



SAICM GEF 9771 Project

**Global Best Practices on Emerging Chemical Policy Issues of Concern Under
the Strategic Approach to International Chemicals Management**

**Market and Sector Analysis Report of the Chemical
Supply Chain of the Construction Sector in Sri Lanka**

By

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1. Introduction

Construction chemicals have become one of the important components of chemical industry playing an important role in global infrastructure development including residential, industrial, commercial and construction projects. Residential buildings has the major market share for construction chemicals followed by commercial buildings. Residential buildings are expected to maintain its dominance in the global construction chemical market because of the increasing number of residential projects.

The Asia Pacific region has the largest market share for construction chemical products, followed by Europe and North America. China is the largest market for construction chemicals globally, accounting for more than one third of the global construction chemical market.

Sri Lanka relies heavily on importing to maintain the supply chain of materials used in the construction sector. China and India were the major import markets for Sri Lanka in 2018 with a combined total of 53% of the total imports in the sector.

Sri Lankan construction Sector is one of the largest industrial sectors in the country. It contributes approximately 7% of the Gross National Income of Sri Lanka (Wijesekera, 2020). It also is one of the largest employers of the labour force, ranking 4th in terms of providing employment. The government of Sri Lanka has given tax concessions to the construction industry to boost investment and growth. The tax rate applicable on the construction industry was reduced to 14% from 28% in December 2019. The contribution of the construction sector towards the national economy over the years can be seen in the graph below.



Figure 1: Construction Industry contribution to National income (Source: Development of Sri Lanka's Construction Industry; The way forward after COVID 19)

Therefore, the chemical supply chain of the construction sector is a significant part of the country's economy. According to the report published by Construction Industry Development Authority; “Development of Sri Lanka’s Construction Industry; The way forward after COVID 19”, 60% of the materials used in the construction sector is locally sourced. Further, the backward and forward linkages of the construction sector which includes building material production accounts for approximately 3% to 5% of employment of the labour force. In order to boost the manufacturing industry, the government has reduced the tax applicable to manufacturing industries including chemical manufacturers for the construction sector, from 28% to 18% from December 2019 onwards.

Some of the companies within the sector, concentrate upon the sustainability aspects of their companies. But this usually is limited to the larger companies who has the relevant capital to invest in these areas. They tend to adapt green labelling schemes, ISO and SLS standards. This is done as a voluntary initiative. The companies use this in order to build their image and promote their products.

2. Construction and Demolition (C&D) Waste Management in Sri Lanka

In the Sri Lankan context, no specific regulation is available for the management of C&D waste and C&D waste is classified under solid waste. But several regulations are indirectly relevant to management of demolition waste in Sri Lanka. However, the relevant authorities have identified that the waste generated in the construction sites of Sri Lanka as a considerable problem to be addressed. As result of that, the National Building Research Organization has published a Technical Guidelines on Building Demolition Work in Sri Lanka in order to o ensure safety of life and property.

According to the guideline the waste management plan shall include the following details:

- a) Method of handling demolished debris. This shall include the routing movement of debris from each floor;
- b) Loading and unloading process and transportation of debris;
- c) Time and number of periodic disposal routines;
- d) Record of debris transporting vehicle information and landfill sites; and
- e) The site supervisory personnel responsible for the debris management system.

Recycling or reuse of demolition waste is not popular in the country; however, the wood and metal items are reuse in some extent. the most of the other materials are disposed via landfilling and open dumping.

In several research studies has revealed that the wastage of materials in Sri Lankan construction sites are beyond the acceptable limit. In the current context, operations of the construction industry are regulated by the Institute for Construction Training and Development (ICTAD). In Sri Lanka, the value added of construction activities grew by 3.1 percent in 2017 and a number of large scale residential and mixed development projects and infrastructure projects have contributed to the growth in the construction activities. (Central Bank of Sri Lanka, 2017).

In carrying out construction activities, materials are the largest input into the construction activities where it leads to the generation of waste. according to (R. Rameezdeen, 2004) the waste generation (%) has identified as follows in different materials

Table 1: Material Waste Percentage (Source: Rameezdeen et al., 2004)

Material	Material Waste as a Percentage
Sand	25
Lime	20
Cement	14
Bricks	14
Ceramic Tiles	10
Timber (Formwork)	10
Rubble	7
Steel (Reinforcement)	7
Cement blocks	6
Paint	5
Asbestos sheets	3

The main reasons for C&D waste generation were identified as lack of regulations, lack of knowledge on waste management and unavailability of proper infrastructure development in the country in terms of waste circulation (recycling or reuse of waste). Most common and high-volume waste items were identified as sand, lime, cement and bricks. Currently there is no established waste management system for construction sector in Sri Lanka. Only the plastic related materials are subjected to mechanical recycling while other materials are disposed without any consideration about the environment.

