



Role of Information Technology (IT) in Biodiversity Conservation

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Now, that inspires me to do something for the cause. Being a technical person, I thought that the best thing would be to establish a link between biodiversity conservation and Information technology. For those who have little knowledge of IT, it's defined as *"the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware."* IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information."

Today, the term information technology has ballooned to encompass many aspects of computing and technology, and the term has become more apparent. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems.

When computer and communication technologies are combined, the result is information technology, or "InfoTech". *Information technology* is a general term that describes any technology that helps to produce, manipulate, store, communicate, and/or disseminate information. Presumably, when speaking of Information Technology (IT) as a whole, it is noted that the use of computers and information are associated.

For the folks from IT background who want to know about biodiversity, "**Biodiversity** is the variation of life forms within a given ecosystem, biome,

or for the entire Earth. Biodiversity is often used as a measure of the health of biological systems. The biodiversity found on Earth today consists of many millions of distinct biological species, which is the product of nearly 3.5 billion years of evolution."

Now the first question that hammers my mind is "Why is it important?"

This is important because Biodiversity boosts ecosystem's productivity where each species, no matter how small, all have an important role to play. For example,

- ◆ A larger number of plant species means a greater variety of crops
- ◆ Greater species diversity ensures natural sustainability for all life forms
- ◆ Healthy ecosystems can better withstand and recover from a variety of disasters.
- ◆ And so, while we dominate this planet, we still need to preserve the diversity in wildlife.

What needs to be done to conserve biodiversity?

The resilience of ecosystems can be enhanced and the risk of damage to human and natural ecosystems reduced through the adoption of biodiversity-based adaptive and mitigative strategies. Mitigation is described as a human intervention to reduce greenhouse gas sources or enhance carbon sequestration, while adaptation to climate change refers to adjustments in natural or human systems in response to climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Given the interlinking that exists between climate



change and biodiversity, there is a need to:

- ◆ identify and conserve biodiversity components that are especially sensitive to climate change,
- ◆ preserve intact habitats so as to facilitate the long-term adaptation of biodiversity,
- ◆ improve our understanding of the climate change - biodiversity linkages, and
- ◆ Fully integrate biodiversity considerations into climate change mitigation and adaptation plans.

Examples of activities that promote mitigation or adaptation to climate change include:

- ◆ maintaining and restoring native ecosystems,
- ◆ protecting and enhancing ecosystem services,
- ◆ managing habitats for endangered species,
- ◆ creating refuges and buffer zones, and
- ◆ establishing networks of terrestrial, freshwater and marine protected areas that take into account projected changes in climate.

Key areas where IT can help in bio-diversity conservation

The key areas where IT can help in bio diversity conservation are:

- i. *Knowledge* : Provide basic knowledge and understanding of the environment, the biodiversity and their interrelationship with humans.
- ii. *Awareness* : Promote awareness and a sensibility in individual and communities about the environment, the biodiversity and its importance.
- iii. *Attitude*: Encourage individuals and communities to value the environment and consider it important in order to inspire participation in the process of improving and protecting the environment for the betterment of their own livelihoods.
- iv. *Skills*: Provide people with skills to identify, predict, prevent and solve environmental problems and to make them capable of utilizing limited resources in a sustainable way and of coping with unexpected vulnerabilities.
- v. *Participation*: Provide individuals and commu-

nities with the opportunities to actively participate in solving environmental problems and to make educated decisions about biodiversity conservation

How exactly it can be achieved through IT?

IT enables the global communication of information as well as global retrieval of information from databases and websites regardless of geographical distance. In simpler terms, the Internet is an interactive network that allows people to receive and send information.

Now when we talk about issues of global concern such as Biodiversity conservation, don't we want to educate people who are privileged enough to have access to such convenient sources of learning? People, who in turn, can spread the word to conserve something on which we all are so dependent.

With IT or rather world wide web becoming so much affordable, user friendly, popular and accessible to everyone, isn't it a good idea to make use of it as a part of awareness programs?

Few ways IT can help spread the word:

Access to variety of learning resources

IT may help in the conservation of biodiversity by making the sophisticated databases on biodiversity available to each and everyone who have access to the internet. These resources can be accessed by all from students to professionals to grass root level organizations/NGOs working on Biodiversity conservation to high level policy makers. There is no dearth of resources on the internet to study biodiversity, be it Ecosystem, Genetic or species, which can help us understand the value of biodiversity in our eco system, our dependence on it and thereby create awareness in terms of its conservation.

If your organization publishes newsletters, brochures, special reports, or other printed documents, you can publish them on the Internet-with all their graphics or just the text. You can reach a potentially unlimited audience, without having to pay for postage and printing costs, botheration of



updating addresses, or time-consuming mailings. Internet publishing does not substitute for traditional paper publishing, but it can expand your audience at a very low marginal cost.

Immediacy to information

As already discussed the data available on the net can be searched as per their relevance. This can be easily done from your office, home, cyber cafe, apparently wherever the internet connection is available.

It explains how time saving it is as you don't need to visit the libraries, search for books, get them issued or for that matter visit a book market/book fair, spend hundreds of bucks and get your issue. All you have to do is open any search engine type the keyword/s and voila! The available resources on the topic are in front of your eyes. Now you can choose among them and download them if required.

You can do more specific searches by typing the exact address/URL of the website on the address bar and browse through to get the relevant information

And good news is that you don't have to be computer savvy or computer guru for the same. All you require is a desktop/laptop, internet connection and an internet browser to get access of these huge databases.

Anytime learning!

Biodiversity conservation being such a sensitive topic, the people behind creating awareness for its conservation would definitely want the people to have a convenient disposal to topics related to it.

IT makes it possible to learn about the topics very conveniently, without making special efforts. It is in human nature that only those topics take precedence in priority list which are related to immediate pleasure and/or satisfaction. Biodiversity conservation is a long term process so it becomes important to spread awareness by making the whole process easy and effortless for people.

IT provides "anytime" access to resources for example after school, office and after fulfilling all social and personal obligations, thus contributing to the

convenience factor. I am sure once the perception changes and a person becomes aware that the time to act is NOW, efforts for Biodiversity conservation will definitely not be the last in his priority list!

Teaching and Training

Schools, NGOs, and others are now using the Internet to expand their distance learning programs. Some offer formal courses with mandatory assignments that offer academic credits; others are less formal.

Teachers and administrators may use computers and IT to improve their roles in education process. e.g. Convenient sharing of expertise, increasing professional development activities by taking distance education courses, accessing education research and classroom materials such as lesson plans, provide in-house training for their staff etc.

Hence, Biodiversity conservation education and communication aims to bring about changes in the attitude and behavior of youth, concerned people, societies and leaders through various awareness programs, so that they become catalysts in efforts to raise voices supporting conservation.

Conservation and the sustainable use of resources begin at home. Thus, knowing about conservation and sustainable use of resources is important for everyone as it increases the level of awareness on conservation and access to livelihood resources and its sustainable use.

Informational Technology through its various ways of communication may induce a subset of relevant population to desist from natural resource exploitation. Children may become much environment conscious and proactive, identify and choose better livelihood opportunities as they grow up, while making their environment a better place to live. Trust me if that happens it's a big achievement!

After this I assume all those enlightened people may have both good information and an experiential base, and some existing awareness, on which to build additional public awareness activities and to do their bit for our ecosystem. As they say small efforts make big difference!