

Best Practice 1

1. Title of the Practice: *Green Practices and Sustainable Development*

'Creating and Sustaining an Eco-Friendly Campus with clear cut goals and priorities in the management of water resources, energy sources and consumption, preservation of flora, management of solid waste, conservation of National aquatic animal Gangetic Dolphin'.

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Involvement and Recognition in the Field of Environmental Research and Activities

2. Objectives of the Practice

The objectives of this initiative are:

- Creating for the university community an ambience and learning environment that advances a sustainable society.
- Ensuring the conservation of biological diversity (Plant and National Aquatic animal Gangetic Dolphin).
- Plantation of more trees in entire campus of Patna University; tie up with NTPC to plant 2000 trees.
- Encouraging the University community to pilot and promote sustainable solutions through teaching, research and extension activities that tackle live issues of the campus and its adjacent communities.
- Harnessing the traditional knowledge and practices of local communities and involving them in the conservation and sustainable use of these resources.
- University offers a specialized programme M.Sc. (Environmental Science and Management) to produce human resources having skill in these areas.

3. The Context

- **Accessibility:** A campus covering 100 acres with a lot of open spaces. The campus is located in the heart of the city and is easily accessible from other localities.
- **Conservation of National Aquatic animal “Gangetic Dolphin”:** Gangetic Dolphin is a critically endangered species. To conserve Gangetic Dolphin, Patna University has been conducting continuous survey of rivers of Ganga Basin in India and Nepal to know the distribution range, status and threats the Ganges Dolphin was facing with the support of Ministry of Environment, Government of India.
- **Rain Water Management:** The University has many large buildings which are utilized for rain water harvesting.

- **Roof top solar photo voltaic power projects:** Most of the buildings have installed solar photo voltaic system.
- **Plastic free and tobacco free:** The entire campus has been declared as plastic, drug and tobacco free.

4. The Practice

The University has undertaken various initiatives to set up an Eco-Friendly campus:

- **Conservation of National Aquatic animal “Gangetic Dolphin:** The researchers of Patna University have created awareness through education and interaction among fishermen, school students, college students, policy makers and administrators besides general public through different modules. Biology, population dynamics, behavior and ecological needs of gangetic Dolphin were also documented. Micropollutants including organochlorine insecticides, heavy metals, Organophosphorus, polychlorinated biphenyls, perfluorinated chemicals etc. were analyzed from Dolphin tissues. Due to significant work in this area one of our faculty member Prof. R.K.Sinha got many honours.
- **Roof top solar photo voltaic power projects:** The University has embarked upon roof-top solar installations at different buildings with an installed capacity of 1000 Kilowatts.
- **Rain Water Management:** The University has invested resources to ensure rain water management.
- **Solid Waste management:** The University has established four solid waste disposal facilities (Composting) in different parts of the campus for disposal of organic wastes including plant debris. These facilities are located at VC lodge, GDS Girls Hostel campus, Botany Department and Hathwa Hostel Campus. The organic waste is segregated from non-recyclable and inorganic waste. This has allowed University to make use of organic waste to create compost. The composts are being utilized for our plantations, and the University is trying to package and sell the surplus compost to generate revenue.
- **Compulsory courses on Environment sustainability and Swacch Bharat Abhiyan:** The University has introduced a compulsory course of 5 credits on **Environment sustainability and Swacch Bharat Abhiyan** in semester I all Post Graduate programmes.
- **Specialized programme:** University offers a Master degree programme (M.Sc.) in Environmental Science & Management.

5. Evidence of Success

Success in the creation of an Eco-Friendly University Campus can be seen through the following activities:

- **The plantations and their maintenance:**

- Every year hundreds of plants have been added with the support of State Forest Department.
- Research is being done by several students in the areas of tissue culture and medicinal property of plants.
- **Roof top solar photo voltaic power:**
- **Waste management:**

The four solid waste management units each consisting of two compost pits to transform solid waste into harmless compost is operational.
- **Rain water harvesting:**

Roof water facilities are operational in some buildings.
- **Dolphin conservation:**

On the basis of achievement of Gangetic Dolphin conservation, Govt. of India and Bihar State have earmarked money to establish a “Dolphin Research Centre:” at Patna University campus. University with support of state government is working towards establishing a National Dolphin Research Centre.

