Urban Penetration and Its Effect on the Area: The Case of Lawachara National Park, Bangladesh

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Abstract: Urbanization is a road to modern development, though if unplanned can be disastrous. Bangladesh is small country with densely populated on its way to become medium country from a developing one. The purpose of this research is to study the effect of urban development on Land use pattern in one of the popular protected areas, the Lawachara National Park. Methodologies applied for this observation are Secondary data and GIS data analysis. For GIS special hot spot analysis, data were collected by taking reading in person and from Google map. The Park is observed deforesting from the pressure of tourism and tourist logging development trend in the area. These unplanned developments are changing the fridge area buffer zone, causing disturbance to the wild life, degrading trails and so on. As a result environmental degradation is taking place through increase in population and pressure on natural reserves, constructing hotels, guest houses and similar facilities discarding the consequences.

Keywords: Lawachara National Park, GIS, Land use Change, Unplanned Development

1. Background

Urbanization near tourist spot is a common phenomenon. The popular the tourist spot, the higher the rate of urbanization. It can contribute to poverty alleviation by employment creation, social service provision and partnerships in the sustainable use of natural resources (De Beer and Marinda, 2005, p. 55). However, it is also acknowledged that its development has to be properly planned and managed; otherwise, it can bring several negative consequences, especially to the environment at the destination site and thus to the local people (Fossati and Panella, 2000).

Unfortunately, in many cases, the tourism industry has responded to the benefit of a few and has not necessarily contributed to the development of the local communities (Scheyvens, 2002). Tourism can bring improved income and living standards for local people. Tourism can revitalize local culture, especially traditional crafts, and customs. It can stimulate the rural economy by creating demand for agricultural products and through infrastructure development project; it can inject capital into a rural area. So for vigorous tourism marketing for the benefit of all sharers, there should be interaction among the local community groups and leaders and the local authorities.

The Republic of Bangladesh is a country blessed by the abundant beauty of nature along with rich biodiversity due to the tropical belt and also the diversity of culture and hospitable people. The direct contribution of Travel & Tourism to GDP in 2014 was BDT 296.6bn (1.9% of GDP).

This is forecasted to rise by 5.9% (BDT 314.1bn) in 2015. This primarily reflects the economic activity generated by industries such as hotels, travel agents, airlines and other passenger transportation services (excluding commuter services). But it also includes, for example, the activities of the restaurant and leisure industries. The direct contribution of Travel & Tourism to GDP is expected to grow by 6.1% pa that means approx. BDT 566.3bn (2.0% of GDP) by 2025.(travel &tourism, economic impact 2015, Bangladesh).

2. Study Area

There are three most prominent nature based tourism spot in Bangladesh. Among them Lawachara is the most popular place with the highest visit rate throughout the year. So, consequences of tourism industry activities clashing with the forest boundary, land use pattern change and pressure on natural resources are greatly affected in the area. Also, it being a protected area enriched with Natural resources and endangered mammal species, makes things all the more complicated.

3. Methodology

According to Fig 1, study area was selected after literature review. The data collection has been divided into two parts Primary data and Secondary data. Secondary data were gathered from national reports and local municipality records. Among primary data- GIS data was collected, first hand observation and risk assumption was made and recorded through photographs. For GIS data detail area shape file with attributes have been collected then analyzed. Then from Porjoton Corporation a
list of tourists lodging in the surrounding area was obtained. Since, all the development are surrounding the national reserve park, they were surveyed and photographed for any sign of abnormalities after analysis conclusion is drawn.

Fig 1: Overall Methodological framework for the Research

4. Location and Area

LNP is located (see Fig.1) in the civil administrative units of Maulvibazar district under Sylhet division and nearly 160 km away to northeast of capital Dhaka, 60 km south of Sylhet city and 10 km north. It lies between 24°30´-24°32´ N and 91°37´-91°47´ E (NSP, 2006; Mollah and Kunda, 2004). Current notified area of the Park covers an area of 1250 h., moreover 281 ha area has been proposed for including in the NP area of West Bhanugach Reserved Forest (FSP, 2000).

Fig 2: Location of Lawachara National Park in Sylhet Division.
Impacts of Tourism Industry and urban aspects

Tourism is the main source of income the people of Srimongal. It is the main source of income for local people. There are two types of impact for any kind of industrial development in an area - Direct and Indirect. In case of tourism the direct impacts are the hotel and recreational infra-structure facilities surrounding the tourist hot spot. Indirect aspects are local development, change in socio-economy and pressure on natural resources, change culture and local life style. Direct and indirect impacts of tourism development in Lawachara have been assessed using field observation method. During the site visit impacts were observed and recorded, photographs have been taken and survey data have been calculated. There are five major tourist activity zones around the Lawachara national park area. These are hiking trails, picnic spots, interpretation center and ethnic villages inside the park.

