Government of Punjab
Department of Finance
(Finance Personnel-II Branch)

Notification

No:- FD-FP-2021(MISC)/36/2023-4FP2/I/622721/2023 **The 17th August 2023**

The Governor of Punjab is pleased to notify the Guidance note on Sustainable and Green Public Procurement to provide a holistic approach to the procuring entities to enable them to incorporate sustainable and green public procurement practices in their procurement processes.

2. These guidelines will guide and support the procuring entities in delivering value for money, maximize social and economic benefits, and minimize damage to the environment and health.

3 The detailed Guidance Note on Sustainable and Green Public Procurement is attached herewith this notification.

Dated: 16.08.2023

Ajoy Kumar Sinha
Principal Secretary Finance
Government of Punjab

A copy of the above is forwarded to the following for information and necessary action, please:-

1. All the Administrative Secretaries to Government of Punjab.
2. All the Secretary / Special Secretary in the Department of Finance.
3. All the Heads of the Departments in the State of Punjab.
4. Registrar, Punjab and Haryana High Court.
5. Commissioners of the Divisions.
6. District and Session Judges in the State of Punjab.
7. The Director, Treasury and Accounts, Punjab.
8. All the Heads of the offices in the State of Punjab.
9. The Controller, Printing and Stationery, Punjab.

Deputy Secretary
Department of Finance, Punjab

A copy of the above is forwarded to the following for information:-

1. The Accountant General (A & E), Punjab.
2. The Accountant General (Audit), Punjab.

Deputy Secretary
Department of Finance, Punjab

A copy of above is forwarded to the following for information please:-

1. Secretary to Hon'ble Finance Minister, Punjab.
2. PS to Principal Secretary to Government of Punjab, Department of Finance.

Deputy Secretary
Department of Finance, Punjab

Guidance Note on Sustainable and Green Public Procurement

1. Introduction

1.1. Public sector plays a pivotal role in leading state's transition to sustainable and green economy and society. Public Procurement is a primary instrument through which the public bodies could support this transition.

1.2. The Government of Punjab implemented the Punjab Transparency in Public Procurement Act in 2019 followed by Punjab Transparency in Public Procurement Rules, 2022. The legislations intend to establish legal foundations for procedures for procurement by public entities so as to ensure timely delivery of intended outcomes with efficiency, economy, integrity and accountability, transparency, fair and equitable treatment of bidders and public confidence regarding good governance.

1.3. Taking a step forward, the Government of Punjab intends to bring guidance note on Sustainable and Green Public Procurement in addition to above legislations. The intent of this document is to provide a holistic approach to the procuring entities to enable them to incorporate sustainable and green public procurement practices in their procurement processes. These guidelines will guide and support the procuring entities in delivering value for money, maximise social and economic benefits, and minimise damage to the environment and

health. This guidance note is to assist the procuring entities in adopting sustainable and green public procurement practices and in no way intend to create an impediment in the procurement process.

2. Definitions

2.1. 'Sustainable Public Procurement' is a process whereby public sector meets its needs for goods, services, works and utilities in a way that achieves value for money on a whole life-cycle basis in terms of generating benefits not only to the organization, but also to society, whilst significantly reducing negative impacts on the environment and future generations.

2.2. 'Green Public Procurement' is a process whereby public Procuring Entities seek to procure goods, services and works with reduced environmental impact when compared to goods, services and works with the same primary function that would otherwise be procured.

3. Needs for Sustainable and Green Public Procurement.

3.1. In all over the world, a large population, rapid urbanization and expanding industrial population have led to over exploitation of available limited natural resources. Due to this, soon problem of resource crunch will be faced by all nations and doesn't augur well for future generation. By practicing sustainable and green procurement, the goals of sustainable development can be achieved effectively.

