Role of Information and Communication Technologies (ICTs) to Sustainable Tourism Development in Santiniketan, West Bengal – India

Dr. Pralay Ganguly,

Assistant Professor,
NSHM Knowledge Campus Durgapur,
West Bengal, India.

ABSTRACT

The positive experience for the local people, tourism companies and tourists due to tourism development is experienced by tourism sustainability. Despite the huge possibilities of ICTs and the revolution of the contemporary tourism industry, very little academic research has been carried out on the contribution of ICTs to sustainable tourism development (STD). This study aims to explore various stakeholders' perception on the contribution of ICTs to sustainable tourism development in Shantiniketan, West Bengal. The objective of this research is to study the emerging information and communication technology and its role to maximize tourism's positive impacts on stakeholders and minimize negative impacts in tourism development. This research also identifies a number of barriers to the implementation of the ICTs in sustainable tourism development through qualitative and model analysis approach and quantitative method where the interviews conducted with different stakeholders who are involved in tourism development in the study area. The results of the research points out that ICTs is important for destination and facility management, responding to the current problems as caused due to tourism development which as a whole impacts the overall tourism development in Shantiniketan, West Bengal.

Keywords: ICTs, Sustainable Tourism Development (STD), Destination Management.

INTRODUCTION:

Tourism is implicated with travel for fun, relaxation or business purpose. Sustainable tourism requires management of all resources in such a way that cultural, economic, social and visual needs can be satisfied while maintaining artistic consistency, necessary ecological processes, and biological diversity and life sustain systems. Tourism as a technology based industry is now a well reputed body of literature since there is no suspicion that ICT has brought about a transformation to the tourism industry. ICT is not only a significant factor for destination competitiveness but it is transforming the tourism system worldwide with regards to configuration and operations of ICT use in tourism. It has also defined methods of making existing processes more efficient thereby providing new ways of staging these existing functions.

Despite the potential of tourism to destination's economy, need to safeguard and preserve the environment as increasingly important issue by tourists (Holden, 2000) and furthermore tourism growth could be dormant without addressing the major tourism impacts (Berry and Ladkin 1977), and tourism must be environmentally sustainable in order to be economically sustainable WTO (1993). Along with sustainability issue, another area which contributes the growth of tourism economy is Information, Communication and Technology (ICTs). The emergence of ICTs and recent digital technologies revolutionized entire tourism industry and in particular, it has deeply affected destination management, marketing and promotion with the help of various components like; computerized reservation systems, teleconferencing, video, video brochures, management information systems, airline electronic

information systems, electronic funds transfer, and digital telephone networks, smart cards, mobile communication, email, and Internet (Waghmode and Jamsandekar, 2013) In addition, it is evident that ICTs have the potential to provide strategic tools to facilitate, sustainable tourism development at destination. Therefore the aim of this research is to investigate the perceived role of emerging ICTs in planning and development of sustainable tourism at tourism destination and further evaluate the benefits and implications of ICTs from the prospective of various different stakeholders for sustainable tourism development at Shantiniketan, West Bengal.

PROBLEM STATEMENT:

The perceptions and attitudes of different stakeholders towards the positive impacts of tourism are likely to be an important planning and policy consideration for successful future tourism development and is lacking amongst the various stakeholders at the study area. It is not only to use the existing available resources like infrastructure, branding and communication facilities, environmental climatic issues etc which are already there but at the same time need to take care of all these resources for long duration or future use with the proper application of information and communication technologies. Information and communication technology can play a very vital role for future sustainability of the destination (study area-Shantiniketan). Lack of knowledge on ICT and its implication for sustainable tourism development amongst the stakeholders is another major issue in the area. Introducing ICTs alone will not meet the development challenge. For ICTs to succeed in India, education for all must be the first priority. Stakeholder's participation, awareness and education towards the right application of information and communication technology are required for destination sustainability and positive experience for the stakeholders. The objective of this research is to study the stakeholder's participation towards the right application of ICTs and at the same time overcome the barriers for future tourism sustainability of the destination.