3. Overview of Chemical Supply Chain of the Construction Sector in Sri Lanka

Materials used in Construction sector

According to the “Assessment of material related embodied carbon of an office building in Sri Lanka”, a research conducted by Ramya Kumanayake and Hanbin Luo, (Ramya Kumanayake, 2018) when constructing a typical three-storey brick-concrete structure for an office building the following building materials will be used. Out of the materials used, most of the materials can be classified as construction chemicals.

Table 2:Material consumption (Source: Kumanayake et al, 2018)

Material	Quantity	Unit	% mass
Ready-mixed concrete	576.54	m ³	44.98
Random rubble	44.15	m ³	3.30
Reinforcement steel	114760.00	kg	3.73
Clay bricks	371930	nos.	27.80
Structural steel	3636.00	kg	0.12
Galvanized iron	569.40	kg	0.02
Gypsum board	251.76	m ²	0.06
Mineral fibre board	178.37	m ²	0.02
Ceramic tiles	1012.61	m ²	0.34
Cement plaster	3908.3	m ²	3.18
Cement mortar	298.41	m ³	16.00
Aluminium	5759.57	kg	0.19
Glass	2.62	m ³	0.22
Paint	4014.21	m ²	0.04

Some of the construction chemicals used in the industry are discussed in details below.

Paint sector

According to several publications, the Sri Lanka paints and coatings market is expected to grow at an annual rate of over 3%. On the other side, unfavorable conditions arising due to the COVID-19 outbreak are hindering the growth of the market. The total production capacity of the sector is 35 million liters. Paint is seasonality driven, price elastic product and it depends upon economic growth and industrial sector. The Sri Lankan paints industry covers more than 15 manufactures and there are big players who have captured around 80-85% market share. The industry is driven by imported raw materials; nearly, 300 types of active ingredients are imported annually. Some of the large companies in the paint sector are JAT Holdings (Pvt.), Nippon Paint (Lanka) Pvt. Ltd, Lankem Ceylon PLC, Asian Paints, Akzo Nobel Paints, Ltd and Macksons Paints Lanka (Pvt.)

The paints manufactured can be categorized as follows.

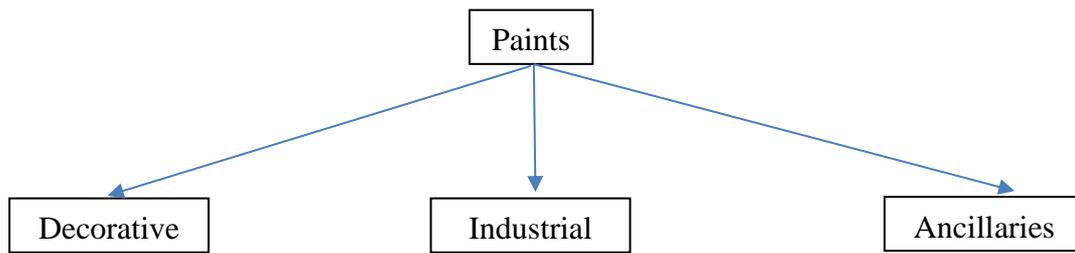


Figure 2: Categories of paints

The major base resin types used in the paint sector in Sri Lanka are as follows.

- Acrylic
- Alkyd
- Polyurethane
- Epoxy

Tile sector

High quality raw materials used for the ceramic and tile industry such as Kaolin, Feldspar, Ball clay, Silica, Quartz, Dolomite are of the best quality in the world. The additional raw materials required for finishing such as pigments and miscellaneous chemicals used for glazing are imported into the country. The tile industry is dominated by a few large companies. Lanka Tiles PLC, Royal Ceramic Lanka Ltd, Samson Rajarata Tiles Pvt Ltd and Macktiles Lanka.

According to their annual report, Royal Ceramic Lanka Ltd and Lanka Tiles PLC holds a market share of 29% and 37% in the floor tile market while Macktiles Lanka have a share of 18%. In the wall tiles market Royal Ceramic Lanka Ltd and Lanka Tiles PLC have 18% & 71% in market share respectively in 2020. Samson Rajarata Tiles Pvt Ltd mainly supplies roofing tiles to the local and export markets.

