

## **Precepts and practices of ecological sustainability in the city as reflected in Baulism: An empirical evidence**

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**Abstract:-** Ecological sustainability is rapidly deteriorating. People's ignorance of the non-disconnectable relationships between humans and nature is the main cause behind this ecological degradation. Baul philosophy spontaneously reflects this issue, underlying causes, and the possible solutions through Baul songs, discourses, and lifestyle. Followers of Baul philosophy are known as Bauls and they are the popular and globally recognized mentors for ecological knowledge to the people of Bangladesh. The Bauls are seen to practice stewardship in their lifestyle that can reinforce regeneration of ecological capitals. Baul songs reveal that it is human obligation to manage individual, social, economic, and ecological sustainability. Their spontaneously composed songs are soul stirring, and take the listeners closest to nature. Their stewardship is reflected through simple and natural lifestyle. The Bauls promote non-violence, and non-destruction of nature. Baul philosophy inspired stewardship fulfils religious unity within the eco-cultural diversity of Bangladesh. Bauls philosophy can ensure the ecological sustainability in the cities. This study set its objective as analyzing Baul conception regarding natural wholeness, and justifying Baul's demonstration of life management. To fulfill the research objectives, this study depends upon In-depth Interview, Focused Group Discussion, Key Informant Interview, relevant documents, and observations. Provision of the co-existence of flora and fauna with harmonious relationship and optimum exploitation, extraction, and consumption of finite natural resources can uplift the environmental situation and hence to develop the urban condition to live. This study argues that sustainability as a dynamic entity generated by the synergies between stewardship attitude to social growth and managing ecological footprint. The findings of this study ensure the sustainability of cities, and provide a robust basis for urban planners, policy makers, researchers, government, and development partners for development of specific policies, further research, and project to lessen the vulnerability in the urban area.

**Keywords:** *Baul Philosophy, Ecological Sustainability, Urbanization, Bangladesh*

**JEL Classification:** *Q56, Q57, R11*

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### **I. INTRODUCTION**

More than half of the world's population lives in cities, more than half of the world's economic outputs are produced in cities, and up to 70% of all carbon emissions can be attributed to urban consumption (McAnulla and Gouldson, 2013). Resource bottlenecks, imbalances in natural system, and brown growth are the common features of every city. Many cities want to do more to reduce these features and pursue green growth, sustainable development and a low carbon society. It is argued that ecological sustainability is the potential solution to enhance the urban environmental condition to live for all. But it is rapidly deteriorating globally. People's ignorance of the non-disconnectable relationships between humans and nature is the main cause behind the ecological degradation both in the rural and urban areas. Baul philosophy spontaneously reflects this issue, underlying causes, and shows the possible solutions through the songs, discourses, and lifestyle. Although the religious scriptures have guideline for people as to how to lead sustainable lifestyle in terms of consumption and nurturing of natural resource sustainability, some of the spiritual guidelines are hard to comprehend, some are misunderstood, and others are not practiced by the people. Baul philosophy is the popular, and globally recognized knowledge pillar that provides indigenous knowledge in ecology to the people living in the urban, and the rural areas of Bangladesh.

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Devotees of Baul mystic philosophy are generally known as the Bauls. The spontaneous expression of Bauls songs is stirring the heart that enlightens the spirituality of souls for those beloved ones. It opens up insights, and intuitiveness of followers who follow the way of living and life style according to Baulism. The Bauls promote non-violence, and non-destruction of nature and their message appear as highly scholastic. The majority of the Bauls come from Muslim communities in Bangladesh, and the few parts in West Bengal of India and they display religious neutrality which suggested that the practice of religious secularism by “people who understand” can also reinforce the proper management of natural resources (Hossain, 1995).

