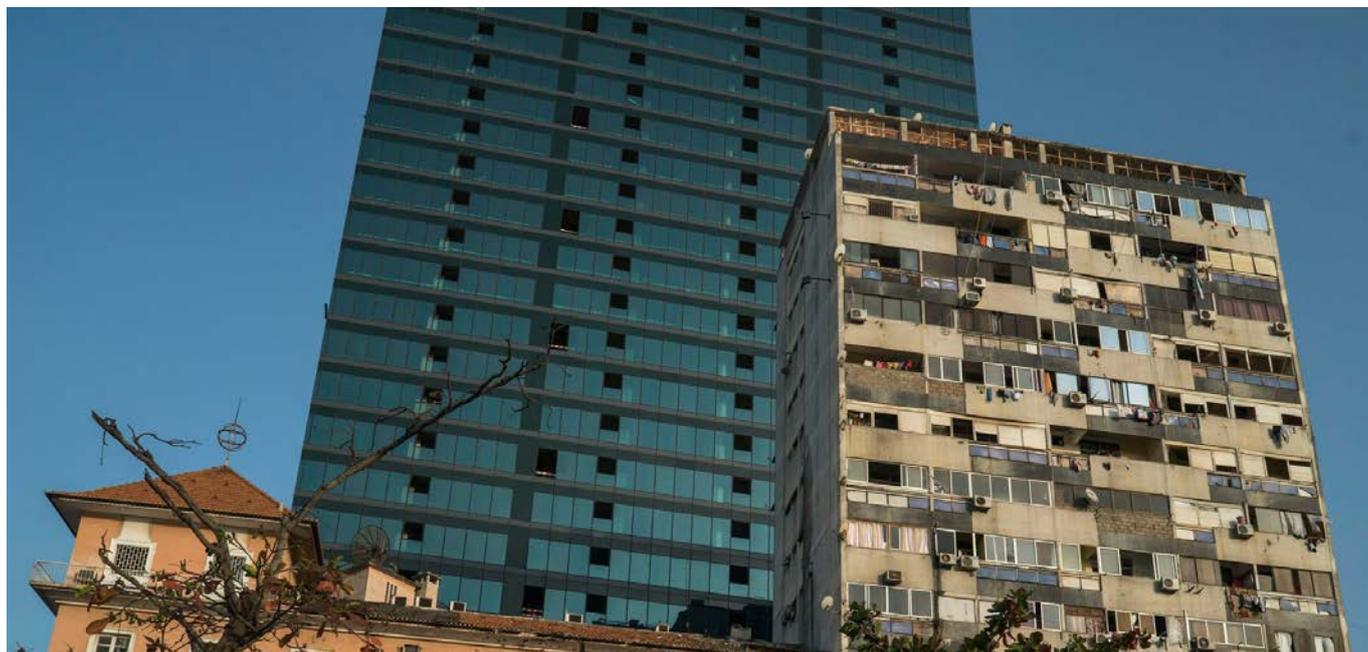
To address such a vicious cycle, the industry needs to rethink its approach to large projects and contract management. Long-term alliances between operators and EPCs could allow on-boarding of EPCs earlier in capital-projects preparation, way before the FID, in order to give enough time for preparing the development of local industries.

Local suppliers need to be supported before they can respond to tenders issued by IOCs. Such collaboration could happen in dedicated business centers that IOCs, EPCs, lawyers, accountants, academia, professional societies and energy and labor ministries could build together. In such centers of exchange, IOCs would share construction and operation planning months or even years in advance, explain the technical and HSE specifications imposed by the industry, describe contractual terms, etc.

Local content regulations could enforce the establishment of such business centers instead of imposing abrupt quotas on people or contracts, generating inflation and missing the great potential of indirect and induced job creation.

Finally, national oil companies (NOCs) are instrumental O&G players that can bypass this challenge of too-short, post-FID lead times of large tenders.