RESEARCH BACKGROUND:

Destination Management:

For this research paper, a destination is defined as a physical space/geographical area which consist with tourism products and services to be encouraged by the tourists as part of the understanding and which is managed and marketed by destination authorities /organisations/ related stakeholders. These destinations are the focus area for tourists and they are the essential point for all the stakeholders in tourism (Carter 2005; Ko 2005) but they are also the areas where the main tourism impacts (economic, social and environmental) result and are felt most powerfully (Murphy 1985; Medlik 2003; Wall and Mathieson 2006). Therefore they are also the places where preventative and remedial measures should be introduced for tourism to be managed in a sustainable manner.

The concept of destination management is thought of as being a present-day approach, whereby a macro level outlook is necessary to organize the micro-level performances that occur at the national, regional and/or local level in which all related tourism stakeholders bring out their individual/ collaborative and organisational responsibilities. The various initiatives and responsibilities like planning and control of tourism, visitor management, provision of infrastructure, standard setting and monitoring, marketing and promotion, local business support and other activities at a destination (Tourism Sustainability Group 2007) could lead the sustainability. It involves strategic planning and management of the constituent parts of the destinations for the maximisation of benefits for stakeholders. According to the United Nations World Tourism Organization (2004b, p. 3) DMOs: are the organizations responsible for the management and/or marketing of destinations and generally fall into nation level or regional/state DMOs responsible for the management and/or marketing of tourism in a geographic region defined for that purpose.

Abernathy and Clark (1985), and their model suggests combining market knowledge and technological capabilities leads to four kinds of innovation: regular, niche, revolutionary, and architectural where both the effects like conservation of existing practices and disrupt of existing practices due to implementation of ICT were observed in the destination.
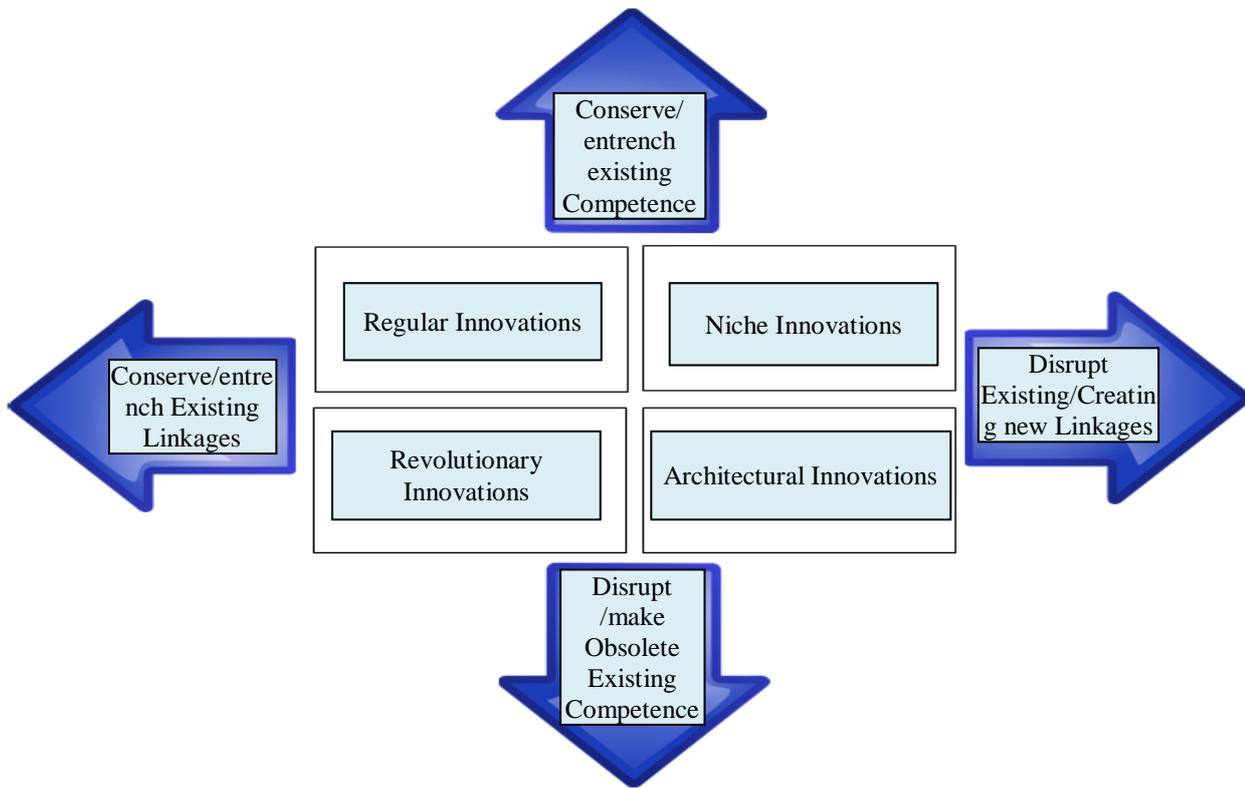
Fig – 1: Abernathy and Clark Model, 1985

