

# Social and economic sustainability targets in construction

Jeremy Gibberd

## Introduction

Sustainable development can be defined in terms of approaches that reduce negative environmental impacts while creating beneficial social and economic impacts (United Nations, 2020). The Sustainable Development Goals developed by the UN define desired impacts in terms of 17 goals and sub-targets that countries should achieve by 2030 (United Nations Department of Economic and Social Affairs, 2021). Globally, progress has been mixed and current trajectories indicate that many targets will not be achieved (Sachs, et al., 2021). It is therefore important to ramp up efforts and integrate the Goals more effectively into industry practices (UNDP, 2021; United Nations, 2020).

In the buildings and construction sector, environmental impact is addressed by green building rating tools such as BREEAM, LEED and CASBEE. These tools are well established in countries such as the UK, USA and Japan. However, reviews of these green

building rating tools indicate that they only partially align with the UN's Sustainable Development Goals and may not have a sufficient focus on social and economic sustainability impacts (Udomsap and Hallinger, 2020; Marzouk and Sabbah, 2021; Gibberd, 2022; Gibberd, 2022a).

In South Africa, like many developing countries, social and economic issues such as unemployment, health and education are important priorities (National Planning Commission, 2013). Developing countries also often have large infrastructure backlogs (United Nations, 2018). This means that the construction of new projects such as water infrastructure, housing, education and health facilities is likely to continue in the short to medium term (UN-Habitat and IHS-Erasmus University Rotterdam, 2018). These construction projects provide a valuable opportunity not only to build much needed social infrastructure but also to create beneficial social and economic impacts such as local employment which help achieve

the Sustainable Development Goals (Department of Public Works, 1998).

This chapter explores how construction processes can be used to support the Sustainable Development Goals and create beneficial social and economic impacts. To do this, it addresses the following three key questions (and sub-questions).

1. What are the Sustainable Development Goals? What are their implications for buildings and construction? What type of social and economic beneficial impacts do these goals envisage from construction?
2. What measures are currently taken to create beneficial social and economic impacts through construction?
3. What can be learnt from the Sustainable Development Goals and current approaches in construction to create beneficial and social impacts?

The chapter focuses on the construction stage of the building's life cycle. It is limited to an investigation of the processes that are carried out to construct a building. This covers the sourcing of materials and products and their assembly on site to form a building.

Other stages, such as design and operation are not addressed. The construction stage is selected because this stage offers some of the greatest potential for impact and is least addressed by current research and guidance (UN-Habitat and IHS-Erasmus University Rotterdam, 2018; Gibberd, 2022).

## Methodology

The study is based on an integrative literature review. Literature reviews analyze and synthesize empirical findings from previous research to advance knowledge and develop theory (Tranfield, Denyer, & Smart, 2003). Different literature review approaches have been defined, including systemic, semi-systemic and integrative reviews. Systematic and semi-systematic reviews include highly defined requirements for the analysis of literature. Where literature sources are diverse, systematic approaches are less suitable. In this study an initial review indicated a wide range of literature suggesting an integrative literature review would be appropriate. Integrative literature reviews identify and review literature and data from a range of sources to synthesis perspectives and develop

new models (Snyder, 2019). The literature review addresses the following questions.

## A. What are the Sustainable Development Goals? What are their implications for buildings and construction? What type of social and economic beneficial impacts do these goals envisage from construction?

To address these questions, a review of the Sustainable Development Goals is undertaken.

This analyses the Sustainable Development Goals to develop a framework of sustainable development construction objectives. This framework lists sustainable development objectives that should be addressed and integrated into construction processes to support the Sustainable Development Goals.

## B. What measures are currently taken to create beneficial social and economic impacts through construction?

To address this question the literature review identifies measures that have been developed to support the achievement of beneficial social and economic sustainability impacts through construction. These measures are identified and described.

## C. What can be learnt from the Sustainable Development Goals and current approaches in construction to create beneficial and social impacts?

To answer this question, an analysis of sections A and B is carried out to ascertain the extent to which current measures address the Sustainable Development Goals and are effective in creating beneficial social and economic sustainability impacts. Results are critically examined to develop conclusions and recommendations for the study.