Baul philosophy is seen to practice stewardship in lifestyle that can reinforce regeneration of ecological capitals. It reflects the human obligation to manage individual, social, economic and ecological sustainability. Women participation in plantation, less consumption (more saving), wise use of natural resource, and less population growth are the major concern issues of Baul philosophy (Hossain, 1995; Chowdhury, 2011). Some of these issues of Baul philosophy are also supported by the many studies and philosophies like the Naturalist, Kant, and Libertarian moral philosophies. Briffault gives more importance on women, and their participation on farming activities. According to the Briffault, The marginal or religious rites intended to secure the fertility of the fields were naturally within the special competence of the women who cultivated then and whose fertility was linked to the earth. Many of the women’s religious associations were doubtless concerned originally which is discharging that important function (Briffault, 1927, p.3.3). Fertility of land and women are well-established (UNPOPIN, 1995). Agricultural activities were invented by the women. Their interventions in agriculture are totally different from the men (Mirulla, R. 2015). This evidence is established in underdeveloped regions. Julu philosophy reveals that if pregnant lady spread seeds in the field, it is obvious to increase crops productivity. Similarly, inhabitants of Nicobar Island believe that if pregnant lady plants tree, it is obvious to get more fruits from the garden (Jahangir, 1371). Urban women can contribute to grow or nurture more plants at their home state garden or roof top garden or plants at balcony. They can also contribute to make garden at park (state or private), and plant at street side for the beautification of the city and increase vegetative capacity, make city greenery, and promote a low carbon society at the city.

Over-extraction of finite resources for over-consumption in order to lead wasteful lifestyle is utterly discouraged by Baul philosophy. It preaches that people can have surplus money to lend to that in need but with profit sharing not for high profit. For healthy economy, it is required that money ought to circulate in a community like blood. In the case of piling up of wealth, the Bauls refer to the Quranic warning “Who piles up wealth and lays it by. Thinking that his wealth would make him last forever! By no means! He will be sure to be thrown into that which breaks to pieces” (Al Qur’an, n.d.). Living simply, and without greed for more than required, and togetherness among the community people are the standard of maintaining economic and ecological stability in the city. Adopting an integrated “3R” (reduce, reuse, and recycle) approach and introduce feed in tariff system and can minimize negative environmental consequences and increase quality of life in the city.

Baul philosophy always gives emphasis on conservation of wholeness of natural beauty, and human sex and it is reflect through the Baul song (ichcap, 2010). The implication of conservation of human sex is to control population growth. According to Baul Shofi Mondol:

Once a month, a year, the fewer, the better  
Oh! Put a bridle on your lust.  
First put a bridle on your lust  
Man will indulge in lustrous beauty.  
Time and again I warn you  
Never again be moved by indulgence  
Hold your spirit in full  
And let the appeal go unheeded  
(Shofi Mondol, Personal communication, 27 August, 2015).

Environmental pollution, over exploitation, and extraction of finite natural resource, destruction of nature, over pressure on the ecological footprint, and mass consumption are the results from high population growth in the city. On average, Asia’s combined urban population grows by over 45 million a year, resulting every day in the conversion of more than 10 sq km of (mainly productive) to urban uses. More than 20,000 new housing units are needed every day to meet basic needs for shelter, creating a huge demand for construction materials and an additional six million liters of portable water (ESCAP, 2010). Much of this water drains down on existing aquifers, many of which are becoming depleted or contaminated. Average ecological footprint is in excess of five hectares per head in highly populated Asian cities which is greater than the nominal 1.7 global

hectars per head of habitable land to support the needs of the human race indicating that highly populated cities have heavy pressure on the ecological footprint (ESCAP, 2010).

Baul philosophy is mainly nature centric. In addition, it focused many things like stewardship, humanism, spiritual dealings and worship, ecological manifestation and management, metaphysical and spiritual health, religionism, social and moral value, creationism, human obligation, dignity of women, hedonism, and many more (Haque, 1976; Mannan, 2005; Chowdhury, 2011). This study considers specific and relevant demographic and socio-economic factors of Baul philosophy in its applied econometric model to generate empirically supported explanation, assessment of ecological sustainability, and policy formation. The findings of this study ensure the sustainability of the city, and provide a robust basis for urban planners, policy makers, researchers, government, and development partners for development of specific urban policies, further research, and project implementations to lessen vulnerability, and building a resilient, and ecologically sustainable city. It is expected that this study able to generate cutting edge knowledge on ecological sustainability, and address some unexplored research questions and able to reduce research gap on the similar studies.

