4.2 SOCIO- CULTUTAL ASPECTS OF GREEN IT

The socio-cultural aspect of any technology should adhere to the following aspects:

maintaining decent work

establishment of health care, safety and good working conditions

commitment to improving environmental quality

promoting environmental education

promoting sustainable development in the construction industry

the participation of government social projects

encouraging "socially inclusive" motions

producing maintenance manuals for buildings and systems users

The revolution in Green IT should comply with certain regulations, laws and standards apart from adhering to the socio cultural and political status of the region. Any organization that

shifts its focus towards Green IT must adopt green working style and the employees must develop a green attitude.

The social implications of Green IT is purely subjective. The degree of commitment by the employees and stakeholders directly influence the green transformation of the organization.

Effectiveness of green transformation changes depend on the leadership changes. Significant amount of subjectivity in the decisions and practice of Green IT by the leadership.

Green transformation of an entire society involves green ethics, morals, value systems, and attitude across multiple layers of people.

This makes environmental changes for the society even more complicated than organizational and governmental changes.

Initial efforts for green transformation by business units faces the social challenge of resistance to change. There is a great variation in the way in which the resistance to green transformation appears in various industry sectors.

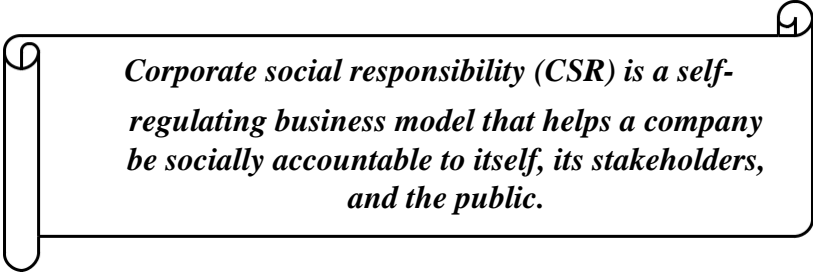Government is also involved in the resisting activities

Training and awareness associated with the Green IT issues can play a key role in handling the subjective nature of green transformation.

The social values change and green consciousness gets inbuilt in the new generation of individuals.

But this sociocultural transformation takes time to achieve and needs to be accommodated with the economic reforms and innovative market-driven setup.

Discussions on the social aspects of green IT should include individuals, governments and industrialists as the environmental responsibility affects the structure and operation of the organizations and the society in which it exists.

The outcome of this discussion results in Corporate Social Responsibility.

Corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable to itself, its stakeholders, and the public.

4.2.1 Organizational knowledge

Any organization can discharge its CSR by incorporating Green IT in both subjective and explicit domains of the organization by delving the knowledge.

The organizations needs to be environmentally and socially responsible.

It requires regular and unified systems for knowledge management to implement Green IT.

This is because an organization has to learn how to develop the necessary capacities and capabilities in discharging its CSR.

Knowledge management brings about behavioral change within the organizations relating to sustainability.

As the enterprise evolves to a green enterprise, there are changes associated with attitude, leadership and management styles, interpretation of technology, and the business environment.

These subjective change require the organization to implement green knowledge management.

> *The process of systematically and actively managing and leveraging the stores of carbon-related knowledge in the organization is termed as Green knowledge management.*

The green knowledge management systems involve synchronization of the tacit and explicit bodies of knowledge carried by its stakeholders.

This knowledge synchronization aspect of Green IT becomes more challenging in global, multinational organizations, whose business units and subsidiaries are often spread across geographical regions, exhibiting their quite distinct cultural attitudes and characteristics.

Stakeholders in such global organizations need to particularly consider cross-cultural interactions in their green initiatives.

4.2.2 Issues with Green stakeholders

Inoder to handle cross-cultural issues in long-scale green transformation is increasing the opportunities for

physical (face-to-face) communications among the diverse stakeholders.

Information flow between various groups of employees in different regions supported by the organizational change management is required for successful transition to a green organization.

The issues relating to collaborative groups of people and organizations include their individual preferences, corporate policies, government regulations, social norms and practices, and ethical codes of conduct, different age groups, their preferences as customers, employees, and regulations, and their sociocultural background.