## What are the Sustainable Development Goals?

The Sustainable Development Goals (SDGs) were developed by the United Nations and consist of 17 goals that define social, economic, and environmental targets. UN member countries are expected to localise and implement the SDGs through the development of national targets, policies, and strategies that integrate these

into every sector of the economy (United Nations Department of Economic and Social Affairs, 2021).

The SDGs aim to provide a 'blueprint for peace and prosperity for people and the planet, now and into the future' (UNDP, 2021). As well as addressing climate change and environmental degradation, the SDGs focus on issues such as poverty, hunger, AIDS, and discrimination against women and girls (UNDP, 2021). They confirm that the needs of the most vulnerable people must be a priority and that inequality, health and education must be urgently addressed. The UN indicates that achieving these goals will be difficult and will only be achieved if effectively integrated into all sectors of the economy (UNDP, 2021).

### Implications of the Sustainable Development Goals for Building Construction

An analysis of the Sustainable Development Goals indicates that some goals, such as those related to water, energy and cities, have clear implications for construction. Others, such as those on poverty and inclusion, are less clear and implications may be indirect. Implications for construction derived from the SDGs are shown in Table 1.

### What measures are currently undertaken to create beneficial social and economic impacts through construction?

Creating beneficial social and economic impacts through construction requires an approach that values construction and buildings differently (CIDB, 2004).

From government's point of view, significant costs are associated with marginalization and unemployment and large ongoing investments have to be made to address these issues. Therefore, if construction offers a way of tackling these issues efficiently and cost-effectively it is worth investing in approaches that achieve both beneficial social and economic impacts as well as in the creation of the asset itself (CIDB, 2004). Social and economic benefits that can be created include:

- Job creation opportunities
- Greater community involvement
- Provision of technical skills to unskilled community members
- Improved local management, commercial and administrative skills
- Ensuring that funds invested recirculate in the local community (CIDB, 2004).

South Africa's White Paper: Creating and Enabling Environment for Reconstruction, Growth and Development in the Construction Industry provides a framework to support the development of social and economic benefits through construction (Department of Public Works, 1998). It suggests that benefits can be achieved through integrated programmes focused on the following areas.

- Developing a stable delivery environment
- Enhancing industry performance
- Achieving procurement best practices
- Enabling human resource development
- Developing new capacity in emerging sectors
- Developing the role and capacity of the public sector
- Targeting the marginalized
- Overcoming regulatory impediments.

The White Paper stimulated the development of measures aimed at achieving sustainable social and economic impacts through construction. These measures focused on creating jobs, supporting small enterprises, improving health and safety, education and training, and including vulnerable groups. These are described below under the following headings.

- Labour-intensive construction
- Small enterprise development.
- Health and safety
- Education and training
- Local materials and products
- Inclusion

### Labour-intensive construction

Labour-intensive construction describes construction approaches which pursue opportunities to create employment and work opportunities for people (Department of Public Works, 2012). Thus, building designs, the selection of materials, and construction methods aim to maximize the use of manual methods rather than the use of equipment to create and sustain jobs (Department of Public Works, 2012).

Expenditure in any sector can create jobs, however, the construction sector is one of the most efficient at generating employment for a given investment (Department of Public Works, 1998). The Green Paper

Table 1. The Sustainable Development Goals and building construction implications (Author).