The tile sector alone has a workforce of 2000-4000. The majority of the production is consumed locally. However the sector exported tiles worth 1.4 million USD in 2017 (Vyas). The sector has a production capacity of 12.47 million square meters and a growth rate of around 10-15% as of 2016. The production capacity has increased to 16 million square meters as of 2021 According to a dailymirror interview with Lanka Wall Tiles PLC and Lanka Tiles PLC Managing Director Mahendra Jayasekara. The demand for tiles in the country has been around 25 to 30 million square meters before the covid pandemic. But since then the demand has come

down to 18 million square meters. Prior to the pandemic, importing of tiles has been a major source for meeting the demands of the market. But since then, the imports have been limited and most of the demand is catered through the local manufacturers.

Majority of the products is consumed by residential customers. However the per capita tile consumption of Sri Lanka is merely 0.6 square meters compared to 6 square meters in Europe. However, with the expansion of the construction sector, this value is expected to rise in the future.

Cement sector

When considering the cement industry in Sri Lanka, as of 2020 capacity is around 8.8 million tonnes while operating at a capacity of 85% (Perera K.D.A.S, 2020). Out of this, more than 60% is through importing and slight value addition (packing) within Sri Lanka. Less than 40% is sourced through local clinker grinding through local or imported clinker. Out of the major players in the market at the moment, 38% of the production capacity is accounted for by Tokyo Cement. INSEE Cement has a share of 35% while Ultratech Cement has a share of 13.6%. With the introduction of the cement bagging plant by Melsta Gama, the production capacity would have increased to 10.3 million tonnes. Because cement is one of the major raw materials used in the construction sector, with the growth of the construction sector, it will also grow. However, due to COVID-19 pandemic and its repercussions, the construction sector is experiencing a contraction (growth in 2020 at -13.2% compared to 2019). although it will most likely be temporary.

Table 3: Cement manufacturing/importing over the years (Source: Perera K.D.A.S, 2020)

Item	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 ^(a)
Local Production										
Production Volume, MT '000	1,453	1,740	1,974	2,084	1,910	1,884	2,287	2,695	2,819	2,841
Imports										
Volume, MT '000	1,702	2,012	2,584	3,796	4,123	4,363	4,092	5,299	5,676	5,114
Value, Rs. Mn.	14,042	14,856	22,222	33,337	40,536	41,304	39,372	50,589	53,498	48,386
Imports Price (C.I.F.), Rs. per MT	8,250	7,385	8,599	8,783	9,832	9,468	9,622	9,547	9,425	9,461
Price, Rs. per MT (Annual Avg.) ^(b)	11,279	9,855	10,720	13,097	13,787	13,902	13,160	11,734	11,367	12,345

When it comes to Low carbon cement, according to industry experts, it is still a developing market in Sri Lanka. Out of the cement suppliers within the country, only one company is going through the full manufacturing process of cement. Others are mainly importing raw materials

or cement that are in the latter stages of the manufacturing process and doing little value addition such as mixing and packing. Because of that reason, those companies are unable to implement any initiative to create a low carbon cement since that depends on their supplier. The only company that does the manufacturing in Sri Lanka has introduced a composite cement in 2017, which uses less amount of clinker and as a result it can be considered as a low carbon cement. From the feedback we received from them, the composite cement has a good demand up to now. However, there is no national drive towards making low carbon cement and this is again a voluntary initiative a company can take.

Ready-mix sector

Ready-mix concrete refers to concrete that is specifically manufactured for customers' construction projects, and supplied to the customer on site as a single product. It is a mixture of cements, water and aggregates: sand, gravel, or crushed stone. An admixture is also added to improve work-ability of the concrete and/or increase setting time of concrete (using retarders) to factor in the time required for the transit mixer to reach the site. Ready-mix concrete industrial market is extensively used for the construction of various infrastructure development applications which include residential and commercial buildings. Significant growth in the construction sector and cement output is anticipated to augment industry growth over the upcoming years. Moreover, rapid growth in social and other infrastructure development in the country will promote industry expansion over the next few years. However according to the industry experts, currently there is an unexpected reduction of the industrial growth due to the COVID-19 outbreak. In Sri Lanka, there are about 17 large scale ready -mix concrete manufacturing industries covering more than 90% of market share. Most of the major players in the market are subsidiaries of civil construction companies. Some of the major players are Tudawe Brothers (Pvt) Ltd, ICC (Pvt) Ltd., Sanken Construction (Pvt) Ltd., Maga Engineering (Pte) Ltd, Sierra Readymix (Pvt) Ltd and INSEE Concrete.