ICT is an important tool for place selection for tourism development and Tourism marketing through Geospatial information technologies , inbound market research and outbound advertising. This tool could help in customer relation management by completing the cycle through proper analysis and preparation of itinerary and also manage the trip (pre, during and post). With the help of Geographical information system it is easy to manage and monitor the tourism site. Finally, with the help of ICT we could complete the operation and at the same time able to manage facilities like buying, supplies etc.

SCOPE AND STUDY AREA:

Fig-2 (Map of W.B & Study area);
Source: https://www.researchgate.net/Map

Location of Shantiniketan:

Santiniketan is situated in the Birbhum district of West Bengal, India and it is a small town near Bolpur; approximately 180 kilometres north of Kolkata. This place was made well-known by Nobel Laureate Rabindranath Tagore of his literary classics and his house is a place of historical importance also which attracts visitors. It is now a university town (Visva-Bharati University) that attracts thousands of visitors each year.

Accessibility   :

The place Santiniketan is very well connected by rail, road and air with different parts of West Beengal as well as India. Kolkata airport, located at a distance of 213 km serves as the nearest airport to Shantiniketan. Major Indian flights fly to and from Kolkata on a daily basis. Kaji Nazrul Airport, Durgapur which started 2017-18, also situated in a close proximity and helps the visitor for an easy access to the place. The nearest railway station is Bolpur which connects this popular attraction to other parts of India. The distance between Bolpur and Shantiniketan is 2 km. Bolpur is easily connected to Howrah through Howrah-Bolpur Shantiniketan Express, Howrah-Jamalpur Express, Kanchenjunga Express, Vishwabharati Fast Passenger, and Shantiniketan Express. People, who like adventure, can make their trip on a bus from Kolkata or from any nearby places and ride down to Shantiniketan exploring the lush greens on its way.

Easiest and safest mode of transportation is available where local bus facility can be availed from the various bus stops at an affordable rate which fixed by local authority. Hired cars and taxis (metered or un- metered) are also available for transportation in Shantiniketan. Cycle rickshaws (local transportation) are most convenient and cheaper means of transportation in Shantiniketan.

Population:

Bolpur is a Municipality city in district of Birbhum, West Bengal. The Bolpur city is divided into 18 Municipal wards. The Bolpur Municipality has population of 80,210 of which 40,468 are males & 39,742 are females as per report released by Census India 2011.

Trend of population Growth in SSPA (Social sciences and population studies) - 1961-2011

Year	Population			Index of Growth	
	Rural	Urban	Total	Rural	Urban
1961	20650 (58)	14802 (42)	35452	100	100
1971	29317 (56)	23335 (44)	52652	142	158
1981	35124 (54)	29636 (46)	64760	170	200
1991	43429 (53)	38436 (47)	81865	210	259
2001	51655 (49)	52866 (51)	104521	250	357
2011	61966 (49)	65526 (51)	127492	300	443

Note: Table-1 in parenthesis indicate percentage share. **Source:** Census of India – 1961- 2011

The population of SSPA is increasing gradually. The population density of the planning area, as a whole, increased about 3.6 times during the period from 1961 (328 / Sq.Km) to 2011 (1179 per/Sq.Km). Within SSPA, density of urban area (Bolpur Municipality and Visva-Bharati Complex taken together) was higher than that of SSPA. Bolpur Municipality, by itself, is more congested part of the planning area. The density worked out to be 4991 /Sq.Km, i.e. more than 4 times as dense as SSPA. As per the local Municipality sources, present population in the area is approx. 87,000.