SDG Goal	Building Construction Implications
Goal 1. End poverty in all its forms everywhere	Building construction must provide access to productive resources and work opportunities to enable people to avoid poverty.
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Building construction support improved access to affordable healthy food from reliable and sustainable sources and promotes sustainable agriculture.
Goal 3. Ensure healthy lives and promote wellbeing for all at all ages	Building construction must provide working environments that are healthy and safe to work in.
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Building construction must support inclusive, equitable, quality education and promote lifelong learning for all.
Goal 5. Achieve gender equality and empower all women and girls	Building construction must promote gender equality and empower women and girls.
Goal 6. Ensure availability and sustainable management of water and sanitation for all	Building construction uses sustainable water and sanitation systems on sites and promotes the sustainable management of water and sanitation for all.
Goal 7. Ensure access to affordable, reliable, sustainable, and modern energy for all.	Building construction must use sustainable energy sources on site and promote access to affordable reliable, sustainable, modern energy systems.
Goal 8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all.	Building construction must promote inclusive and sustainable economic growth including local employment and self-employment opportunities.
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.	Building construction must promote inclusive and sustainable industrialization and innovation.
Goal 10. Reduce inequality within and among countries	Building construction must reduce inequality including unequal access to affordable education, health, services and products, accommodation and local employment opportunities.
Goal 11. Make cities and human settlements inclusive, safe, resilient, and sustainable	Building construction must promote inclusion, safety, resilience and sustainability.
Goal 12. Ensure sustainable consumption and production patterns	Building construction must support sustainable consumption and production patterns such as local access to sustainable products and low ecological footprint food.
Goal 13. Take urgent action to combat climate change and its impacts.	Building construction must combat climate change and its impacts.
Goal 14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.	Building construction must promote processes that conserve and sustainably use the oceans, seas and marine resources for sustainable development.

Goal 15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	Building construction must promote such as sustainable use of terrestrial ecosystems including the use of sustainably grown materials and the inclusion of planting and the protection of biodiversity on sites.
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels.	Building construction must promote peaceful and inclusive societies for sustainable development including local democratic governance institutions.
Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	Building construction must promote environmentally sound technologies and support partnerships for Sustainable Development.

on an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry (1997) indicates that the construction industry can generate between 11 and 23 direct, indirect and derived jobs per million Rand invested (Department of Public Works, 1998). Work on school construction projects indicates that a target of between 11-13 person-years of employment created per R1million construction budget is achievable (Gibberd, 2004).

Increasing the labour intensity of construction can be achieved through a focused approach that evaluates the employment impacts of different options and selects those that maximize the creation of jobs without adversely affecting construction quality, timeframes or costs (Department of Public Works, 2012). Opportunities for increasing construction jobs can be achieved in three main ways.

Firstly, design can be used to support the creation of construction jobs. For instance, roof structures can be designed to be assembled on site from timber components. Alternatively, they can be designed as steel prefabricated elements and craned into place. Here, the timber option creates local work opportunities for carpenters while the steel prefabricated option creates limited local opportunities as only installation is required (although it will create jobs at the fabrication site).

Secondly, the choice of materials can support employment. For instance, housing can be built using a prefabricated system manufactured in a mechanized factory or built on-site using components such as brick and timber. Here, the second option is likely to create more jobs than the second option where most work will be carried out by machines.

Thirdly, the choice of construction method can be used to support employment. For example, manual labour or mechanical diggers can be used to excavate trenches for service ducts and foundations. Here the manual option is likely to create more employment than the mechanical option.

The Department of Public Works provides guidelines for labor-intensive infrastructure projects in their Expanded Public Works Programme (EPWP) manual (Department of Public Works, 2005). This sets out key stages that should be followed to achieve labour-intensive construction.

First, consultants should be trained on labour-intensive construction and have completed the NQF level 7 unit standard "Develop and Promote Labour Intensive Construction Strategies". Second, they should design and administer the construction works in line with the Department's Labour Intensive Project Guidelines.

Third, they should capture and report the following data on construction projects: project budget, actual project expenditure, number of job opportunities created, demographics of workers employed (disaggregated by women, youth, and persons with disabilities), minimum day-task wage rate earned on the project, number of person-days of employment created and number of persons who have attended a training course (Department of Public Works, 2005).

Fourth, the consultant certifies the labour intensity of works in terms of the above criteria in line with the Guidelines and the Contract whenever a payment certificate is presented and after practical completion (Department of Public Works, 2005).

Applying structured approaches such as the EPWP method can yield significantly more local

jobs than plant-based approaches. Table 2 shows the employment potential of different roadwork activities. This shows that labour-based approaches can create up to ten times the number of local jobs as plant-based approaches (CIDB, 2004).