Hotel Industry development in Lawachara

The reasons for visitors coming to this area are that they have a wide range of choice of staying around Lawachara national park and in Sreemongal. And it’s comparatively cheaper than Sundarban or Cox’s Bazar. Hotels and resorts in the area are continuing to diversify in order to meet the requirements of different types of visitors. Hotels are mostly in Sreemongal. Guest Houses are either located in the town or on Sreemongal – Banughacha road or on Sreemongal – Kakiabazar road. Most of them are mid-price ranged, a few were catered to visitors of low budget and a few were at the higher end market. For the last few years there is thrive in construction of guest houses and resorts in the area. There is also a 5 star hotel and a spa resort in this area. And more are in progress.

<table>
<thead>
<tr>
<th>Name of Accommodation</th>
<th>Rooms</th>
<th>Bed Capacity</th>
<th>Tariff Range (TK)</th>
<th>Estb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sondha</td>
<td>30</td>
<td>60</td>
<td>150-1000</td>
<td>-</td>
</tr>
<tr>
<td>Srimangal Guest House</td>
<td>12</td>
<td>45</td>
<td>1500-3500</td>
<td>-</td>
</tr>
<tr>
<td>Srimangal Tourist House</td>
<td>18</td>
<td>50</td>
<td>1200-1500</td>
<td>-</td>
</tr>
<tr>
<td>Tajmohol</td>
<td>25</td>
<td>50</td>
<td>80-400</td>
<td>2001</td>
</tr>
<tr>
<td>Tea Town</td>
<td>28</td>
<td>53</td>
<td>200-2200</td>
<td>2001</td>
</tr>
<tr>
<td>United</td>
<td>26</td>
<td>40</td>
<td>70-1000</td>
<td>2001</td>
</tr>
<tr>
<td>Tea Resort</td>
<td>36</td>
<td>15</td>
<td>2000-5000</td>
<td>2006</td>
</tr>
<tr>
<td>Nirob Eco-Cottage</td>
<td>4</td>
<td>7</td>
<td>1000-1500</td>
<td>2008</td>
</tr>
<tr>
<td>Mohshin Plaza</td>
<td>22</td>
<td>56</td>
<td>400-2000</td>
<td>2009</td>
</tr>
<tr>
<td>Harmitage</td>
<td>7</td>
<td>11</td>
<td>1500-3000</td>
<td>2010</td>
</tr>
<tr>
<td>Hill View</td>
<td>10</td>
<td>20</td>
<td>1500-4500</td>
<td>2010</td>
</tr>
<tr>
<td>Srimangal Resort</td>
<td>8</td>
<td>12</td>
<td>2000-3000</td>
<td>2010</td>
</tr>
<tr>
<td>Litchi Bari eco Lodge</td>
<td>5</td>
<td>9</td>
<td>2000-3000</td>
<td>2011</td>
</tr>
<tr>
<td>Garden view</td>
<td>7</td>
<td>12</td>
<td>1500-2500</td>
<td>2011</td>
</tr>
<tr>
<td>Rain Forest</td>
<td>6</td>
<td>10</td>
<td>2000-4500</td>
<td>2011</td>
</tr>
<tr>
<td>Green Valley GH</td>
<td>3</td>
<td>6</td>
<td>2500-3000</td>
<td>2011</td>
</tr>
<tr>
<td>Lemon Garden Resort</td>
<td>10</td>
<td>11</td>
<td>4000-5000</td>
<td>2011</td>
</tr>
<tr>
<td>Green View</td>
<td>30</td>
<td>41</td>
<td>1200-2500</td>
<td>2012</td>
</tr>
<tr>
<td>Amtali Natural Resort</td>
<td>2</td>
<td>10</td>
<td>3000-6500</td>
<td>2012</td>
</tr>
<tr>
<td>Mou Valley</td>
<td>6</td>
<td>12</td>
<td>1500</td>
<td>2013</td>
</tr>
<tr>
<td>DuSai Resort &amp; Spa(5 star)</td>
<td>63,2 private villa</td>
<td>130</td>
<td>9600-56000</td>
<td>2013</td>
</tr>
<tr>
<td>Grand Sultan(5 star)</td>
<td>135</td>
<td>600</td>
<td>23300-75900</td>
<td>2013</td>
</tr>
</tbody>
</table>

According to Table 1 there is a considerable amount of steady growing recreational facilities within Lawachara Mouza and buffer zone. And with this change there were increase job opportunities, new market for local handicraft and cultural performance, weaving, Eco-tour guide service and so on. There are three tribal groups in this area Khasia, Tripura and Monipuri.