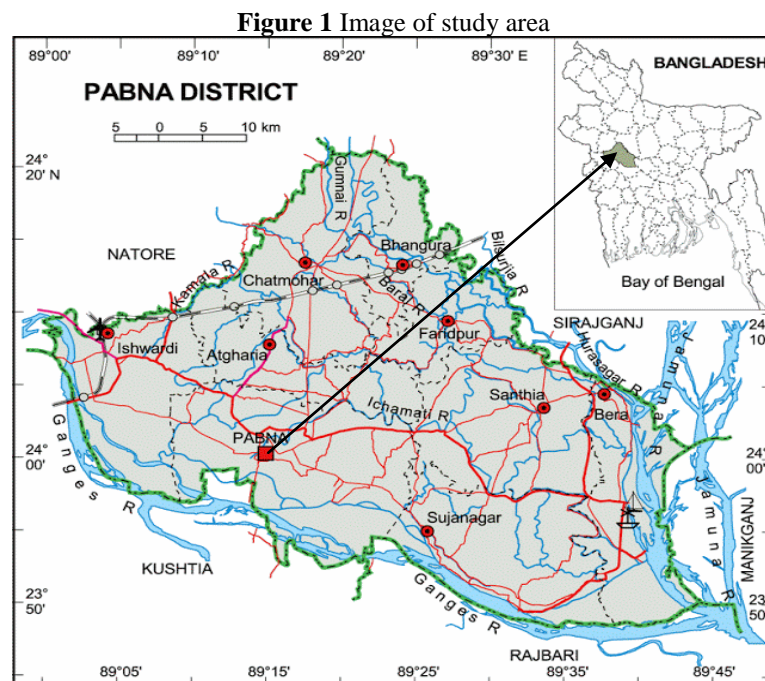
The general objective of this study is to look for position of Baul philosophy in ensuring ecological sustainability, and justifying its ideas and practices regarding technology of nature-ecological manifestation, and management. This study set its specific objectives as analyzing Baul conception regarding natural wholeness, and justifying Baul's demonstration of life management.

## II. Materials and Methods

This section will be divided into three parts-study area, data description and empirical method.

### 2.1 Study Area

Pabna city of Bangladesh is selected as the case study site because of its degraded environment, rapid population growth, and challenges to protect ecological balance. This city is located in the Northwest region of Bangladesh. The main Pabna city is bounded by the Government Edward College in the North, the Ichchamoti River in the East, Pabna Mental Hospital in the West and central Bus Terminal in the South (see Fig. 1 for more details). It is approximately 223 km away from Dhaka, the capital City of Bangladesh. Population growth rate in Pabna is 3.00 much higher than the national growth rate of 1.22 in 2013 (BBS, 2012; World Bank, 2013). Unplanned urbanization, domestic migration from other region into Pabna municipality area, greenhouse gases (GHGs) emission from industrial and transport sector, lack of plantation, imbalance ecosystem, and sewerage and drainage congestion are the common scenario in this city.



(Source: Maps of Bangladesh, 2011)

## 2.2 Techniques and Tools of Data Collection

Social studies frequently seem to face a ‘methodological dilemma’; that is how to effectively synthesize formal and informal methods, and quantitative and qualitative data. This study address, on one hand, some qualitative issues (such as the principal issues of Baul philosophy of ecological sustainability, values and attitudes of urban inhabitants and various social relations, and structures which influence ecological sustainability in the city). On the other hand, some quantitative data on socio-economic-demographic of Baul ideology are required to estimate the parameters of the econometric model for policy implications.