A criticism of EPWP approach is that the benefits provided are short term and that once projects are completed, people become unemployed again (McCutcheon and Parkins, 2009). However, analysis by the Department of Public Works indicates that this is not always the case and long term benefits and change can be achieved (Llale, et al., 2019). A study in 2015 indicates that of the people who participated in EPWP programmes in the last 12 months; 12,4% were in permanent work, 4,8% had set up their own business, 47,8% had found temporary work and 14% were in further training (Henderson, 2017). Monitoring of the EPWP Working for Water programme indicate that multiple benefits including the reduction of teenage pregnancies, rape and alcohol abuse may be associated with skills development training associated with the programme (Marais and Mlilo, 2018).

### Small enterprise development

Small enterprise development describes approaches in which services and products are procured from

small enterprises during construction projects to support and develop these (National Treasury, 2017).

This can be achieved through procurement processes that require the main, or large contractors, to source goods and services from small enterprises. Alternatively, contracts may be broken down into smaller packages which can be procured from smaller enterprises instead of one large contractor. For this objective to be achieved, it is necessary to define small enterprises. For example, an Exempted Micro Enterprise is an enterprise which has annual total revenue of R5 million or less and a Qualifying Small Enterprise (QSE) is an Enterprise with an annual turnover between R10m and R50m (National Treasury, 2017).

The extent to which services and products are procured from small enterprises depends on the complexity and nature of the project. It is also important to ensure that small enterprises can grow sustainability to meet demand. An example of a small enterprise target is 30% of the services and products used in construction to be procured from small, medium, rural and township enterprises (National Treasury, 2020).

### Health and safety

Health and safety describes processes that ensure that construction workers work on construction site which support healthy and safe working conditions

Activity	Thickness (mm)	Person hours to produce and construct (person on hours/m <sup>2</sup> )	
		Plant-base	Labour-based
Road bed preparation (R&R)	-	0,033	0,350
Gravel wearing course (G5)	125	1,160	1,000
Gravel wearing course (G4)	150	0,192	0,200
Base course (G4)	150	0,192	0,200
Base course (G3)	125	0,165	NA
Subbase (G6)	150	0,192	1,200
Waterbound macadam base course	100	1,040	1,370
Slurry	15	0,110	2,011
Asphalt	25	0,140	1,170
Concrete blocks	60	0,930+	2,120#
Cast insitu (plastic cell) blocks	-	0,38	1,80

Table 2. The employment potential of different construction activities (CIDB, 2004)

(ILO, 1992). While health and safety are increasingly addressed in legislation and policy, this is not always carried through into everyday practices on site. In addition, conventional health and safety measures focus on issues such as injuries that may occur on-site. In developing countries, it may be necessary to go beyond issues on site and address conditions that are prevalent locally, such as HIV/AIDS (ILO, 2001).

The ILO provides guidance on addressing HIV/AIDS on construction sites and suggests the following measures should be in place (ILO, 2001, 2008):

- Condom distribution to all workers
- Treatment of sexually transmitted infections
- Peer counselling for safe behaviour
- Voluntary counselling and testing (VCT)
- Counselling on health maintenance strategies.

### Education and training

Education and training describe capacity development activities that are conducted to improve the knowledge and skills of people who work on construction and buildings (CIDB, 2020). These activities aim to ensure that the people receiving them can access further work and self-employment activities after the completion of the work on site.

Capacity development activities may include formal training on the construction site accessed through an academic institution or consist of informal

mentoring by an experienced person or contractor. It may also include short regular training sessions such as toolbox sessions before work starts on site in the morning, or short courses on a specific skill, such as waterproofing which may be provided by a product supplier.

The Standard for Developing Skills through Infrastructure Contracts can be used to develop construction and building skills (CIDB, 2020). The Standard defines skills development goals that must be achieved on government construction projects. Skills Development Goals are defined in terms of the project type and as a percentage of the construction value as shown in Table 3. Thus, in a general building (GB) project constructing housing would be required to set aside 0.5% of the construction budget for skills development.

Compliance with the Standard is achieved through procurement processes with expenditure and education outcomes monitored. Monitoring and evaluation can be carried out by the Contractor, the Professional Team and the Client.

