

Local Content in Construction

Subjects: **Construction & Building Technology**

Contributor: Jeremy Gibberd

In the construction industry, local content refers to materials and products made in a country as opposed to those that are imported. There is an increasing interest in the concept of local content as this is seen as a means of supporting improved sustainability performance by avoiding negative environmental impacts such as waste and carbon emissions and supporting beneficial impacts such as local economic growth and creating new entrepreneurs and jobs.

Local content

Building procurement process

Local economic development

1. Introduction

In the construction industry, local content refers to materials and products made in a country rather than imported ones. There is an increasing interest in the concept of local content as this is seen as a potential means of supporting local economies and providing jobs^{[1][2][3][4][5]}.

Local content has also been identified as a way of improving national sustainability performance and achieving more sustainable construction and built environments^{[6][7]}. As a result, more countries are developing procurement policies that promote local content and it is estimated that about 11% of world trade has been affected^[5].

2. Defining Local Content

A comprehensive definition of local content has been developed by Warner. This defines local content as:

the composite value contributed to the national economy from the purchase of bought-in goods and services , and includes wages and benefits, materials, equipment and plant, subcontracts and taxes. It also includes first-order, direct economic impacts on the national employees of contractors and suppliers, second-order, indirect impacts on their suppliers and subcontractors and sub-subcontractors, and third-order, induced impacts arising as the income earned by nationals and resident workers is spent in the wider domestic economy^[8].

This definition illustrates some of the complexities of the concept and how this can be interpreted differently.

For instance, local content can be described in terms of numbers, such as the number of national workers employed within a total workforce, or in terms of cost, such as the proportion of procurement expenditure allocated to local suppliers^[8].

Similarly, there are differences in how 'local' is defined.^[7] Local may be defined by the extent of shareholding owned by nationals, whether a firm is registered for tax locally, or the extent to which the goods and services provided are locally developed ^[8]. Alternatively, 'local' may be geographic and about material and product procurement could refer to 'within the country', 'within 400km of the construction site' or 'within 50km of a construction site' ^[7].

As a result of the potential pitfalls in this field, Warner concludes that when the term 'local content' is used in procurement, its' precise meaning, and a metric, should be provided ^[8].

3. Local Content Requirements

Local Content Requirements, or LCRs, are required levels of local content in materials and products defined within a procurement policy. These are set by procurers, such as government or developers, to support the achievement of economic and social objectives such as employment and growth^{[1][2][3][5]}.

LCRs are achieved by being stipulated in procurement policy, tenders and contractual documents. LCRs can be used to indicate a preference for domestic suppliers over foreign suppliers through domestic-only tender lists, price advantages or specific tender clauses.

Warner, however, confirms that while preference for local providers may be expressed, care should be taken to avoid protectionism. To ensure that healthy competition is preserved local content provision must only advantage domestic suppliers 'when all else is equal' ^[8].

This principle can be illustrated through the following bid and tender documentation clauses examples below:

Government / the Company shall, when purchasing goods and services required with respect to Buildings and Construction, give first preference, at comparable quality, delivery schedule and price, to goods produced in [COUNTRY] and services provided by [COUNTRY] citizens or businesses, subject to technical acceptability and availability of the relevant goods and services in [COUNTRY] (adapted from Warner^[8]).

And:

Give preference to local contractors and locally manufactured materials and products as long as their performance, quality and time of delivery are competitive with international performance and prices^[8].

4. Measuring Local Content

Local content in South African government procurement is defined by SATS 1286, a standard developed by the South African Bureau of Standards (SABS)^[9]. This standard defines local content as:

'that portion of goods, works and services that have been generated and produced in South Africa. Companies that import raw material and convert this raw material in South Africa also contribute to local content to the extent that the South African value-added processes and additional inputs count as Local Content'.

Local content (LC) in the procurement processes is calculated in the Standard as a percentage of the bid price under the following formulae:

$$LC = \frac{x}{y} \times 100$$

Where

x imported content

y bid price excluding value-added tax (VAT)

Confirmation of local content (LC) may be required in bids for government work and is achieved through completing form SBD 6.2 of the Standard Bidding Documents.

5. Local Content in Sustainable and Green Building Rating Systems

Local content is also targeted in several sustainable and green building rating systems. The Sustainable Building Assessment Tool (SBAT) for instance, supports local content through criteria such as:

- The procurement of materials and products by the value used in the building being sourced locally.
- The number of local small enterprises supported by the development.
- Specifications to source and develop construction and maintenance workers within 50km of the site.
- Provision within 2000m walking distance of the building of regularly required services and products^{[6][10]}.

The Greenstar rating tool, adapted for South Africa, includes a 'Local Sourcing' criterion which aims to reduce transport emissions associated with the transportation of building materials and products^[11]. This recognises the extent to which materials and products used in a building are sourced within 50km or 400km of a building site.

The LEED green building rating system developed in the USA also reflects local content in the 'Responsible Sourcing of Raw Materials' criterion^[12]. This encourages the selection of materials that have 'environmentally, economically, and socially preferable life-cycle impacts' and includes credit for materials that are sourced (extracted, manufactured, and purchased) within 160 km of the project site.

6. Discussion

A critical analysis of definitions, building examples, and literature can be used to discuss the implications, as well as the advantages and disadvantages of targeting local content in building materials and product procurement.

Quality

Locally manufactured materials and products may not achieve the same levels of quality as imported goods. This may be caused by limitations in local skills and equipment^[8]. Where this is the case, it is important to address this by enabling local manufacturers to access training and improved equipment. In South Africa, access to funding for these activities can be accessed from the Industrial Development Corporation (IDC)^[13].