3.2. The benefits of green public procurement is as under:-

i) Green public procurement helps in reducing or minimizing the use of hazardous substances

ii) It helps in reducing energy consumption and also reduces carbon emissions

iii) It helps in promoting the consumption and uptake of eco-friendly products

iv) It helps in conserving and prudent use of natural resources

v) Green procurement helps in achieving the goals of sustainable development

vi) In the long run it increases the value of money

4. Government of India on sustainable Public Procurement

4.1. In keeping with the goals of vision 2020, Indian Railways took a unique initiative in 2008 to reduce the peak lighting loads in Indian Railways residential quarters by replacing ICLs with energy-efficient CFLs. The idea was to encourage the involvement of stake holders in the project implementation phase so that they could experience the benefits of adopting green products and services themselves. The resulting energy savings achieved through this project will reduce the total

power demand and lead to reduction of green house gas emissions. The Indian railways has successfully implemented this project and as a result the project results in direct energy savings of 112500 MWh per annum and more than four lakh households have directly benefitted from this project as they received free CFLs that will provide them with sustained savings over the years in terms of energy bills. Besides this by replacing ICLs with CFLs has reduced energy consumption by approx. 75 KW are per CFL per annum and thereby carbon emissions from upstream fossil fuel power generation. It resulted in reduction of approx. 90,000 tonnes of CO2 emissions per year. Regarding this a case study is submitted by Sanjay Kumar, Deputy Chief Materials Manager, Northern Railway, Government of India (GoI) is attached as Annexure 'A' for more references.

4.2. At the Government of India (GoI) level, a presentation on sustainable Public Procurement was organized on 7th March, 2018 by Department of Expenditure which was also attended by the representatives of Ministry of Environment Forest and Climate Change and United Nations Environment Programme. Government of India, Ministry of Finance, Department of Expenditure vide its office memorandum No. F.18/22/2017-PPD dated 19-03-2018 decided to constitute a sustainable

procurement task force under the Chairmanship of Joint Secretary (PPD & PF C-II) Department of Expenditure, Ministry of Finance with the following terms of reference:-

i) Review International Best Practices in the area of sustainable public procurement

ii) Inventories the current status of Sustainable Public Procurement in India across Government Organization

iii) Prepare a draft Sustainable Procurement Action Plan

iv) Recommended an initial set of product / service categories (along with their specifications) where Sustainable Public Procurement can be implemented

5. World Wide Practice on sustainable and green public procurement*

(i) **Korea**

Korea's green public procurement was first introduced in tandem with the Korea Eco-label under the Act on Development and Support of Environmental Technology of 1994. State agencies were recommended to preferentially purchase products awarded the Korea Eco-label. Ministry of Environment of Korea introduced the Act on Encouragement of Purchase of Green Products in 2005 (hereinafter the Act of 2005). At the beginning of each year, state

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*Reference from Green Procurement Strategy by United Nations Population Fund – UNFP 2013

organisation – i.e. central and local governments and public organisations – are obliged by the Act of 2005 to submit an implementation plan on green purchases of the year and the performance records to the Ministry of Environment.

According to the Act of 2005, state agencies should purchase green products and services for which the eco-label criteria exist. Green procurement can be made in two ways. Each organisation can directly purchase green products and services. If the total amount of purchase exceeds a certain threshold, the purchase is commissioned by the Korea Public Procurement Service (PPS), the central public procurement agency.

Otherwise, each organisation can require contractors to purchase green products in delivering their services (e.g. construction, maintenances, repair and operation services) by including special conditions or green specifications in the contract. The product groups incorporate various product categories ranging from electronic appliances, office supplies and furniture to construction materials, etc.

(ii) **Austria**

In 2008, the management board of OBB infrastructure AG (OBB Infra), the Austrian state-owned railways infrastructure company, decided to implement an environmental management system (certified according to ISO 14001) as a major pillar for the sustainable development of the company.

(iii) **Italy**

Consip is the Italian central purchasing body, 100% owned by the Ministry of Economy and Finance (MEF). Energy is one of the product / service categories that Consip provides to public administrations.