### 2.2.1 Secondary Sources and Historical Reviews

This study extensively used secondary data and historical reviews. It covered literature on Bauls and their philosophy and Lalon Fakir. In addition, books, journals, online documents, research reports, articles, and newspaper articles regarding and related Bauls and Lalon Fakir are also studied for better understanding the Baul philosophy and ecological sustainability.

### 2.2.2 In-depth Interview, Focused Group Discussion and Pilot Survey

This study conducted In-depth Interview for further knowledge on ecological sustainability of Baul philosophy. It was occurred at 5 March, 2015 at the premises of Lalon Fakir’s grave yard in Khustia district, Bangladesh and covered 7 men Bauls and 4 women Bauls from Sufi Islam and Hindu Boishnob. This study also conducted four FGDs. Four FGDs took place from (22-24) April, 2015 at Bera and Santhia Upazila (sub-district) in Pabna district, and Kumarkhali and Sadar Upazila in Kushtia district respectively. Lastly, pilot survey had been implemented on the basis of the findings of In-depth Interview and FGDs. It took place from (2-5) May, 2015 at Pabna Sadar Upazila in Pabna district.

### 2.2.3 Sampling and Questionnaire Survey

The final samples for questionnaire survey was selected on the basis of the pilot survey findings, following “random sampling” techniques. The primary sampling unit was the individual household and it was estimated (n=140). Personal interviews were conducted from (12-17) May, 2015 at Pabna city followed by a structured questionnaire to test significance of ecological sustainability in the city with respect to Baul philosophy. Survey results show that family members, aged people, and educational attainment are increased at Pabna city. On the other hand, Propensity to save scenario is comparatively low at the same city (see Table 1 for more details). Fewer propensities to save indicate that people consume more even more of his income.

**Table 1** Household information

Variables	Number	Percentage
Household family size		
3 members family	11	7.85
(4-8) members family	102	72.86
(>8) members family	27	19.29
Age of the head of households		
Age (25-60) years	87	62.14
Age (>60) years	53	37.86
Household saving/Year		
(<100000) Taka/Year	107	76.42
(100,000-3,000,000) Taka/Year	20	14.29
(>3,000,000) Taka	13	9.29
Educational attainment of the head of households		
Illiterate	9	6.43
Primary education (1-5) classes	17	12.14
Secondary education (6-10) classes	34	24.29
More than secondary education	80	57.14
Female participation in plantation at household level	63	45.00
Number of observations	n=140	

Note. Taka is the Bangladeshi currency

(Source: Calculated by the authors based on their collected data, 2015)

## 2.3 Econometric Model

Descriptive statistics or qualitative research doesn’t provide any scientific evidence of the assessment of ecological sustainability. To fulfill the research objectives, this study depends upon the Probit model or

Normit model. The Probit model is suitable for binary response or decisions (Iqbal et al., 2014, p. 54). It is also suitable for cumulative density function that emerges from the normal cumulative function (Munizaga and Alvarez-Daziano, 2001). The general form of the Probit model is given as follows:

$$\ln y = \ln \beta_0 + \sum_{i=1}^m \beta_i \ln x_i + \varepsilon_i$$

The explanatory (independent) variables  $x_i$  include age, sex, educational attainment, women participation in plantation, savings and family size and dependent variable “y” indicates the ecological sustainability. Few of the variables hold the binary characteristics (see Table 2 for more details). The binary variable is used to estimate the probability of ecological sustainability e.g., Baul philosophy supports ecological sustainability=1 and 0=otherwise in the following way:

$$\Pr (y=1) = \theta (\beta'x)$$

Where, Pr denotes the probability and  $\theta$  denotes the cumulative density function of the normal distribution which gives the likelihood for both cases  $y=1$ , and  $y=0$ .  $\beta'x$  is known as the Probit score.

### 2.3.1 Description of Variables which are used in the Econometric Model

This study used different socio-economic-demographic variables in its econometric model. These variables are defined as follows:

**Ecological Sustainability:** Ecology is the maintenance of life support system, and the achievement of a natural extinction (Sutton, 2000).