Tourist flow:

As per the annual report of tourism survey, West Bengal (2015-16), domestic tourist in Birbhum district was 247686 and the foreign tourist was 132 and the total was 247818. The count for day use tourist was 39744. As per Municipal sources, about 70% of total tourists were visited the study area of the district and also observed considerable growth in tourist flow in recent years.

Places of Interest:

The place Santiniketan is famous for Tagore's Ashrama, the first building in the area was a guest house built in 1863 by Maharshi Devendranath Tagore, father of Rabindranath Tagore. It was named *Santiniketan* and thereafter the entire place acquired that name. The area has several buildings associated with the Tagores - Santiniketan building, Nutan Bari, Dehali etc. Chhatimtala is known as prayer place (under the "Chhatim" tree)

of Maharshi Devendranath Tagore. Uttarayan complex has several buildings associated with Tagore's memory - Udayan, Konark, Shyamali (mud hut), Punascha and Udichi. The complex has well-laid out gardens. Rabindra Bhaban Museum is another attraction which opens on all the days in a week from 10:30-16:30 except Wednesday. The house is called Bichitra and constructed in Tagore's birth centenary year 1961. There are original manuscripts, letters, documents, medals (including Nobel Prize medallion), plaques, certificates, paintings, photographs etc. During Poush Mela the place is over-crowded and queues for entry are long. Amar Kutir is famous for handicrafts where handicrafts like cloth, leather, batiks, hand-loomed fabrics and similar available.

Other places in the district, near Santiniketan which attracts the tourist like: Khoai Mela which starts from around 15:00 and goes on till about 17:30-18:00 only on Saturdays. Kopai river ; Known as *Amader chhoto nodi* in many of Tagore's poems, particularly those for children. Shilpa Gram is close to the Ballavpur deer sanctuary. It is designed very nicely and showcases traditional handicrafts of eastern region (including Bihar, Assam, Orissa, Manipur, Andaman, Jharkhand etc). Each state is represented by a traditional house which has collection of paintings, articrafts etc. Prakriti Bhavan, located in the Ballavpur area of Santiniketan, considered as India's one and only Nature Art museum with an impressive indoor display of natural sculptures in driftwood, dry wood and a sprawling open air garden of natural rock sculptures. Visva Bharati is a Central University for research and teaching in India, located in the twin towns of Santiniketan and Sriniketan in the state of West Bengal. It was founded by Rabindranath Tagore who called it *Visva Bharati*, which means the communion of the world with India.

Role of ICT in the Tourism of Shantiniketan:

Computer technology one of the important part of ICT, used by hotels, travel agencies, railways, commercial operators etc. Satellite television helps tour operators, as well as travel agents and it serves as a linking device for transformation of information where the tourists get the benefit from this device. Cable television technology helped in advertising and marketing of tour operators for tourists. Teletex technology is used by hotels and tour operators. A website is a collection of all pages under one domain. Sometimes, the subdirectories of large ISP(s) are also referred to as websites as they have been designed by different users and the same used by tourists, travel agents and tour operators for managing the tour and completion of travel.