In order to combine cost savings and incentives for innovation in public procurement through performance standards, Consip launched a framework contract on "Integrated Energy Management Services" for heating services including improved energy efficiency, consumption reduction and CO2 emissions avoidance. Pre-procurement market consultation was carried out using online questionnaires addressed to businesses and the main trade associations in Italy. This initiative shows how research, development and innovation can be stimulated through a performance-based contract for a large number of administrations.

(iv) **Japan**

Japan already has a law on Green Public Procurement (GPP). In 2000, in South Africa Department of Environment Affairs adopted a preferential / procurement policy under the preferential procurement policy framework act, 2000. In Mexico, the 2007-2012 National Development Plan brought in sustainability criteria in the procurement policy followed by a procurement law. The law recognised that all wood and furniture procurement by public agencies requires a certificate highlighting its legal

origin and paper procured by public agencies will need to have 50% recycled content.

(v) **European Union**

(EU) adopted two directives on 26th February 2014. Today many of the EU countries have transposed these directives or rules into national laws. These directives support innovation partnerships where a contracting authority wishes to purchase goods or services, which are not currently available on the market. The procedure for establishing an innovation partnership is set out in Article 31 of Directive 2014/24/EU.

6. Following standard may be considered for Sustainable and Green Public Procurement.

6.1. The procuring entity may comply with sustainability criteria and legal requirements of environment or pollution control and other mandatory and statutory regulations, or internal guidelines, if any, applicable to the subject matter of procurement to be purchased;

6.2. The procuring entity should have emphasise on factors such as efficiency, optimum fuel/power consumption, use of environmental-friendly materials, reduced noise and emission levels, low maintenance cost, and so on. In order to ensure efficient use of energy and its conservation and thereby harnessing the cost-saving potential of the relevant products available in the market, the procuring entity may emphasis on use of minimum BEE Star

labelled electrical appliances, safety and quality certifications as specified and prescribed by the Government Agencies from time to time.

6.3. In order to adopt sustainable, energy efficient and new emerging green & clean technologies in construction and to create sustainable building environment, the Public Works Department has provided an exclusive chapter on Green Buildings including items pertaining to Energy Efficient Materials in Punjab Common Schedule of Rates (CSR), 2020 for the implementation of Punjab Energy Conservation Building Code (PECBC) notified by Government of Punjab.

6.4. The procuring entity may emphasis on minimal packing needs or environmental friendly packing material and may emphasis on controlled use or absence of toxic substances.

6.5. The procuring entity may be encouraged for logistics optimization, local buying and using circular economic principle for waste management.

6.6. Suppliers are also encouraged to promote ethical human practices like respect of human rights, no forced or compulsory labour, no

child labour and put efforts for employee and environment well being and their development.

6.7. The Procuring Entity may also visit E-Market place for products and services with a sustainable procurement component. GeM has collaborated with United Nations Environment Programme for this initiative. It has taken a series of path breaking steps to roll out new features and functionalities on the portal to promote the adoption of environmentally sustainable products and services. There is also forward auction for safe disposal of obsolete machinery and buy back option for disposed of obsolete assets and procurement of new products. Presently 250+ services categories are live on GeM which also includes services with a sustainable procurement component.*

6.8. The procuring entity may emphasis on disposing goods to authorized agencies in environmentally friendly manner. The Punjab Pollution Control Board has issued detailed guidelines on Waste Management which includes disposal of waste in following heads:-

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*Reference from Press release of Ministry of Commerce and Industry, GoI on 04-06-2022

a) Disposal of Batteries: The Battery (Management and Handling) Rules 2001, apply to every manufacturer, importer, reconditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components thereof.

b) Disposal of Bio-Medical Waste: The BMW management rules 2016 is applicable for disposal of biomedical waste. These rules shall apply to all persons who generate, collect, receive, store, transport, treat, dispose or handle biomedical waste in any form including hospitals, nursing homes, clinics, dispensaries, Veterinary institutions, animal houses, pathological laboratories, blood banks, Ayush hospitals, clinical establishments, research or educational institutions, health camps, medical or surgery camps, vaccination camps, blood donation camps, first aid room of schools, forensic laboratories and research labs.