Tobacco free campus: Campus strictly follows "*No Smoking Zone*" principle. Use of tobacco is also prohibited.

- A research project has been completed by Bhabha Atomic Research Centre on “Bio-ethanol production from agro-wastes”.
- Environmental Science & Management Department carries out Water Quality Assessment for potable water of different departments and hostels.
- Faculty members of several departments including Zoology, Botany, Geology, Chemistry, Geography, and Law are consistently involved in environment specific researches and activities including assessment, monitoring and conservation.
- The University earned good recognition for Ganges water quality monitoring, risk assessment of arsenic and fluoride exposure and conservation strategies for Gangetic Dolphin. The Faculty members are engaged in high level research on various areas of environment studies such as ecotoxicology, genetic toxicology, fresh water ecology, biodiversity and biological conservation. The specific areas of interests are identification of factors causing climate change, environmental degradation and loss of biodiversity as well as risk assessment of contaminants as their environmental relevant levels for hazard identification. In 2018, Planning Commission of India and the State Government have sanctioned the establishment of a National Dolphin Research Centre in Patna University campus. The research findings of the Department are published in Journals indexed in web of Science/Scopus having good impact factor with high citation indices. The Department also has collaborating research

projects with institutions of repute at national and international levels. The faculty members have brought several laurels to the University, State of Bihar and India. Conservation strategies for Gangetic River Dolphin in the Department have led to its declaration as National Aquatic Animal in 2009. One of the faculty members, Prof. R. K. Sinha of Zoology Department was conferred with “Padmashri” in 2016 by the President of India for his research on environment and conservation.

6. Problems Encountered and Resources Required

While the opportunities to explore eco-friendly possibilities are evident, actions devoted to conservation for a green campus are expensive.

Best Practice 2

Title of the Practice: Population Research

Population Studies is about our lives, and about how we make sense of our lives. The life course approach is central to the research of the any Population Research Centre. At the Department of Statistics, Patna University, Government of India had established a Population Research Centre (formerly known as Demographic Research Centre) in 1966 to carry out population research in India.

2. Objectives of the Practice

The objectives of this initiative are:

- To carry out research on demography, social and economic aspects of population and health status of Bihar and Jharkhand.
- To carry specific studies on population research
- To contribute to the understanding of No Poverty, Zero Hunger, Good Health and Well-being, Gender equality and Reduced Inequality.

3. The Context

- Making scientific progress in the disciplines of demography and population studies
- Answering socially relevant questions
- Population Studies is about our lives in all its phases and places, contributing to a sustainable future for all people.

4. The Practice

- Patna University is conducting studies in the area of population research particularly in Bihar and Jharkhand since the inception of this centre way back in 1966.
- The centre is also working with other National and International Organizations.
- The centre also shares their findings with stakeholders, research participants and society at large.
- The centre invites persons doing research in this area and interacts with them.

5. Evidence of Success

Success of this centre evidence in following:

- Apart from the works sponsored by the Ministry of Health and Family Welfare, Government of India, the centre has completed many studies sponsored by USAID, UNFPA, UNICEF, Population Council (New York), Care-India etc.
- The centre has produced many research papers/reports/articles on different aspects of population.
- Faculty has successfully completed a total of 10 projects under National Health Mission in various districts of Bihar like Kishanganj, Katihar, Bhagalpur, Banka, Munger, Sheikhpura, Khagaria, Bhojpur, Darbhanga, and Saran. One project on 'Fertility Trend and the Impact of Family Planning in Bihar State' and another project on 'Assessment of knowledge and utilization of the Partograph among Nurses and Midwives in Bihar' was successfully completed by the faculty members.

6. Problems Encountered and Resources Required

- Scarcity of human resource
- Insufficient funding