REVIEW OF LITERATURE:

Sustainable Tourism & stakeholders' involvement :

Sustainability in tourism has the potential impact of economic activity, with growing attention to environment and ecological issues (Simpson 2001). Sustainable tourism is the fact that tourism development could no longer be continued at the present rate without justifying or addressing the major tourism impacts (Berry and Ladkin, 1997). In this regard , Butler(1999) suggested that sustainable tourism has been an important concept for the tourism industry and there is a well-built consensus that tourism should be sustainable. The concept of sustainability was suggested by the World Commission on environment and Development (WCED, 1987) where it defined sustainable development practices need a resource utilization balance between present and future. Sustainable tourism is being described as a form of tourism where there is equality in terms of benefit of the local stakeholders whose destination or periphery is being used (Hall, 2000). In this context it raises the test for planners of equating tourism demand and supply thereby recognising the future effects of tourism, if the idea of sustainable tourism is not considered (Page, 2003). The stakeholders include residents, visitors, private sector businesses, public sector and agencies. Bramwell and Sharman(1999), pointed out that stakeholder motivated approach can help to shun conflicts, resulting in policies and develop the coordination of policies by promoting consideration of wider ranging effect of tourism. Marien and Pizan (1997), mentioning that sustainable tourism cannot be efficiently implemented without the direct support and participation of those who are affected by it. Thus evaluating a community's feeling to tourism development is essential in planning for sustainable tourism development.

ICT and Sustainable Tourism:

Tourism as an expertise based industry is now a well established body of literature since there is no doubt the ICT has brought about a transformation of the tourism industry. ICT is not only a significant factor for destination competitiveness (Poon 1993; Sheldon 1997; Buhalis 2003; Buhalis and O Connor 2006) but it is transforming the tourism system worldwide with regards to arrangement and operations (Buhalis and O'Connor 2006). The use of ICT in tourism, especially in India for product development, marketing, distribution and

training of tourism sector personnel" (Gupta ,A. 2012). E-tourism is the digitisation of all the processes and value chains in the tourism, travel, hospitality and catering industries that enable organisations to maximise their efficiency and effectiveness (Buhalis 2003). ICT use in tourism has not only defined methods of making existing processes more competent but has provided new ways of performing these existing functions (Cronin 1996a). OYO hotel brand in Santiniketan-W.B (preserving its own hotel name), lists these as OYO rooms on its own tech platform as well on other online travel platforms like MakeMyTrip. An OYO consumer can use the app to order room service, check-in, check out or file a complaint. This reduces pressure on hotels and improves customer experience and convenience (Adwaita, 2015).

Ali and Frew (2008), proposed the ICTs framework for the role of ICTs in sustainable tourism and identified tourism planning, satisfaction, experience, host community benefits, information management, local participation, local satisfaction, transport, climate change and interpretation as areas in which ICTs can be used to accomplish sustainability. Within the perspective of sustainable tourism development, Ekins (2002) expressed that if the population doubles and consumption quadruples (2-3%) per annum/ destination, then emerging technologies must decrease impact (specially negative impact) to share equally, as required to make significant movement towards sustainability. Brynjolfsson and Hitt (2000), pointed out that ICTs are transforming the way Destination Management organisations (DMOs) are functioning and administrating destinations more efficiently and in sustainable manner. In reality there is little empirical research on the contribution of more recent digital technologies including Email, Short Message Service (SMS), Audio Guide, Social Media Networks and User Generated Contents (UGC), in connection with DMOs to sustainable tourism development from the multi-stakeholder approach. Abernathy and Clark (1985) with their model analyzed innovation and the various roles that play in competition; where innovation was classified to two dimensions, market knowledge and technological capabilities of the destination. It distinguished between the preservation and destruction of this knowledge after an innovation has occurred and the capability of the organization needed for producing the product or service as a result of this innovation. One axis of the model identifies; if particular innovations render currant business linkages obsolete or lead to enhancement of these existing linkages. On the other hand, the other axis recognizes the knowledge and competence used for production of goods and services. Combining market knowledge and technological capabilities leads to four kinds of innovation: regular, niche, revolutionary, and architectural. From the model (Abernathy and Clark, 1985), architectural innovation states the architecture of the industry. It is broad base and involves changes not only to the industry but all the community it would be used (Hjalager 2002). It is both a radical technology and market innovation (Singh et al. 2002). Regular innovations are those that appear almost invisible but whose cumulative impact over time can be substantial (Abernathy and Clark 1985; Hjalager 2002; Singh et al. 2002). This type of innovation strengthens the existing competence. Niche innovations are those which are focused in strengthening the established structures but not the existing competences (Abernathy and Clark 1985; Hjalager 2002; Singh et al. 2002). Lastly, revolutionary innovations are those which can have a destructive effect on competences and cause radical consequences with the structure remaining unchanged. This model was analyzed by Hjalager (2002), with regards to its applicability for tourism by providing examples of the types of innovation identified for tourism.