c) Construction and Demolition Waste Management: Ministry of Environment forest and climate change, Government of India notifies the construction and demolition waste management rules 2016. These rules shall apply to every waste resulting from construction, remodeling, repair and demolition of any civil structure of individual or organization or authority who generate construction and demolition

waste such as building material, debris, rubble. In compliance of Rule 10 sub rule 1(a) of C and D waste management rule 2016, the guidelines on environmental management of construction and demolition waste are issued by central pollution control board under ministry of environment forest and climate change.

d) E-Waste: E-Waste means electrical and electronic equipment, whole or in part discarded as waster by the consumer or bulk consumer as well as rejects from manufacturing, refurbishment and repair processes. E-waste management rules 2016 have been notified vide notification no. GSR 338(E) dated 23-03-2016 and are come in force w.e.f. 01-10-2016 and amended by notification no. GSR 261(E) dated 22-03-2016.

e) Hazardous Waste: For disposal of hazardous waste, Ministry of Environment, Forest and Climate change, Government of India has notified hazardous and other waste (management and trans bounding movement) rules 2016. These rules shall apply to the management of Hazardous and other waste.

f) Municipal Solid Waste: Ministry of Environment, Forest and Climate change, Government of India has notified Solid Waste Management Rules 2016. These rules shall apply to every municipal authority

responsible for collection, segregation, storage, transportation, processing and disposal of Municipal Solid Waste.

g) Plastic Waste: Ministry of Environment, Forest and Climate change, Government of India has notified Plastic Waste Management Rules 2016 vide notification dated 18-03-2016 to provide a regulatory framework for management of Plastic waste in the country. These rules shall apply to every waste generator, local bodies, gram panchayats, manufacturers, importers, producers and brand owner.

The details of all the above mentioned rules are available on the website of Punjab Pollution Control Board and procuring entities adhere to these guidelines issued from time to time.

6.9. Although every procuring entity follows laws, standard code of conduct for procuring subject matter of procurement, some examples are cited for more elaborating the concept of Sustainable and Green procurement.

6.9.1. While procuring swings / open gym for public parks it may be ensured that the design of such swing / open gym is safe for public and made from non hazardous / non toxic material. Proper warning signs and information notices should be placed on gym site / equipments to prevent injury. Proper annual

maintenance contract also be consider so that the equipment should be properly maintained as poorly maintained equipments can be dangerous and lead to serious injuries.

6.9.2. While procuring uniform for students / employees it may be ensured that material used in stitching uniforms as per prescribed quality norms and doesn't cause any skin problem to its users.

6.9.3. While procuring papers / books, chalks, toys for schools / colleges, it may be ensured that they are made from non hazardous material.

6.9.4. While procuring chemicals, solutions for science labs in schools and colleges, it may be ensured that material is safe and of good quality. Disposal of such solutions, chemicals must be according the guidelines issued by Government from time to time.

6.9.5. In health sector while procuring medicines, x-ray films, masks or other material, a simultaneously disposal plan is also prepared and procuring entity must ensure that disposal is done as per the guidelines issued by regulatory agency on this behalf.

6.9.6. In sectors where livestock, plants, seeds, exotic plants are procured it may be ensured that live stocks is free from infection and diseases and exotic plants / other vegetation free from weeds / diseases so that it doesn't cause any harm to local flora and fauna.

6.9.7. In sectors where IT based services are procured, it may be ensured that API, password, encoding related to these services are in the control of procuring entity, both before and expiry of the contract. There should be proper exit plan for delivery of data and application from IT Agency to Procuring Department. The service provider ensure high security of data and quick response time for solving the problems.

6.9.8. In sectors where personnel are hired on outsourced basis, it may be ensured that outsourcing agency properly deduct and deposit Employee Provident Fund, Employee State Insurance and other mandatory deductions etc. to the concerned authorities and such outsource agency doesn't do any act which leads to exploitation of outsource manpower.