Lunda, Angola: between rapid economic expansion and poverty



3. The prevailing role of national oil companies in fostering local content

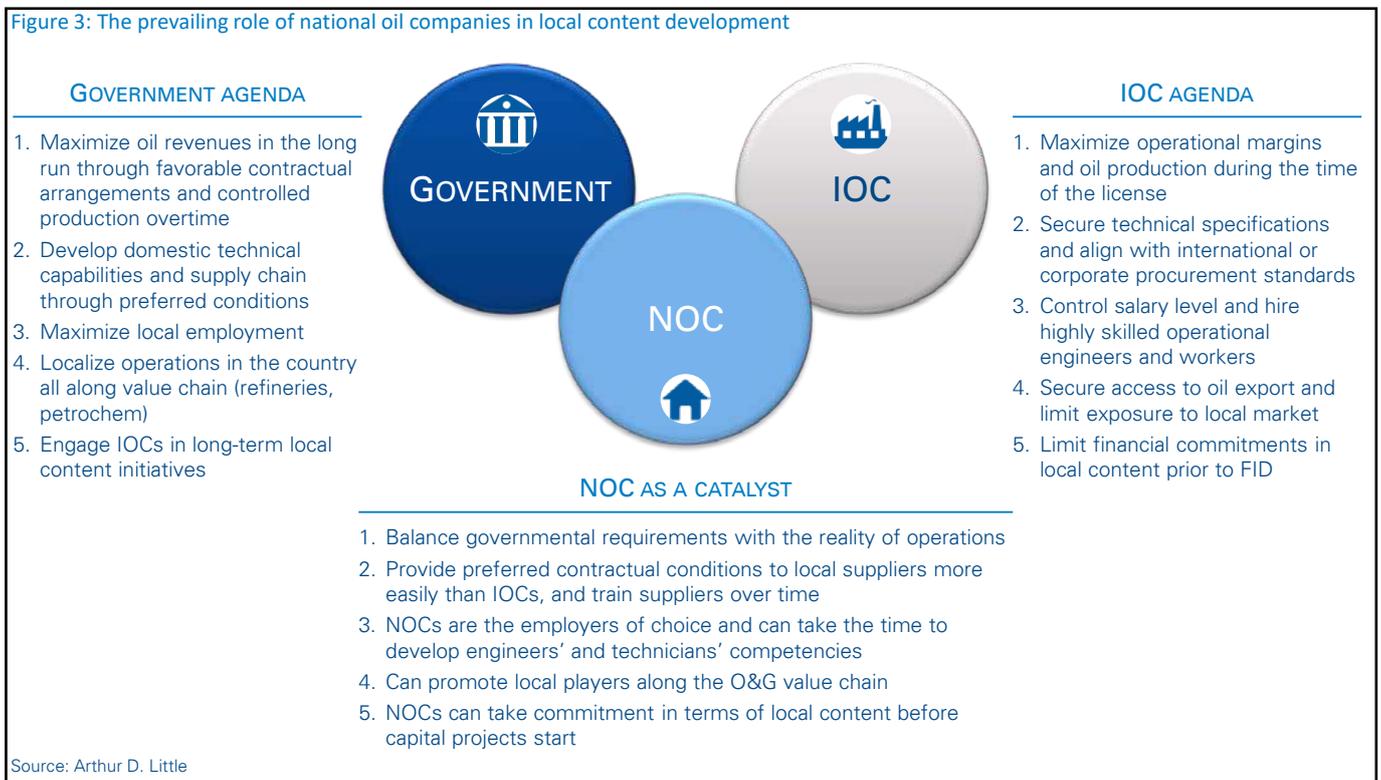
All the examples of successful local content development results reveal the presence of a large national oil company (NOC). Brazil, Azerbaijan, Norway, Ghana, etc., each have a domestic champion. NOCs have been leveraged to develop local suppliers and train generations of local engineers that have benefited the rest of the industry. NOCs’ agendas are to cover both operational and national development objectives. NOCs can be the execution arm of local content regulation, and also guide lawmakers to issue pragmatic regulations.

NOCs are here to last; they have the luxury of time to grow the local economy. Together with their governments, they control the planning of exploration campaigns, drilling operations, new developments, maintenance programs, etc. They are deeply rooted in the economic ecosystem, whose growth is as important for them as production objectives. NOCs can do much

more than IOCs can in playing with preferred conditions. IOCs have rigid global approaches to contracts, procurement and technical specifications, while NOCs can be more flexible.