**Age:** A time of life usually defined in years.

**Educational Attainment:** Household head’s educational attainment. In most of the cases, the head of the household has either primary education [basic education at home] or illiterate [having no literacy].

**Woman participation in plantation:** Woman participation in plantation is defined as the engagement of woman in plantation.

**Savings:** The part of a person's income that is not spent. Increase in saving leads to decrease in consumption.

**Family Size:** No. of family members in a household.

**Table 2** Variables with expected sign

Dependent/Independent variables	Category	Description	Expected sign
es: Ecological sustainability (Outcome variable)	Binary	1: Baul philosophy plays role 0: otherwise	
age: Age (Independent variable)	Binary	1: (25-60) years 0: otherwise	(+/-)
edu: Educational attainment (Independent variable)	Binary	1: illiterate 0: otherwise	(+)
wpp: Woman participation in plantation (Independent variable)	Binary	1=engagement in work 0= otherwise	(+)
svg: Savings/Year (Independent variable)	Continuous	Income of household	(+)
fs: Family size (Independent variable)	Continuous	Number of family members	(-)

## III. RESULT AND DISCUSSION

As shown in Table 3 below, most of the variables are significant with expected sign at the 1%, 5% or 10% levels.

**Table 3** Probit regression of urban sustainability

Variables	Estimated coefficients	P-value
ln age	0.536***	0.001
ln edu	-0.497**	0.024
ln wpp	2.895***	0.000
ln svg	0.289*	0.133
ln fs	-0.197**	0.051
Constant	1.536*	0.102
Pseudo R <sup>2</sup>	0.39	
Number of observations (n)	140	

Note. P\*\*\*<0.01, P\*\*<0.05, P\*<0.1

According to the model, all of the variables are significant. Age, women participation in plantation, and yearly saving are positively correlated with the ecological sustainability in the Pabna municipality area. On the contrary, educational attainment, and family size are negatively correlated with the ecological sustainability in the same area. 1% increase in age, woman participation in plantation and yearly saving will lead to increase ecological sustainability by 0.536%, 2.895%, and 0.289 respectively and vice-versa. Similarly, 1% increase in educational attainment, and family size will lead to decrease ecological sustainability. Increase in educational attainment leads to increase civilization, and industrialization. More civilized and industrialized society emits more GHGs in the city and hence degrades ecological sustainability. The coefficients of the Probit model ranges from 0.197 to 2.895 except intercept/constant value, and the Pseudo R<sup>2</sup> value indicates that 39% of the variation of the ecological sustainability is explained by the associated variables.

#### **IV. CONCLUSION AND POLICY IMPLICATIONS**

The Baul tradition was included in the list of “Masterpieces of the Oral and Intangible Heritage of Humanity” by UNESCO in 2005. It shows the guideline to protect ecological sustainability. Bauls are significant because their knowledge is experienced based. Their demonstration of life management is pro-environmental which can mitigate the common people’s undesirable physical and spiritual health causing present social, technological, environmental, and economic problems. The Bauls teach that nature itself is the best teacher for learning the technology of nature-ecological manifestation, and management. Bauls vow their religious faith to the sustainability of nature-natural wholeness. The Bauls view sustainability as a dynamic entity generated by the synergies between stewardship attitudes to social growth and managing ecological footprint (Costanza et al., 1991). Government intervention is highly required to keep ecological sustainability balance in the city. Government should impose Pigouvian tax on such human activities those are harmful for city dwellers and there surrounding, and create negative externalities in the city environment. In addition, Government should promote family planning program to control over population, and encourage women for more plantation whenever possible, wherever possible, and as much as possible in the city. City dwellers have also the responsibility to enhance ecological sustainability. Behavioral change of the city dwellers is highly required in this regard. More savings of money and natural elements (flora and fauna) can enhance the ecological sustainability. Adopting an integrated “3R” (reduce, reuse, and recycle) approach can minimize adverse environmental consequences and improve quality of life of the city peoples, and ensure good city for our grandsons.

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