6.9.9. In sector where vehicles are procured, it is according to norms specified by the Transport Department and other Government Agency from time to time.

7. Conculsion

Green and Sustainable Procurement is a need of the hour for future generations for the quality living and sustainable development. The procuring entities may endeavour to promote sustainability awareness and green work culture among various stake holders. As mentioned earlier the intent of guidance note is to provide a holistic approach to the procuring entity to incorporate sustainable and green public procurement practices and in no way intend to create an impediment in the procurement process.

Annexure-A

INDIA

Context and background

The total volume of public procurement in India is estimated to constitute about 30% of gross domestic product (GDP). There is no law that governs public procurement in India. The General Financial Rules issued by the Ministry of Finance lay down the basic principles of efficiency, economy, fairness and equitability and the promotion of competition in public procurement. The current guidelines do not mandate public authorities to include environmental and social criteria in public procurement. However, awareness about sustainability is growing. The use of public procurement as a tool to influence market trends in favour of environmentally and socially responsible products and services is a relatively new concept in India.

The Ministry of Railways, which administers Indian Railways, the national railroad carrier, is one of the central ministries in India. The procurement of goods, works and services in Indian Railways is governed by the General Financial Rules, codes, manuals and departmental guidelines. The Indian Railways Vision 2020 document states its intention to conserve energy by achieving 15% energy efficiency and to use a low-carbon, energy-efficient approach.

Many employees working for Indian Railways reside in a railways colony. Most of these households use energy inefficient incandescent lamps (ICLs) for their lighting needs, thus increasing peak electricity demand in the evening. The introduction of energy-efficient lighting solutions in these households involves many challenges, such as low consumer awareness of energy-efficient products, the quality of existing products on the market, poor availability of green products in rural markets, and most of all, the high initial cost of compact fluorescent lamps (CFLs) on the Indian market.

Case study submitted by Sanjay Kumar, Deputy Chief Materials Manager, Northern Railway, Government of India.

Objectives

In keeping with the goals of Vision 2020, Indian Railways took a unique initiative in 2008 to reduce the peak lighting loads in Indian Railways' residential quarters by replacing ICLs with energy-efficient CFLs. The project team used life-cycle costing (LCC) as a tool to demonstrate the potential benefits of using CFLs over ICLs for lighting needs even though the upfront purchase price of a CFL is approximately five or six times that of an ICL in India. The idea was to encourage the involvement of stakeholders in the project implementation phase so that they could experience the benefits of adopting greener products and services themselves. The resulting energy savings achieved through this project will reduce the total power demand and lead to a reduction of greenhouse gas emissions.

The secondary objective of the project was to demonstrate the use of the Clean Development Mechanism (CDM) under the Kyoto Protocol to finance an energy-efficiency project in an emerging economy. It leveraged money earned through the sale of certified emission reductions (CERs) generated during the project to distribute a maximum of 4 CFLs to 400 000 households across Indian Railways.

Table 1. Comparison of life-cycle costing for compact fluorescent lamps and incandescent lamps

Wattage of incandescent lamps	Wattage of compact fluorescent lamps of equivalent lumen	Consumption of electricity in burning incandescent lamps for 6 000 hours = wattage x hours/1 000 KWH	Consumption of electricity in burning compact fluorescent lamps for 6 000 hours = wattage x hours/1 000 KWH	Savings in electricity over life cycle of compact fluorescent lamps, in burning for 6 000 hours = (2-3)	Cost of electricity per KWH (in INR)	Savings on electricity bill over life cycle of compact fluorescent lamps = 5*6	Initial cost of each incandescent lamp (in INR)	Initial cost of compact fluorescent lamp of equivalent lumen (in INR)	Initial cost of incandescent lamp for burning 6 000 hours (in INR)	**Net savings per compact fluorescent lamp over life cycle (in INR) = 7-9+10**
1	2	3	4	5	6	7	8	9	10	**11**
100	20	600	120	480	5	2 400	15	130	90	**2 360**
100	23	600	138	462	5	2 310	15	130	90	**2 270**
60	14	360	84	276	5	1 380	11	90	66	**1 356**

Assumptions:

Life of compact fluorescent lamp – 6 000 hours Life of incandescent lamp – 1 000 hours

Source: Indian Railways.