Thus, this study explores various different stakeholders' perception on the merging contribution of recent emerging ICTs to sustainable tourism development in Shantiniketan.

RESEARCH METHODOLOGY:

Interviews were conducted with various stake holders who were directly or indirectly involved in tourism development in Shantiniketan West Bengal. In order to gain a broader understanding on the stakeholders' participation to sustainable tourism and the use of the right application of ICTs for future tourism sustainability of the destination, a qualitative and quantitative research method has been used to conduct this research. Participants are selected from the entire legitimate tourism stakeholder groups as per the research scholar judgment and as there is a strong consensus that sustainable tourism development is a stakeholder' driven approach. This research was carried out in February 2018 with the tourism stakeholders of Shantiniketan.

Research Design:

Overall a total of 80 people from the various stakeholder groups were participated. Following table shows the various different interviewees groups:

Table 2: Participation of stakeholders

S. No	Groups	Participants	Total Number of participant
1	Local Government	Visva Bharati Mela organizing Committee Members (v1,v2,v3,v4,v5.v6,) Shantiniketan Tourist Office employees (s1,s2,s3,s4,s5,s6) SSDA Employees(d1,d2,d3,d4,d5) Police Force (pf1,pf2,pf3,pf4)	6 6 5 4
2	Local Residents	Shantiniketan-Host-population (p1,p2,p3,p4,p5,p6,p7,p8,p9,p10,p11,p12,p13,p14,p15,p16.p17, p18, p19)	19
3	Local Tourism Business	Hoteliers (h1,h2,h3,h4,h5,h6,h7) Restaurant Operators(r1,r2,r3,r4,r5,r6) Tourist Guide(g1,g2,g3,g4) Taxi Drivers/Rickshaw Pullers(d1,d2,d3,d4,d5,d6)	7 6 4 6
4	Visitors	Tourists (t1,t2,t3,t4,t5,t6,t7,t8,t9,t10,t11,t12,t13,t14.t15,t16,t17)	17

Shantiniketan major fair is the Pous Mela and is directly organized by the University employees hence it was necessary to involve them in the research design. As far as possible equal distribution of the stakeholders were taken and were selected randomly. Generally, the interview questions focused on the contribution of ICTs to sustainable tourism development in order to explore stakeholders, perception. The questionnaire was split into three main sections:

  Part-1: Whether the stakeholders understand the concept of sustainable tourism
  Part-2: Use of various ICTs and benefit for sustainable tourism development.
  Part-3: The contribution of ICTs to sustainable tourism development in Shantiniketan.

Through the above sections of the questionnaire the researcher intend to examine what extent the emerging ICTs can enhance the development of sustainable tourism at destination level.
Questions which were asked to the stake holders are as follows:

Part 1 (Whether stakeholders understood the concept of sustainable tourism):
- Tourism leads to congestion and overcrowdings?
- Tourism Leads to Air Pollution?
- Tourism Leads To Water Pollution?
- Tourism Leads To Noise Pollution?
- Tourism Leads To Visual Pollution?
- Attractions at destinations are well maintained by different stakeholders due to Tourism development?
- Waste management is adopted by stakeholders?
- Stakeholders play a positive role in economic development of the destination area?
- Adequate planning takes place by the stakeholders to protect scarce resources?
- Segmentation of events (Fairs and Festivals) helps in sustainable socio economic growth in the destination?

Part 2 (Use of various ICTs for sustainable tourism development)
- Is Geographical Information System (GIS) helpful in tourism planning and information management thereby increasing Tourism satisfaction and experience?
- Does Virtual Tourism (VT) help in community benefit and sustainable consumption?
- Monitoring and assessing environmental impact of tourism is due to Destination Management System.
- Tourist Experience and sustainable consumption is determined by Location Based Services (LBS).
- Does Internet reengineer the way consumers search for tourism product and information from traditional paper based method to internet empowered self interactive method.
- General ICTs help in monitoring and evaluating socio cultural impact of tourism.