4.2.3 Role based Green IT

Green IT initiatives and their subjective interpretations are based on various roles.

When it comes to organizational stakeholders, these roles within an organization require detailed study.

Green IT initiatives thus continue to have a wide-ranging subjective impact on the individuals and roles they play at work.

It affects the way people are organized and operate within organizations.

The roles and their subjective impact is given below:

Decision maker: Major interest in the ROI. But also involves in Legal, compliance requirements, however, change the balance of their ROI metrics,

Green IT strategy formulation and policies,
Participation in consortiums.

Project manager/quality assurance manager:
Interested in the implementation of the green
program, the steps to be taken for that
implementation, and the successful review at the end
of the project. Aims to complete the project with
minimum time and budget.

Environmental regulator: Creation of regulatory
benchmarks. Compliance metrics, their
measurements, reporting of that carbon data.
Interested in issues arising out of noncompliance.
Participation in standard creation.

Advisor (management consultant): Analyses of the
organization business processes in order to introduce
green environment. How to reduce risks in
implementing Green IT. Lean process. Participation
in standards compliance.

IT consultant (including Green IT): Model
processes, optimize, smart networks, green enterprise
architecture (ISO standards).

Engineer (manufacturing/ production): Optimize
production, improve design.

Technical manager: Focus on technologies for
carbon reduction.

Researcher: Undertaking Green IT investigation, pure
and applied research.

Formation of attitude toward carbon emissions and its impact on the workplace provides a significant challenge to the transformation of the society to a carbon-conscious
society.

The physical commuting (the normal, standard way of working) is replaced by land-based or wired means of communications and, eventually, totally location-independent mobile communications.

These varied communication mechanisms have direct bearing on the carbon contents of the processes followed by these employees.

Change in the business models by using collaborative technologies that foster resource sharing has also impacted the reduction of carbon content. These collaborative tools also enables sharing of tasks resulting in quicker completion time and less carbon.

The underlying technologies and systems relating to environmental intelligence have also been used to reorganize processes that have a social impact.

4.2.4 Green practices

The three areas of changes to working lifestyles that are involved in a green enterprise transformation are video conferencing, telecommuting and usage of mobile devices.

These changes has greatly reduced the carbon footprints of the organization.

Videoconferencing is technology that is used to better communicate with a group that may be geographically dispersed.

Care should be taken, however, to balance the carbon savings due to the use of videoconferencing (such as fuel costs associated with vehicles or airplanes) versus the carbon generated as a result of videoconferencing itself.

Another important user practice in the context of Green

IT is reengineering of business processes of an organization based on virtual team.

The changes resulting from formation and operation of virtual teams require corresponding changes to the processes that describe the way in which business is carried out is business reengineering.

These virtual teams will be collaborating globally across

the time z ones, with colleagues from diverse areas of business at various levels all drawn together to deliver outcomes.

4.2.5 Attitude and degree of Subjectivity in Green IT

Subjectivity of Green IT can be viewed from a sociocultural perspective or in e role-based perspective.

The green enterprise transformational work in the social dimension is based on bringing together the viewpoints of roles within and also outside the organization.

The Environmental *Decision-Making* is justified as: ―**Given the critical state of the world's environment, it is** crucial to employ all of the beneficial knowledge,

technology and tools that scientists, engineers and other **professionals can offer.‖**
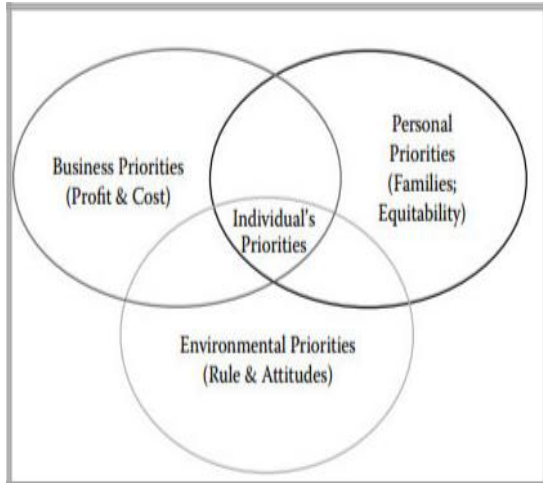

Fig 4.2: Subjectivity in Green IT

From Fig 4.2, it is evident that the business priorities, the environmental priorities, and the personal priorities of individuals are disjoint.