Implementation

The project was conceived and administered at the ministry level and was implemented by divisional units across country. The tender conditions included the requirement of high-quality CFLs as per Indian Standard IS: 15111 of reputed make with 10 000 burning hours. Further, they specified that the winner of the contract would recover the cost of the CFLs supplied to Indian Railways through the sale of CERs by registering it with the United Nations Framework Convention on Climate Change (UNFCCC) as a Clean Development Mechanism project. A globally advertised tender was launched in June 2008. The Project Implementation Deed dated 30 October 2009 was signed between CQC Malaysia Limited and Indian Railways.

Under the agreement, CQC was responsible for procuring high-quality CFLs as per the tender specifications and supplying CFLs to designated points as per advice from the divisional heads. CQC was to recover the cost of the CFLs through trading CERs. As per the agreement, 3% of the CERs were to be transferred to Indian Railways. Further, CQC was responsible for undertaking the process to acquire Clean Development Mechanism status, from the development of the project design document, obtaining host country approval, validation and registration of the project and project monitoring, to verification and certification with the UNFCCC. The Ministry of Railways, as the project beneficiary, was responsible for the distribution of CFLs in Indian Railways' housing colonies on a replacement basis, recordkeeping, storage of the CFLs and disposal at the end of their life as well as the safekeeping of released ICLs until verification.

The project team identified the stakeholders as Indian Railways employees residing in residential quarters, Philips India (the supplier of lamps) staff, Indian Railways employees involved in the project and local NGOs. CQC conducted training for supervisory staff involved in the distribution of the CFLs. The consumers residing in households were adequately briefed on the project during stakeholders meetings conducted

at numerous different locations. They were also told that they neededto install the CFLs in areas of maximum usage like the kitchen, drawing rooms and common utility areas where average lighting is a minimum of 3.5 hours per day, in order to achieve the maximum benefit.

The project activity started on 10 July 2009 with the signing of the master purchasing agreement between CQC and Philips India. The distribution of 1.41 million CFLs across India was completed in December 2009. The project was registered with the UNFCCC as a Clean Development Mechanism project in November 2010 after obtaining host country approval from the Ministry of Forest and Environment and validation by the UNFCCC's appointed Designated Operational Entity (DOE).

Impacts and monitoring

The project has been closely monitored since its beginning. Spot checks were conducted to verify that the CFLs were actually installed in households within two weeks of their distribution. Project co-ordinators were responsible for visiting at least 25% of the households participating in the project. Det Norske Veritas (DNV) independently validated the project for meeting all of the relevant UNFCCC requirements for the Clean Development Mechanism and all of the relevant host country criteria.

The project contributes to sustainable development using an energy-efficient technology which would otherwise not have such a large market penetration in India.

Economic benefits: The project resulted in direct energy savings of 112 500 MWh per annum and is expected to generate 486 130 units of CERs equivalent including a 3% share to Indian Railways.

Social benefits: More than 400 000 households (400 831) have directly benefitted from this project as they received free CFLs that will provide them with sustained savings over the years in terms of energy bills. Further, disposal or recycling of the ICLs and CFLs will require an informal/formal recycling industry, which will create additional employment and generate additional income to the recyclers.

Environmental benefits: Replacing ICLs with CFLs has reduced energy consumption by approximately 75 KWh per CFL per annum and thereby carbon emissions from upstream fossil fuel power generation. It resulted in a reduction of approximately 90

000 tonnes of CO_2 emissions (CER equivalent) per year. Clearly, the use of CFLs will reduce the production of glass as well as the utilisation of energy in ICL bulb production, among others.