For example, NOCs give an advantage to local companies through favorable conditions to help them compete on an even playing field. Illustrations of such favoritism can be ring-fencing certain product types or services from international competition, support borrowing from banks, guaranteeing volumes of orders to local manufacturers, re-scoping contracts to allow local producers to qualify, or staging the quality qualification criteria for local suppliers over time. This approach is required to allow local suppliers to have a chance to get contracts and grow, especially where limited industrial and financial capacities make local suppliers unqualifiable as per the international oil company criteria.

Figure 3: The prevailing role of national oil companies in local content development



Most NOCs have applied preferred conditions to local suppliers for many years, especially in countries where reasonable networks of suppliers exist aside from the O&G sector. This is the case for countries such as Saudi Arabia, the UAE, and Kuwait, and largely for South American countries. Have these preferred options borne fruits? Partially, as it is undeniable that large proportions of NOCs' suppliers are local companies, but there is a flipside. First, these measures have generated dependency on preferential treatment and do not incite the pressure of efficiency that is present in competitive international markets. Ideally, these suppliers should be prepared to progressively move to export activities in order to avoid staying dependent upon a rent of preferential contractual terms. Second, after decades of nationalization, one could have expected that oil economies, such as the GCC countries, would run almost entirely through local suppliers. This is actually far from being the case. Though it is undeniable that NOCs do much more for local suppliers than IOCs do, NOCs tend to be restrained by the same syndrome pertaining to IOCs' impact: rigidity due to their size and lack of efficiency in contract management. They are overwhelmed with bureaucratic, cumbersome procurement procedures, and consequently, their sense of urgency is not that of their local suppliers, whose cash flows deteriorate when contracts are awarded later than planned.

Just like IOCs, NOCs cannot develop local economies alone. A platform for collaborative and planned development of local ecosystems (or clusters) is mandatory. This includes education, labor and industry ministries, construction companies, lawyers, accountants, professional societies, and local and international EPCs. The concept of collaborative ecosystems illustrated by O&G business centers can have stronger impact when the country's NOC leads them. More easily than IOCs, and for a larger number of projects, NOCs can share well in advance the contracts that will be awarded along capital projects and operations, detail technical specifications and HSE standards, contractual terms and conditions, etc. As opposed to IOCs, NOCs can plan and communicate forthcoming capital projects and operations well in advance in order to avoid peaks and drops in activity. They are not subject to the mechanism of the FID, which forbids IOCs from committing to contracts before the government has agreed on the overall investment. NOCs can share future planning before tenders' issuance, and they can give EPCs more time to strengthen local supply chain.

What has become apparent when investigating successful local economies that benefited from the oil and gas sector is that the bedrock of success is not the regulation itself – this can only ever be a catalyst. The success factor is, rather, the intricate net of supportive industries and services and the collaborative approach across stakeholders that span from government entities, NOCs, IOCs, service companies and academia.

Conclusion: local content is here to stay

A common view in today's "lower for longer" oil-price environment is that local content is a thing of the past, which is a luxury concept that has no place in the low-margin and low-tax-revenue settings we operate in today. In reality, local content continues to challenge operators and governments alike. Governments have to envision long-term views for their industrial development. In most cases, efforts are focused on how to maximize the oil rent from large O&G projects. Instead, the right question is *where should the government invest oil revenues to develop other lasting and more job-intensive industries?*

Furthermore, oil and gas companies, such as IOCs and NOCs, should share the planning of their projects and operations far enough in advance to allow local investors to prepare the ground. A shift in mind-set is required for IOCs, as oil giants have seldom shown capacity to introduce flexibility in their procurement policies. National oil companies represent the best lever to develop local industries, provided that they do not bear alone the burden of conceiving the industrial development vision that their government should articulate.

Arthur D. Little has developed unique capabilities in assessing the socio-economic impact of large industrial capital projects and operations in upstream and downstream oil and gas, in Sub-Saharan Africa and the Middle-East, South-America, and Europe. This approach has allowed large industrial players to prepare the ground for local content development initiatives, not only to respect regulations, but more importantly, to anchor and distribute project benefits in countries of operations in order to ensure long-lasting presence of IOCs and increased local capabilities at competitive costs for NOCs.





Notes



Notes



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Local content after a booming oil & gas cycle –
Ambitions and limits of local content development

Arthur D. Little

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