### The selection of materials and products

The selection of materials and products specified in buildings can be used to increase employment in several ways. Firstly, materials and products that are produced locally can be specified instead of those imported from another country. This supports the creation of local jobs and businesses (Gibberd, 2016).

Class of construction works as identified in terms of Regulation 25(3) of the Construction Industry Regulations 2004		Examples	Construction skills development goal (CSDG) (%)
Designation	Description		
CE	Civil Engineering	Roads, stormwater	0.25
CE and GB	Civil Engineering and General Building	Roads and housing	0.375
EE	Electrical Engineering works (buildings)	Electrical installations	0.25
EP	Electrical Engineering works (infrastructure)	Electrical supply	0.25
GB	General Building	Housing	0.5
ME	Mechanical Engineering works	HVAC systems	0.25
SB	Specialist	Fire installation	0.25

Table 3. The Construction Skills Development Goals of different Construction Works (CIDB, 2020)

ITEM	DESCRIPTION	UNIT	PERSON HOURS PER UNIT
Aggregate	- sands for mortar, plaster and subbase material	ton	0,12
	- stone for concrete, waterbound macadam; and road bases	ton	0,27
	- transport (20 km haul)	ton	0,13
Bitumen	- road grade	ton	0,7
Cement	- OPC	ton	1,1
Clay sewer pipes	- 150 m diam	100 m	68,2
	- 150 x 150 junction	1	0,9
Clay masonry units	- 106 x 212 x 73 (high-tech plant)	1 000	3
	- 106 x 212 x 73 (normal plant)	1 000	9-9,5
Concrete masonry units	- 140 mm hollow (plant manufacture)	10 m2	5,6-8,2
	- 140 mm hollow (hand manufacture)	10 m2	22,4
Concrete paving units	- 65 mm thick (plant manufacture)	10 m2	3,6-4,1
Concrete pipes	- 450 mm dia	100 m	100
	- 600 mm dia	100 m	125
Concrete roof tile		10 m2	0,9
Door frames	- standard pressed metal	1	0,5
FC Roof sheeting		10 m2	4,1
FC Ceiling board		10 m2	1,9
FC sewer pipe	- 150 mm dia	100 m	23
Gate valve	- 80/90 dia RSV	1	2,0
Glass	- 3 mm float	100 m2	4,2
Gypsum ceilings		10 m2	3,3
HDPE pipe	- 32 mm dia (water)	100 m	3
Paint	- PVA	100 litre	5
Polyethylene	- pipe grade	ton	3,3
Polypropylene	- pipe grade	ton	5,2
Precast concrete products	- average	ton	7,8
Steel roof sheeting	- 0,6 mm galvanised	ton	21,1
Steel sections	- commercial grade angles, channels and IPes	ton	10,1
Timber	- structural grade	m3;	19,6
uPVC pipes	- 160 mm dia (sewer, HD)	100 m	30
Window frames	- ND54	1	1,3
	- NC1	1	0,8

Table 4. The approximate number of hours required to manufacture some building products and materials (CIDB, 2004).

Secondly, materials and products that are more labour intensive to produce, can be specified.

Thirdly, materials and specifications that require more labour to assemble into parts of the building may be specified in preference to materials that require create very little employment.

Table 4 indicates the approximate number of person-hours required to manufacture building and construction materials. This type of information can be used to identify materials and products that are more labour intensive. However, as the list is not exhaustive and figures are likely to differ from manufacturer to

manufacturer, additional data may be required from manufacturers to ascertain the labour intensity of a particular material or product.

The Preferential Procurement Regulations 2011 and 2017 can be used to stipulate minimum thresholds for local production and content (National Treasury, 2017). Thus, procurement documents could indicate, for instance, that components of a building, such as roofing, ceilings, plumbing and electrical fittings have to achieve specified minimum local content requirements. This means that a specified proportion of the value of the product or material would have to be sourced locally (not imported). Thus, a requirement for 100% local content would mean that all of the materials or products would have to be manufactured locally. To ensure a rigorous and transparent process, a South African Bureau of Standards (SABS) approved technical specification (SATS 1286:2011) can be applied to calculate local content.