Bitumen sector

In addition to the above main chemicals, which are used in the sector, Bitumen is also a common binder used in road construction, and has a wide range of industrial uses. One of the most significant properties of bitumen is their water proofing properties. Due to this reason,

bitumen products are highly desirable in industrial and domestic applications where water proofing is required. For example, bitumen is used in a wide range of marine construction such as canal lining, underwater tunnels, river bank protection, dam construction, and sea defenses. Bitumen is a key material in the transport sector as well, not only in construction of roads but also in construction of railway tracks because of the dampening effect it has for vibrations and noise. Polymer Modified Bitumen is also used for surfacing airfield runways due to its fuel resistant properties.

It is principally obtained as a residual product in petroleum refineries after higher fractions like gas, petrol, kerosene and diesel, etc., are removed. Global bitumen market and was valued US\$ 24.2 billion in 2019 and is projected to grow with a Cumulative Annual Growth Rate of 2.2% from 2020 to 2027. The increase in construction activities in the Asia-Pacific region is expected to drive the growth of the market. Asia Pacific region will remain at the forefront stoked by rapid urbanization. The developing nations, such as Sri Lanka and largely India and China, and South Korea are the major contributors to growth. Industry consolidations and rapid urbanization in these countries would also affect the market positively. On the basis of end use, Road Construction segment dominated the global bitumen market in 2019.

A few years back, the import of bitumen was a monopoly of Ceylon Petroleum Corporation (CPC). But since 2016, several private suppliers were allowed to import, in addition to CPC and Lanka Indian Oil Company (LIOC). Currently the consumption of bitumen has increased in the past decade due to the rapid growth in the local construction industry. There are several bitumen suppliers competing in the market such as Lankem Bitumen, Bitumix Pvt Ltd, A.N.I Enterprises PVT Ltd. and Industrial Asphalts (Ceylon) PLC. Bitumen mainly imported to the country from UAE, Bahrain and Singapore. The following figure shows the imported quantities from 2011 to 2016.

Other sectors

In addition to the above-mentioned chemical sectors, there are several sub sectors including water proofing chemicals, tile adhesives, tile grout and coatings in the chemical supply chain of the construction sector. Most of these industries depend on the imported raw material to carry out their production. These companies are usually established as a subsidiary of a parent company in a related sector. For example, the parent company would be manufacturing tiles while the subsidiary company would be manufacturing tile grout and adhesives.

4. Government policy and support available for the sector

There are many concessions that the government has provided for the industrial sector in general.

The factories operated in Board of Investment (BOI) zones and the industrial zones operated by the government, get a tax reduction to import raw materials. At the same time, the industries as described under the relevant sections of the detailed classification published in the Gazette Notice 1904/58 dated 6th March 2015 can obtain electricity from the Ceylon Electricity Board (CEB) at the following prices. (Compared to the industrial rates, the domestic rates go as high as 45.00 LKR/kWh when exceeding 180 units per month).

Consumption per month (kWh)	Energy Charge (LKR/kWh)	Fixed Charge (LKR/month)
<300	10.80	600.00
>301	12.20	

When it comes to the construction sector and its supporting industries, the Construction Industry Development Authority (CIDA), which is established under the State Ministry of Rural Housing and Construction & Building Materials Industries Promotion, plays a major role in promoting and granting assistance to the development of industries related to the Construction Industry. According to their website at https://www.cida.gov.lk/index_e.php main activities of CIDA are as follows.

- Recommend strategies for the development of the Construction Industry and assist in their implementation.
- Regulate registration and grading of Construction Contractors.
- Promote professionalism of consultants and coordinate activities of professional bodies and assist in the formation of similar bodies in the Construction Industry.
- Promote /Facilitate export of construction industrial services by undertaking overseas contracts.
- Provide advisory services to the Construction Industry.

- Review human resource requirements of the industry and assist in the provision of training facilities.
- Promote the advancement of the skills and expertise of personnel and professional bodies in the Construction Industry.
- Promote /Undertake research on matters related to the Construction Industry.
- Promote Quality Assurance and productivity in the Construction Industry.
- Promote and grant assistance to the development of industries related to the Construction Industry.
- Undertake or assist any other activity for the promotion of the Construction Industry.

Also, when it comes to the export sector, the Sri Lanka Export Development Board (EDB) provides assistance to exporters in the below mentioned ways (<https://www.srilankabusiness.com/>).

