

GREEN KITCHEN PROJECT

(Reduction of CO₂ emissions through adoption of mass cooking electric appliances at Gedu College)

Case Study

A Project sponsored by



SGP The GEF
Small Grants
Programme



*Gedu College of Business Studies
Royal University of Bhutan*

1. Introduction

The Constitution of Kingdom of Bhutan bestows the sacred responsibility of protecting and conserving natural environment and preventing all forms of ecological degradation through adoption and support of environment friendly practices and policies to its citizens (Article 5.1).

Gedu College of Business Studies (GCBS) advocates perusal of the sacred responsibility amongst its fraternity through Gross National Happiness (GNH) initiatives such as responsible waste management, responsible and sustainable consumption patterns, initiatives to go paperless in office, adoption of environment around us, and responsible use of ecosystem products/services.

Aligning with the GNH initiatives, an energy efficient green kitchen was preferred to the conventional ones. The college has two conventional kitchens, one each for the male and female students, catering to around 520 students. The kitchen in the boys' hostel alone consumed around 80 truckloads (1280 cubic meters) of firewood annually costing the college approximately Nu 1.12 million annually. The consumption of firewood on a vast scale does not align with the college's beliefs and mandates, and negatively impacts the environment, compromises the health and well-being of students, culinary staffs, and the people living in the same premises of the kitchen.

Thus, the transformation of conventional kitchen into energy-efficient green kitchen was initiated with grant support from the Royal Government of Bhutan and GEF- United Nations Development Programme's Small Grants Programme.

2. Overview of Case

2.1 Organization

GCBS, established in 2008, is one of the ten constituent colleges of the Royal University of Bhutan. It is headed by the President who reports to Vice Chancellor of the Royal University of Bhutan. The president is supported by the Deans of Academic Affairs, Student Affairs, and Research & Industrial Linkages in addition to the Administration and Finance Division. GCBS currently has 68 academics and 71 administrative staffs. The institution is a premier higher education institution offering business and management education. Guided by the philosophy of GNH, the institution has always aspired to embed the values of holistic development and sustainability in its curriculum and initiatives for the benefit of the learners who are the future of the nation.

2.2 Conventional Kitchen

More than 250 male students subscribe to the boys' mess, which is managed by the FERIC and guided by the Mess Management Committee. The college with intention to ensure healthy diet and nutrition, convenience and easy access to mess, have established the kitchen in the existing infrastructure handed over to the college by the Tala Hydroelectric Project Authority. Though, integrating kitchen facilities with the hostel infrastructure is convenient and accessible for students, it also poses major challenges and risks to them. The kitchen by design is a conventional kitchen which uses fuelwood for cooking. The demand for fuelwood is massive, as it uses around 1280 cubic feet of firewood annually. The fuelwood used in the mess is outsourced, and the contractors supplying the fuelwood, sources it from Government Reserve Forest in the Gedu Forest Division range which includes Government Research Forest around Darla, Bongo, Dungna, Metabkha and Getana Gewogs. Some of these forests fall in the protected area for flora and fauna. The sourcing of firewood, transporting the wood to the mess, and its combustion lead to multiple damages to the environment and the well-being of the community.

3. Organization's Action

In order to realize the institution of an energy-efficient kitchen, a proposal was submitted to GEF-UNDP, Small Grants Programme to solicit funding support. With their aid, the green kitchen project was initiated.

3.1 Green Kitchen Installation

The following activities were carried out for the transformation of the boys' conventional kitchen to a green kitchen:

- Remodeling and designing of existing convention kitchen to accommodate green kitchen
- Procurement of energy efficient electric cooking equipment
- Installation
- Capacity development of cooks
- Operationalizing of the kitchen

3.2 Cost Comparison

The cost comparison for conventional kitchen and green kitchen (for the first year of operation) is given in Table 1.

Table 1. Cost comparison for first year

Conventional Kitchen	Amount per month	Total amount per year	Green Kitchen	Amount per month	Total amount per year
Electricity	1,665	19,980	Electricity	12,110	145,320
Firewood	93,333	1,119,996	Heating coil for TBC	24,000	288,000
			Heating coil for TBP	24,000	288,000
			Regulator for both TBC & TBP	16,000	192,000
			Digital timer for both TBC & TBP	20,000	240,000
Total	Nu 94,998	Nu 1,139,976	Total	Nu 96,110	Nu 1,153,320

TBC: Tilting Brat Cooker

TBP: Tilting Brat Pan

Both conventional kitchen and green kitchen has similar cost with little difference. In addition, with all the advantages of green kitchen over a conventional one, it can be clearly evidenced that investment in green kitchen will go a long way.

4. Case Problem

4.1 Advantages and Limitations of Green Kitchen

Advantages:

- Reduction in the damage done to the environment by saving trees from cutting down
- Health and well-being of students, cooks, people in the community enhanced
- Substitution of use of firewood with renewable and clean energy
- An example for students and other stakeholders in contributing our share in reduction of global warming
- Can maintain clean kitchen and surrounding

Limitations:

- Difficult to get the parts of the green kitchen equipment when damaged
- Need back up fuel for cooking purpose during times of power outage
- Takes a bit longer time to cook rice

4.2 Future Scope of the Project

The institution of the Green Kitchen may be taken up by all institutions which still use conventional kitchen for mass cooking as the benefits outweigh the limitations as shown from this paper.