### Inclusion

Inclusion refers to a focus on ensuring that benefits from construction, such as employment, can be accessed by everyone. This means that there is an emphasis on ensuring that people such as women, youth and people with disabilities who may be marginalized can access opportunities.

To support participation the Construction Industry Development Board (CIDB) advocates a targeted procurement approach to create a demand for the services and supplies of, or to secure the participation of, targeted enterprises and targeted labour in contracts. Targeted procurement procedures define targets, create contractual obligations and incentives and carry out monitoring and evaluation to ensure the participation of target groups. The CIDB recommends measuring participation in monetary terms as this can be readily tracked and audited through receipts for products or services or amounts spent on wages (CIDB, 2004).

Participation targets differ but as a general rule, they attempt to reflect national demographics. Thus the employment participation targets for women could be 50%, Youth 40% and people with disabilities 10% (Department of Social Development 2015). The Expanded Public Works Programme, for example, uses 55% women, 55% youth and 2% persons with disabilities as workforce participation targets

(Department of Public Works, 2012). Monitoring indicates that these targets are being achieved and in some cases surpassed (ILO, 2018).

Targets depend on the local situation, available skills and objectives of the project. The ILO provides examples of community projects where female participation in work supplying construction material is greater than 75 per cent. Examples of construction projects are also provided where over 60 per cent of the workforce are female and priority is given to women for team leader positions (ILO, 2019).

The Youth Accord development by the Department of Economic Affairs sets out targets for youth employment participation (Department of Economic Affairs, 2013). It indicates that government departments should have internship programmes that employ interns equal to 5% of the total employment of the department. It also suggests that the Expanded Public Works Programme should have 80% of its workforce as youth. The Accord recommends targets of over 60% or above should be set for the green economy sector such as the solar water heating installation.

A review by the Department of Social Development indicates that between 7 and 10% of the South African working population are persons with a disability (Department of Social Development, 2015). Based on this, they suggest that between 7 and 10% of the workforce should be people with a disability. They also indicate that a target of 4 to 7% of skills development opportunities be provided to people with disabilities in line with the National Skills Development Strategy. The Department recommends that 5% of procurement opportunities be provided to people with disabilities (Department of Social Development 2015).

The Expanded Public Works Programme provides guidelines for developing responsive inclusion targets for projects and suggests the following criteria be considered (Department of Public Works, 2012). Potential workers should be self-targeted, be at least 16 years old and not older than 35 at the time of the start of the work (to be considered youth), reside locally, be available to work, be from female-headed households or households that receive social grants, be from households where less than one full-time person is earning an income or be from households where subsistence agriculture is the source of income (Department of Public Works, 2012).

Sustainable Construction Area	Examples of targets and measures	Source
Labour-intensive construction	Between 11 and 23 direct, indirect and derived jobs per million Rand invested.	Department of Public Works, 1998
	Between 11-13 person-years of employment created per million construction budget. This targets was achieved on school building projects.	Gibberd, 2004
	40% of direct construction costs should be earned by the labourers. In Botswana and Kenya labour-intensities of over 50% have been achieved.	McCutcheon and Parkins, 2009
Small enterprise development	30% of the services and products used in construction to be procured from small, medium, rural and township enterprises.	National Treasury, 2020
Health and safety	Code of Practice on HIV/AIDS and the world of work.	ILO, 2001, 2008
Education and training	Skills Development Goals are 0.25 to 0.5% of the construction budget.	CIDB, 2020
Local materials and products	Minimum thresholds for local production and content.	National Treasury, 2017
Inclusion	Employment targets of 55% women, 55% youth and 2% persons with disabilities.	Department of Public Works, 2012

Table 5: Examples of social and economic targets in construction

### What can be learnt from the Sustainable Development Goals and current approaches in construction to create beneficial and social impacts?