- E mail is a strategic distribution channel which target customers and disseminate information and newsletters to stakeholders and strategic partners.
- Does the use of Computer Simulation help in development of alliances, joint venture and partnership?

Part 3 (The contribution of ICTs to sustainable tourism development in Shantiniketan)
- Pollution elimination in Shantiniketan is possible by the use of ICTs?
- Overcrowdings and congestion can be eradicated by the use of ICTs?
- Proper application of ICTs leads to easy access of tourism related information thereby benefiting the stakeholders in tourism development?
- Proper communication strategies through the use of ICTs aid in greater co-operation in determining the tourism products
- Accurate comprehensive tourist information for future sustainability by giving information to tourists is possible due to the application of ICTs?
- ICT like GPS (Global Positioning System) determine tourist movement and how it can account for space and time.

Research Findings:
The study revealed a number of interesting findings on the contribution of ICTs to sustainable tourism development in Shantiniketan West Bengal. Researcher finally had drawn different findings from qualitative analysis and had taken reference from the model Abernathy and Clark (1985)**.** Firstly the contribution of ICTs to sustainable tourism development can disrupt existing competences like changes in current way in managing sustainable tourism, use of ICT in transforming the way to manage sustainable tourism, transformation of current approaches, and transformation on destination management for sustainable tourism development. Information and communication technology is also creating new linkages like; open new market, create new user, creation of new sector, reformation of old sector. Secondly development of ICTs and its proper application can entrench existing competence and entrench existing linkages like; new business opportunities, greater cooperation amongst stakeholders, combine existing products in creative ways using new technologies, new investment in already existing technology, self familiarization with new approach. Finally barriers to the implementation of ICTs in sustainable tourism development are discussed, reviewed and conclusion/ suggestions were drawn.

Contribution of ICTs to sustainable tourism development:
Rigidity was found(v1,v3,v5,s2,s4,d1,d2,d3,f2,p2,p4,p6,p7,p8,p12,p13,h2,h3,r1,r4, g1,t2,t3,t4,t5) amongst stakeholders although they are aware about the positive impact of tourism due to modern technologies (ICTs). Majority of participants suggested that regular innovations like DMS, EMIS are very useful for sustainable tourism development. Proper coordination amongst different stakeholders to use the modern technologies in Shantiniketan helps sustainable tourism development. Software like FIDELEO ,MMS can solve many tourism related problems for all (s1,s2,s3,s4, s6,h1,h2,h3,h4,h5,r1,r2,r3, t5,t11,t13,t15,t17). In Shantiniketan combining existing products in a creative way through the application of ICTs have been used in a range of operational activities such as sustainable tourism development and planning, marketing strategy by the use of website, MMS/SMS, GIS etc. to promote the study area (Shantiniketan) at international level. Opportunities are open to new markets and linkages and to create new areas, supply and facilities. Findings suggests (d1, d2, d3, d4, p2, p3, p5, p7, p8, p11,p13,p15, v3,v5,v6) that tools like GIS and DMS can assess environmental impact of tourism in the study area. Some important social media (Web based and Mobile technologies) important tools of ICTs also can create new linkages which ultimately promote tourism in Shantiniketan.

ICT Applications:
There are many ICT applications which minimize the negative impact of tourism in study area and help to promote tourism and its future development. It is very difficult to change an old system overnight and adapt a new one. Investment is an issue for all major concern (v1,v3,v4,v5s2,s3,s4,s6,d2,d3,d4,p3,p5,p7, p9,p11,p15,p19 ,h1 ,h3,h4,h6,h7,r1,r3,r5,r6,t3,t5,t6,t8) and at the same time existing technologies are also there. Different stakeholders felt that familiarization with new technologies is a key and thus adequate training is required in order to achieve better results. Again, most interesting and user friendly devices commonly used by different stakeholders for tourism development are SMS Service, Email etc. Many suggested (v2, v3, s1,s3, s4, d1, d2,d3, f1, p1, p2, p4, p6. p7, p10,p11,p12,p13,p14,p15,p16,p17, h1, h3, h4, h5, h7, r1, r3, r4, r5, g1, g2, d2, d3, t2, t3, t5, t6, t7, t8, t9,t10, t11, t12,t13) that Email is an important marketing tool and SMS service is