- Helping to resolve the issues exporters face during their interaction with government bodies
 - The EDB provides assistance, specially to new exporters through their National Programme To Develop New Exporters programme. The site also provides information regarding the export procedure as well. The Export Process roadmap is available to download from their site.
- Development of skills within the Sri Lankan exporter community
 - EDB offer practical training programmes for the Sri Lankan Small and Medium scale exporters which can be of 1 to 3 days of duration. The objective of these training programmes is to impart better understanding of foreign markets to the exporters.
- Improving the international relationship between global and local agencies.
 - There are number of initiatives facilitated through EDB to promote the relations between global and local agencies. The eMarketplace is one such facility provided through EDB where foreign buyers can get directed to a variety of local products. Also, foreign buyers can get registered at EDB via their site which gives a number of advantages such as business matchmaking and receiving information regarding Sri Lankan industries and services.

When it comes to testing, research and development, there are government institutes established to carry out testing relevant to the construction sector and its supporting industries. Research in these related areas are also carried out in government universities to support the industries to fine tune their business processes and resolve any issues they might be facing. The following institutes are able to support the construction sector through testing, research and development.

1. National Building Research Organization
2. Industrial Technology Institute
3. Central Environmental Authority
4. National Engineering Research and Development Centre
5. University of Moratuwa

Sri Lanka Standard Institute (SLSI), is the national body responsible for establishing and maintaining national standards. When it comes to the chemical supply chain of the construction sector, the SLSI is maintaining standards for paint, tile and cement industries.

5. Legislations related to construction sector and construction materials

Following legislations regarding environment and sustainability are applicable for manufacturing industries including the material supply chain industries of construction sector, in Sri Lanka.

National Policy on Construction

Formulated by the National Advisory Council on Construction Under the provisions of the Construction Industry Development Act No.33 of 2014. The policy is aimed at creating an efficient Construction Industry in Sri Lanka serving the national development needs through regulation, standardization, capacity building and facilitation

The Policy will apply to the Construction Industry in general, involving the public sector and the private sector. The key roles and responsibilities of the different sectors of the industry and the line Ministries are identified. Their operating background and their respective policies are harmonized with this policy to ensure complementarity

Environment

The environmental law includes Provincial and Local Authority Laws, human rights, Labour Law, and Trade Law. The main purpose is to minimize or reduce the impacts of human activity both on humanity and the natural environment itself.

The relevant laws relating to the protection of air and water quality are the National Environmental Act No. 47 of 1980 as amended (NEA) and the National Environmental (Procedure for Approval of Projects) Regulations No. 1 of 1993 (NEA Regulations 1993).

Development activities often constitute "Prescribed Projects" based on the location and magnitude of the project, as set out under Extraordinary Gazette Nos. 772/22 dated 24.06.1993, No 859/14 dated 16.02.1995 and No. 1104/22 dated 27.10.1999 and must be approved in accordance with the NEA Regulations 1993.

The approval process requires the project proponent to carry out an Initial Environmental Examination (where the environmental impact is not significant) or an Environmental Impact Assessment (EIA) (where the environmental impact is likely to be significant and a detailed study is required).

The relevant project approving agency (that is, the relevant Ministry/public sector authority, in whose purview the project lies) will grant the environmental clearance with the concurrence of the Central Environmental Authority (CEA). Such environmental clearances generally address protective measures to be taken by the licensee to prevent/minimize air and water pollution.

Waste

The relevant laws relating to waste management are the NEA and the National Environmental (Protection and Quality) Regulations No. 1 of 2008 set out in the Extraordinary Gazette Notification No. 1534/18 dated 01.02.2008. If the project generates "Scheduled Waste" (defined to include asbestos waste), the generation, collection, transport, storage and disposal of the Scheduled Waste must be carried out under the authority of a Scheduled Waste Management License obtained from the CEA.

Environmental impact assessments (EIAs)

EIAs must be carried out if the project constitutes a "Prescribed Project" in terms of the NEA and NEA Regulations 1993, based on its location and magnitude, see above, Air and water.

Prescribed Projects include the following:

- Construction of all commercial buildings as defined by the Urban Development Authority Law No. 41 of 1978 and the construction of dwelling housing units, irrespective of the magnitude and location.
- Construction of ports, railways, national and provincial highways and so on.
- Requisite environmental clearance will be granted by the project approving agency with the concurrence of the CEA.