The review indicates that there are gaps in the alignment between the SDGs and the sustainable construction targets identified in the study. For example, the SDGs include an emphasis on poverty, food and water, which does not come through in the sustainable construction targets identified. An exception to this is the targeting of low-income households by EPWP programmes (Department of Public Works, 2012).

It is also interesting to note that the sustainable construction targets provide greater detail on target

groups compared to the SDGs. For instance, targets for women, youth and people with disabilities are provided as shown in Table 5.

The review indicates that achieving beneficial social and economic impacts in construction can be supported through awareness and training, procurement and administration of contracts and support.

### Awareness and training

An important initial step for achieving social and economic beneficial impacts through construction is awareness and training (ILO, 2018; Marais and Mlilo, 2018). Planning and a structured approach also need to be in place so that the client, built environment

consultants and contractors understand social and economic impact objectives and their role in achieving these (Gibberd, 2004). Training and awareness improve alignment and coordination within the client and professional built environment professionals (internal) and within the contractor, local suppliers and the local communities (external) (Ershadi, et al., 2021). Awareness and training processes can also help determine social and economic suitable targets that respond to local needs and opportunities (Gibberd, 2004).

### Procurement and the administration of contracts

Effective procurement and contract administration processes are required to ensure that social and economic targets are achieved in practice (McCutcheon and Parkins, 2009; Marais and Mlilo, 2018). Targets must be integrated as deliverables in contracts and their achievement tracked (CIDB, 2020; Gibberd, 2004).

The achievement of targets should be linked to work certification and payments and incentives and penalties applied to ensure they are achieved (CIDB, 2020). Data collected in this process can be shared and used to define benchmarks and best practice targets.

### Support

While making sustainable construction targets a contractual commitment helps ensure they are achieved, structured responsive support also helps increase the chances of success (ILO, 2018). For example, support can be provided to local communities before construction projects start to ensure they are prepared and can benefit optimally from opportunities. This support can be in the form of access to training to ensure that relevant skills are available for the project.

It can also be in the form of technical and business support to local building material manufacturers to enable them to scale up to meet the demand of the project (Gibberd, 2004). This type of support should be based on an understanding of the local situation.

### Conclusions and recommendation

The study identifies actions that can be taken during the construction of projects to support the achievement of the Sustainable Development Goals and achieve beneficial social and economic impacts.

It shows that while some of these actions have been identified and incorporated into sustainable

construction processes, others have not. The study recommends that further research is carried out on the alignment of SDGs with construction processes to enhance the achievement of SDGs by the industry.

The study shows that considerable work has been carried out on the development of sustainable construction targets such as those related to labour-intensive construction. However, it appears that this work has not been consolidated into a framework or integrated into practice through sustainable construction, procurement and rating systems.

Sustainable construction principles and targets are identified in the study that provides valuable guidance on creating beneficial social and economic impacts through construction. It is recommended that this guidance is developed and integrated into construction processes to improve the economic and social sustainability impacts of construction.

### References

- CIDB, 2004. An Overview of Labour-Based Technologies and Methods in Employment Intensive Works.
- CIDB, 2020. Gazette Notice 43495 Standard for Developing Skills through Infrastructure Contracts 03 July 2020.
- Department of Economic Affairs, 2013. The Youth Accord.
- Department of Public Works, 2005. Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)
- Department of Public Works 2012. EPWP Recruitment Guidelines
- Department of Public Works, 1998. Green Paper: Creating and Enabling Environment for Reconstruction, Growth and Development in the Construction Industry (Public Works, 1998)
- Department of Social Development, 2015. The National Development Plan 2030 Persons with Disabilities as Equal Citizens
- Ershadi, M., Jefferies, M., Davis, P. and Mojtahedi, M., 2021. Barriers to achieving sustainable construction project procurement in the private sector. *Cleaner Engineering and Technology*, 3, p.100125.
- Gibberd, J., 2022. Integrating the Sustainable Development Goals into Green and Sustainable Building Rating Tools. CIB World Building Congress,