very helpful for easy communication. These all are important transformation from the old to new and many suggested that (v1, v2, v4, s2, s3, s4, s5, s6, d1, d2, d3, d5, f1, f2, f4, p1, p2,p4, p5, p7, p8, p9,p11, p12, p14, p15, p16,p18, p19, h1, h2, h4, r1, r2, r4, g1, d3,t2, t3, t5, t7, t8, t9, t10, t11,t12, t13, t15) e-mail helps to send destination information to visitors and stakeholders about the destination, for instance to increase the visitors contribution to local environment and understanding of the benefits of sustainable tourism.

Despite the recognition and consensus that ICTs can play a strategic role for sustainable tourism development in Shantiniketan but till date it has been observed that ICT tools and its application is not very promising for sustainable tourism development. Although proper application of ICT can promote the destination (Shantiniketan), marketing, information, EMS system, host community development etc, it has been observed that it has a very slow progress at study area but awareness is strongly creeping up. Near future study area will promote sustainable alternatives through ICTs for green communication rather than traditional communication methods.

Barriers to the implementation of ICTs in Sustainable Tourism Development:
Despite the acceptances of ICT as a strategic tool for sustainable tourism development, the research found out that there are a number of potential barriers to successful implementation of ICTs in sustainable tourism development such as lack of expertise in ICTs functionality. In addition some respondent (v1, v2, v3, s1, s2, s3, p1, p3, h3, h5, h6, h7 ,r1, r3, r5, g1) expressed concerns about the substantial capital cost involved in installing and operating ICT applications such as data driven DMS. This result indicated that high procurement cost is one of the reasons of avoiding emerging technologies (McAdam, 1999) like marketing Shantiniketan generated the majority of its funding from external bodies and therefore sustainable tourism development has to be high on their agenda for investments in order to develop ICT applications in line with sustainable tourism development.

CONCLUSION:

This study had sought to investigate whether ICTs can considerably contribute to sustainable tourism development at tourism destination Shantiniketan, W.B. Furthermost, in light of the findings and conceptual reviews the research established the strong association between ICTs and sustainable tourism development. The primary objective of this study was to investigate the contribution of ICTs to sustainable tourism development. Particular focus on emerging ICT applications including SMS, Email, audio guide, Social media and used generated contents were considered in order to examine the evidence of accomplishing successful sustainable tourism development. Based on the assessment of accessible literature and subsequently interviews with tourism stakeholders, it was concluded that ICTs can provide various sustainable goals at destination levels like; better communication, better information, proper management, services and facility provided etc. Sustainable ICT based tourism development can disrupt existing competences like transformation of current approaches, and transformation on destination management for sustainable tourism development. Information and communication technology is also creating new linkages like; open new market, create new user, creation of new sector, reformation of old sector. Although little dissatisfaction was observed amongst few stakeholders as they were not very keen to adopt new technologies due to their inability and lack of training. Few stakeholders like; hotel owners, restaurant owners expressed the problem on installation cost and maintenance. In order to make the best use of the emerging technologies, destination (Shantiniketan) should adopt proper ICT benefit evaluation strategies to enable them to sustain long term benefits and maximize the success of ICTs applications. This study suggests that ICT innovations in present-day tourism industry need to be supplemented with stakeholders' participation if the ICT applications in sustainable tourism are to be successfully implemented. Stakeholders should develop proper policy to take the advantages of ICT and specially without governments understanding on ICT based opportunities and challenges, and failing to address its benefits in the form of tourism policies, and by not adopting pro-active implementation the place will not get the desired advantages. From the examination, it is apparent that applying ICTs to assist or enhance sustainable tourism development is overwhelmingly becoming beneficial and noteworthy for tourism destination.

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