In addition, one of the key benefits of this project is exemplified in the fact that India faces a chronic energy deficit. The country is straining its resources to build more fossil fuel plants to meet the ever-growing demand for electricity. The savings from this project will help improve the power supply for agricultural, domestic, industrial and commercial users in India. Most of all, the project raised awareness among more than 4,00,000 households about the importance of conserving energy.

Challenges and risks

The project had two components. First, justifying the procurement of CFLs, at a substantially higher initial cost, based on life-cycle costing instead of simply the initial economic cost. Second, financing the project using the Clean Development Mechanism through the sale of carbon emission reductions generated during the project. The conceptualisation and development of the bid document itself was a huge task for the project team, as both of these components needed to be merged together. At the same time, the project design needed to secure the investment risk of a private player performing the contract over the period of the project's life cycle.

Supplying CFLs free of cost to households does not guarantee that consumers will then buy CFLs in the future. An awareness campaign was therefore necessary to demonstrate to stakeholders the benefits of adopting CFLs even if there is a very high initial cost. The team organised various stakeholder meetings across India to highlight the savings potential of CFLs over their life cycle and monthly electricity bill savings generated by using CFLs. This concept proved very useful to inform households of the benefits of adopting CFLs over ICLs. If stakeholders are not fully convinced of the potential for savings, they may revert back to using ICLs after the end of the first CFL's life supplied by Indian Railways.

The Clean Development Mechanism project has transaction costs and registering such a project with the UNFCCC takes 12-24 months. The process is very complex, requiring co-ordination with several agencies and stakeholders throughout the life of the

project. Further, the development of the project design document, obtaining host country approval, project validation and registration, project monitoring, verification and certification with the UNFCCC requires a lot of documentation and technical expertise. The team, not expert in handling a project of this complexity, awarded theproject's design and implementation to professionals through open bidding, limiting its own role to regulatory compliance.

The project was originally planned to distribute 2.6 million CFLs to Indian Railways households. However, during the actual distribution of the CFLs, many houses were found vacant, locked and abandoned. As a consequence, only 1.41 million CFLs could be distributed. This did not affect the economic viability of the project, but substantial variation between a projected quantity and actual quantity could, in other cases, have this effect.

The project was financed from the sale of CERs in the international carbon market, which fluctuates. This project was a success, as in 2010 the CER market was on the upswing and CQC was able to sell the CERs earned during this project at a good price. With the deepening recession in Europe, which has led to the crash of the international carbon trading market, such projects are at a heightened risk.

Key lessons learnt

Sustainable public procurement (SPP) is a demand-side policy intervention to reduce the consumption of resources. The consumer is central to any discussion on SPP. Therefore, the implementation of SPP, in practice, requires not only laws and guidelines but also a change in consumers' attitude towards the sustainable consumption of products and services. This project has been successful largely because consumers understood the benefits of using CFL and adopted the project wholeheartedly.

Governments can change consumers' consumption behaviour and orientate them towards greener products and services. This requires spreading information about the benefits of green products and services, and therefore, involving stakeholders is a key step for success.

Life-cycle costing (LCC), which refers to the total cost over the life of an asset and can include costs before, during and after the usage of an asset, is an important tool for

the selection of green products and services to provide value for money. At the same time, LCC has limitations due to the following reasons:

- Procurement professionals do not always have the technical knowledge to capture all costs themselves and have to depend on external sector experts.
- LCC must take into consideration all of the associated costs. However, it is often not possible to realistically establish the LCC of products and services due to non-availability of data for the use phase.
- In the case of competing products, procurement professionals depend on data provided by vendors for working out operation and maintenance costs. Accuracy of data must be closely checked.
- It is time consuming.
- It does not, *per se*, take into account the impacts of products and services on the environment and society.

Therefore, developing LCC technical expertise is crucial for its successful implementation. LCC should be used as tender evaluation criterion for products and services for which there is a considerable degree of confidence of capturing all of their current and future costs.

The project was conceptualised and designed at central level but was implemented through de-centralised networks of offices across India. This exemplifies the importance of institutional structures in implementing such a project in the field.