27-30 June 2022, Melbourne, Australia

- Gibberd, J., 2022a. Integrating the Sustainable Development Goals into Green and Sustainable Neighbourhood Rating Tools. CIB World Building Congress, 27-30 June 2022, Melbourne, Australia
- Gibberd, J.T. 2016. Local Content. In: *The Green Building Handbook of South Africa Volume 10: The Essential Guide*, p. 158-177. Alive2green Publications, Cape Town.
- Gibberd, J. 2004. Thuba Makote: Schools as Centres for Community Development
- Henderson, S.W., 2017. Expanded public works programme (EPWP) of South Africa (phase 3): the expanded public-works programme as a catalyst for work opportunities, growth and development. [https://www.parliament.gov.za/storage/app/media/ProjectsAndEvents/2017\\_ncop\\_provincial\\_week\\_october/docs/EPWP\\_as\\_a\\_Catalyst\\_for\\_Development-Mr\\_Dladla.pdf](https://www.parliament.gov.za/storage/app/media/ProjectsAndEvents/2017_ncop_provincial_week_october/docs/EPWP_as_a_Catalyst_for_Development-Mr_Dladla.pdf)
- ILO, 2001. An ILO code of practice on HIV/AIDS and the world of work
- ILO, 2008. ILO Code of Practice on HIV/AIDS and the world of work Guidelines for public construction sites.
- ILO, 1992. Safety and health in construction: An ILO code of practice, Geneva, International Labour Office.
- ILO 2018, Building Social Protection Floors South Africa – Expanded Public Works February 2018
- Llale, J, Setati, M, Mavund, S, Ndlovu, T, Root, D and Wembe, P, 2019. Construction
- Stakeholders' Perceptions on the Wider Adoption of Construction Automation and Robotics:
- An Exploratory Pre-Study In: Gorse, C and Neilson, C J (Eds) Proceedings of the 35th Annual ARCOM Conference, 2-4 September 2019, Leeds, UK, Association of Researchers in Construction Management, 567-576
- National Planning Commission, 2013. National Development Plan Vision 2030.
- National Treasury, 2017. Implementation Guide Preferential Procurement Regulation 2017,
- National Treasury 2020. Frequently asked questions and generic answers: Preferential Procurement Regulations 2017.
- Marais, C. and Mlilo, L., 2018. South Africa's expanded public works programme. International

Institute for Environment and Development. Marais, C. and Mlilo, L., 2018. South Africa's expanded public works programme. International Institute for Environment and Development..

- Marzouk, M. and Sabbah, M., 2021. AHP-TOPSIS social sustainability approach for selecting supplier in construction supply chain. *Cleaner Environmental Systems*, 2, p.100034.
- McCutcheon, R. and Parkins, F.T., 2009, December. South Africa's expanded public works programme: A case study in government sponsored employment creation and poverty alleviation focusing upon the infrastructure component: Rhetoric, reality and opportunities foregone. In *Labour Underutilisation, Unemployment and Underemployment, incorporating the 11th Path to Full Employment Conference and 16th National Conference on Unemployment* (pp. 196-212). Centre of Full Employment and Equity, The University of Newcastle, Australia.
- Sachs, J., Kroll, C., Lafortune, G., Fuller, G. and Woelm, F., 2021. Sustainable Development Report 2021. Cambridge University Press.
- Snyder, H., 2019. Literature review as a research methodology: An overview and guidelines. *Journal of business research*, 104, pp.333-339.
- Tranfield, D., Denyer, D., & Smart, P., 2003. Towards a methodology for developing
- evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14, 207–222.
- United Nations, 2018. Sustainable Development Goal 6 Synthesis Report 2018 on Water and Sanitation. New York.
- United Nations, 2020. The Sustainable Development Goals Report 2019. New York.
- United Nations Department of Economic and Social Affairs, 2021. The Sustainable Development Goals. Available at: <https://sdgs.un.org/goals> [Accessed 27/10/2021].
- Udomsap, A.D. and Hallinger, P., 2020. A bibliometric review of research on sustainable construction, 1994–2018. *Journal of Cleaner Production*, 254, p.120073.
- UN-Habitat and IHS-Erasmus University Rotterdam, 2018. *The State of African Cities 2018*.
- UNDP, 2021. Sustainable Development Goals.