Sustainable development

The United Nations Sustainable Development Goals are ratified by Sri Lanka. However, there are no specific local laws relating to the above.

6. National Standards applicable

For Cement

There are 4 national standards are applicable for locally manufacturing cement and imported cements.

- Cement - Blended hydraulic (SLS 1247): Covers the requirements for constituents, composition, mechanical properties, physical properties, chemical properties, packaging, marking and delivery of two strength classes of blended hydraulic cements (BHCs).
- Cement – Masonry (SLS 515): Constituents, composition, physical properties, mechanical properties, chemical properties, packaging, marking and delivery of Masonry Cement.
- Cement - Ordinary Portland SLS 107: Covers the requirements for constituents, composition, mechanical properties, physical properties, chemical properties, packaging, marking and delivery of Ordinary Portland Cement (OPC). It pertains to four strength classes of OPC.
- Cement - Portland limestone SLS 1253: Covers the requirements for constituents, composition, mechanical properties, physical properties, chemical properties,

packaging, marking and delivery of four strength classes of Portland Limestone Cement (PLC).

For paints

SLS 1649: Driers for paints and varnishes

SLS 1256 Part 41- 48 Methods of test for paints and varnishes

SLS ISO 4628 Part 1- Paints and varnishes - evaluation of degradation of coatings

SLS ISO 12944 Part 1- Part 8 Paints and varnishes – corrosion protection of steel structures by protective paint systems

SLS 1541: Terms and definitions for paints and varnishes

SLS 749: Thinner for cellulose nitrate-based paints and lacquers

SLS 564: Emulsion distemper paints

SLS 563: Dry distemper paints

SLS 557: Emulsion paints for exterior use

SLS 540: Enamel paints for interior use

SLS 539: Enamel paints

SLS 538: Synthetic emulsion resin binders for paints

SLS 535: Methods of test for paints

SLS 533: Emulsion paints for interior use

SLS 523: Method of sampling for paints, varnishes and raw materials for paints and varnishes

SLS 489: Glossary of terms for paints

CS 193: Round tins for paints, varnishes and allied products (packed by volume) (Metric units)

CS 119: Lead based priming paints

For Ceramic Tiles

SLS ISO 10545 Part 15-Ceramic tiles - Determination of lead and cadmium given off by glazed tiles. Specifies a method for the determination of lead and cadmium given off by the glaze of ceramic tiles.

7. Conclusion

The construction industry is one of the largest industries in Sri Lanka both in terms of contribution to GDP as well as the labour force involved. As a result, the construction material supply chain is also one of the largest sub sectors in the country. There are several different types of building material manufacturers in the country who play a significant part to maintain the supply chain of the construction industry. However, many of these manufacturers rely heavily on imported raw materials to produce their products.

At the moment, the majority of the end customers of the building construction sector, which are the general public, lack the awareness regarding the sustainability concerns. As a result, the stakeholders of the construction sector also do not prioritize sustainability. There is competition between companies but mainly the market share is divided between few major players. The major companies in each of these sections do have the spending power and the capability to invest in sustainability related concepts.

When it comes to the building materials sector in Sri Lanka, there is a tendency for large manufacturers to go for eco labelling schemes and comply with national standards where they can promote their products as high quality and eco-friendly. However not all companies have the relevant infrastructure or the capital to go towards such labelling schemes. Awareness in terms of general public, on the importance of an eco-label is low but public do have an understanding about the national standards and their importance.

There is an emerging trend in the country to go towards constructing Green Buildings. It is important that the construction is taken place using eco-friendly products if you are to get the building certified as a Green Building. Hence there are opportunities to adapt Eco Innovation concepts in this sector. The government has made it mandatory for all upcoming government buildings to be certified as Green Buildings. In future this requirement might expand to other sectors as well.

Reference

Perera K.D.A.S, R. R. (2020). *Cement Industry in Sri Lanka*. Faculty of Technology, University of Sri Jayewardenepura.

R. Rameezdeen, U. K. (2004). *QUANTIFICATION OF CONSTRUCTION MATERIAL WASTE*.

Ramya Kumanayake, H. L. (2018). *Assessment of material related embodied carbon of an office building in Sri Lanka*. ISSN 0378-7788.

Vyas, D. (n.d.). *Ceramics in Sri Lanka; Opening Doors*. GUJARAT TECHNOLOGICAL UNIVERSITY.

Wijesekera, N. (2020). *Development of Sri Lanka's Construction Industry; The way forward after COVID 19*. Construction Industry Development Authority.