Table 2: Percentage of each community getting benefits from tourism related activities

<table>
<thead>
<tr>
<th>Items</th>
<th>Khasia</th>
<th>Tripura</th>
<th>Monipuri</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weaving</td>
<td>-</td>
<td>7%</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Eco-tour guide service</td>
<td>-</td>
<td>7%</td>
<td>-</td>
<td>2%</td>
</tr>
<tr>
<td>Cultural performance</td>
<td>-</td>
<td>36%</td>
<td>7%</td>
<td>43%</td>
</tr>
</tbody>
</table>

Source: Ahsan, December 2005 to May 2006
On the other hand, the Khasia community only occupies themselves in agriculture and betel leaf plantation. The income generated from weaving, Eco-tour guide service and cultural show performance activities are in half-yearly time period. Which comparatively very considering as they earn twice as much from tourism in half a year than agriculture and weaving whole year. The number of tourists coming is increasing day by day, so is the change in occupation and social-economic strata.

Indirect Impact Of tourism development

Indirect impacts of tourism development in Lawachara summed up using key informant in depth interview, observation and perception.

During the in depth interview questions were raised regarding development without proper city planning inside the buffer zone of the Lawachara National park area. Then recreation facility constructions have been gathered from different sources and their GPS position, then analysis has been run for future predicting urban development in the area.

New constructions and renovation in the Edge area

There is an increase in building new eco-cottages and rest houses and extending the old ones.

Also, previously eco-cottages funded by the government and foreign aid were architecturally designed to be eco-friendly. However, now they’re being modified using air coolers, heating system and other facilities. As a result, it is consuming more energy and water than before. There has been already five star resorts with golf course in the buffer zone area which sufficient for present demand. But, another five stars are scheduled to be constructed in front of it as being a profitable business.
Water consumption

New renovation features in a recreation facility need extra water supply. Features are like modern wash room and swimming pool maintenance. So, more recreational facility development means pressure on ground water, waste water management insufficiency and drainage problems.

Still in Lawachara these problems are not to acquit because the urban penetration is not in the extreme. If the changes keep going to steady, then in future water crisis will one of the main problems here.

UnPlanned Facilities

The biggest waste of money as well as effort is the nature interpretation center in zone 2. Hardly any tourist goes there, because of its location near the end of long trail and far from the tourist hot spot. The proper use of land is very essential for a place like Lawachara National Park. The nature reserved is already miniscule and after unplanned land use for tourist and other training facilities like barracks and train centers inside the Park caused more deforestation. Only if facilities were built after proper land use planning and considering the purpose and the future effect of the development on the park area then it would have saved both money and time.

Direction of urban development

With the number tourist facilities built around the area, their GPS locations and time period of the establishments Hot spot map was generated. Hotspots are areas with high concentrations of hotels and lodgings for tourists or visitors.

The clustering of accommodation at hotspots is due to easy distance from the parking area and esthetic beauty of the location. The conventional hotspot mapping uses the locations of past events to anticipate locations of future similar events. Hotspot maps are usually produced as density maps for visual analysis to identify potentiality of development growth. In the figure 5.7, the map
shows the establishment period and locations of hotel industry development during 2001 to 2013. Visual inspection of the map suggests that hotel development are not uniformly distributed throughout Lawachara Mouzaor Thana and may be clustered in certain areas. Here, the urban development of the economic drive of tourism growth in the area has been predicted using the ARC GIS spatial analysis. By using Hotspot tool with polygons, with most counts of recreational facilities have more likely to go under rapid urban growth in the future, than the lesser counts. So, this tool identifies statistically significant spatial clusters of high values (hot spots) and low values (cold spots).

Reasons of Urban Penetration

The reason for this increase of tourist logging industry in near Zone and Zone 2 is not because of some aesthetic view rather based on access to infrastructure facilities. The zones are situated nearest to the Srimangal town, have highway with bus stoppage at the national park, electric line, weekly market area and roads connecting tea gardens, fruit plantations, betel leaf plantations, tribal villages and national park area, which happens to be tourist hot zones.

Income from the tea gardens is less than resorts. So, they are converting into resorts and spa. Same way the workers in the tea gardens are changing occupation as tourist guide, hotel staffs, cultural performers, etc.

Conclusion

This study concludes that the relationship between tourism development and Urban development surrounding the area are critical issue considering from local people socioeconomic aspect and ecological sensitivity aspect. The study reveals various factors that can bring disastrous effects both qualitatively and quantitatively to the environment of the national park as well as to the adjoining area which serves as a buffer zone because of tourism development. There is urban penetration growing from the south and southwest boundaries of the national park area. Urban penetration is happening in form of hotel and lodging constructions in the tea states and midst of plantation area. Building architectures changed from traditional to brick and concrete. Because of tourist demand eco-cottages have been transformed into guest cottages with air cooler and modern fixture restrooms and dining halls.

The direct impact of tourism befalls on the park itself, as well as the indigenous communities in the park area. These are the areas that have to go through tremendous pressure due to uncontrolled tourism. So, high impact zones identified from the study situated in zone one, zone two and zone three needs immediate attention of the local as well as national level. Policy programs can be taken for the Sustainable development of nature tourism, ethnic people and Lawachara national park.

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