Quantity

Local manufacturers may not be able to produce materials and goods in the quantities required for fast-track, large-scale, projects ^[3]. Avoiding this situation requires planning and the incorporation of lead-in times to enable local manufacturers to scale up production and stockpile materials and products required for large projects^[8].

Competition

Limited competition may result in locally manufactured materials and products being more expensive and being unresponsive to market needs^[1]. This can be avoided by ensuring that there is healthy competition in the local manufacturing industry. Increased competition can be enhanced through support which ensures that monopolies are avoided^{[13][8]}.

Embodied energy

Embodied energy refers to the energy consumed by all of the processes associated with the production of a building, from the mining and processing of natural resources to manufacturing, transport and product delivery^[14]
^[15]. Reducing the distance materials and products are transported lowers the embodied energy of materials and products used in buildings. Therefore, locally sourced materials and products have a lower embodied energy content than similar imported materials^[16].

Transport impacts

Large-scale transportation of materials and products, particularly if vehicles are used, has a range of negative impacts. These include consumption of fossil fuels, noise and air pollution, and road accidents. Sourcing materials and products locally enables negative transport impacts to be avoided, or reduced^[14].

Negative impacts of local production

Processing materials and the manufacture of products may result in pollution and waste. Closer proximity between production and consumption of materials and products means that the negative impacts of production are likely to be experienced by consumers of these materials and products^[6]. This can be beneficial, as consumers become

more discerning about the products and materials they use and put pressure on manufacturers to reduce, or avoid, negative impacts associated with the manufacture of products. This 'local accountability' is a valuable way of means of achieving more environmentally friendly products and manufacturing processes^[17].

Local employment

Local production of materials and products supports local business and creates employment^[18]. Increased income and tax revenue from these businesses can be used to improve education and health leading to improving quality of life and increased economic competitiveness^[19].

Economic diversity

Buildings require a wide range of different materials and components in their construction. This diversity can be used to develop a wide range of small enterprises linked to, for instance, door and window, tile, paint, roof truss, brick and furniture and fittings manufacture. The resulting local economic diversity is more resilient and better able to weather economic downturns compared to situations where there is only one or two large employers^{[20][17]}.

Maintenance and repairs

Manufacturing products locally means that the skills and materials used to produce these products are likely to be available locally in the long term and are available to carry out repairs and maintenance. This enables repairs and maintenance to be carried out more quickly and cost-effectively as waiting time and costs associated with imported products are avoided. Reduce operational downtime and improved efficiencies can therefore be achieved^[8].

Product development

A closer physical relationship between product manufacturers and the installation, and use, of their products can result in improved product development processes and more appropriate products as designers are more aware of how their products are used. In addition, in the case of specialist, or more complex products, manufacturers are also able to visit sites and advise on installation and commissioning. This leads to better products and improved installation and commissioning. Local product development is also more likely to understand and align with national standards and legislated requirements thereby reducing risks of non-compliance^[8].

Risk and supply chains

By avoiding transport logistics and bureaucracy, such as import permits, related to the importation of goods, local product manufacturers can reduce delivery times and improve the predictability of supply. Local quantities of products stocked at building suppliers can also be reduced as additional stock can be more easily ordered and delivered^[8].

Foreign exchange

Imported materials and products have to be paid with foreign exchange. In some developing countries foreign exchange may be limited and be required for imported products that cannot be produced locally such as medical or energy generation equipment^[21]. In this situation, using local products and materials for buildings frees up valuable foreign exchange for vital technology and equipment that may not have been imported otherwise.

7. Conclusions and Recommendations

The review indicates that business and government can improve the sustainability performance of buildings, create jobs and support the local economy by specifying local materials and products in buildings.

Local content procurement is also relatively easy to implement, making it an ideal way of stimulating the local economy and creating more sustainable buildings. However local content still has not been pursued widely as an objective in building product specification or been successfully implemented in construction^[3]. The following recommendations are therefore made to support its increased adoption.

- **Local Content Certification:** An effective methodology for defining local content of local building materials and products should be established. Certification based on this methodology should be offered to local manufacturers of building materials and components at no, or very low, cost.
- **Local Content Promotion:** Building materials and products that have full, or very high, levels of local content should be promoted through branding, publicity and databases that building product specifiers, such as Architects, can easily access.
- **Local Content Calculators:** Simple calculators should be developed to support Local Content calculations. These could draw data from Bills of Quantities developed by Quantity Surveyors to develop accurate estimates of local content for entire buildings or building assemblies such as the roof, or electrical and wet services systems.
- **Local Content Targets:** Specific targets for local content should be defined by the government and businesses for different building types and achievement of these targets is required in professional appointments. Targets can also be specified in standard specifications, such as those used by Public Works^[22]. Targets should be monitored during design and construction to ensure that they are achieved. Evidence of the achievement of local content targets can be confirmed through Local Content Certification and Local Content Calculations (see above).
- **Local Content Development:** Where the availability of high local content materials and products is limited, additional support to manufacturers in these fields should be explored. This can be provided through financial support, technical expertise and access to high-quality equipment and materials. Ensuring a range of efficient local manufacturers exist within the key building component areas will help ensure that high-quality and competitively priced local products are produced.

8. Acknowledgements

This entry draws on a paper by Gibberd^[23]. The [paper](#) provides further detail, and illustrations and provides examples of the application of local content to buildings in Zambia and demonstrates the practical value and benefits that can be achieved.

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