The area of intersection of these three priorities needs to be studied under the social aspect of Green IT.

The organizational (HR) policies and practices then have to work on expanding that intersection of the three priorities.

The domain of sustainability is highly complex and highly dependent on the context. The application and practice of sustainability requires knowledge that is specific to the context.

The context is the situation and role played by the person. The knowledge acquired by that person confines to be local.

Hence HR department must take utmost efforts to impart global view to the individuals in the organization.

Imparting this knowledge makes the individuals change their attitude and behavior on carbon emission related to them.

The data and information related to carbon emission is likely to be interpreted in accordance with the personal needs, existing attitudes, and interests of individuals.

It is common that whenever approached with a new system, processes, and corresponding changes in the approach to work, users tend to be extremely sensitive.
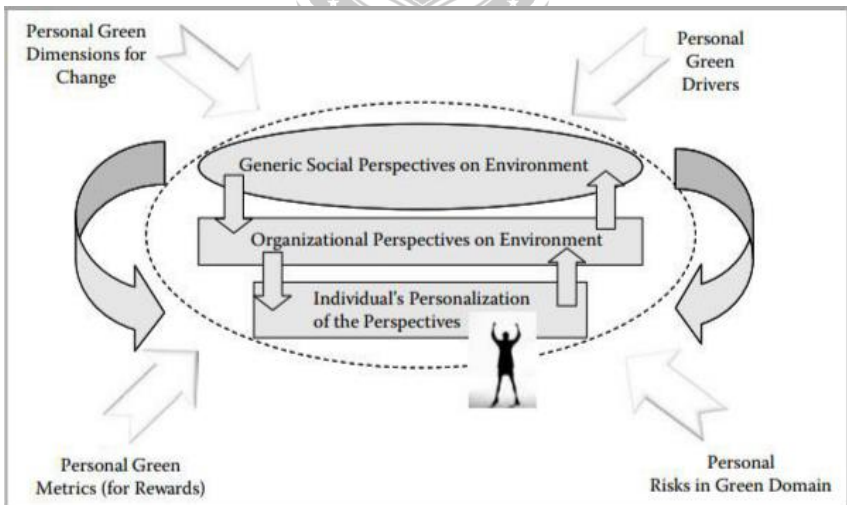

Fig 4.3: Personalization of the green context by end-users leads to change in attitude

The success or failure of the entire green enterprise transformation program, from a social perspective, rests on the perceived ease, perceive usefulness, and perceived relevance of the initiative.

Technology adoption, is the adoption of the Green IT systems to help, support, measure, and report on the activities and tasks of individual users.

The effect of the green system on the career, future growth, and rewarding structure are issues of concern for the individual users.

Starting right from the ―personal‖ aspects of the drivers that drive this Green IT transformation and the dimensions or channels along which the transformation actually takes place, this personalization remains at the centre of the attitude of the users and their personal ―**buy**-**in.**‖

The tiers of influence namely social, organizational and personalized play great role in the green enterprise transformation

The management, ICT, and other professionals within the organizations needs to collaborate in using the emerging technologies as a means to effect changes in their environmental behavior. Employee and customer participation is also very crucial for the success of Green IT.

The strategies for acquisition and management of information as well as for proper implementation include all the employees in order to influence their practices,

secure their participation, and thus ensure success of the overall campaign-Green IT.

4.2.6 Green IT Ethics and Code of Conduct

IT is a newer profession when compared with other professions like teaching, medicine etc.

Green IT needs a code of conduct. Extending the current IT professional codes of conduct, and adding green-specific requirements to them, produces a list of code that individuals and organizations can strive to follow.

Having an ethical base enables Green IT to have a common view, a common set of behavior and understanding that is shaped by the experiences of practitioners, sharing of case studies, and relating of work experiences.

Green IT ethics are meant to provide guidelines through which an interpretation of what is commonly believed to be right or wrong can be made.

The Green IT code of ethics also needs to delve into the seven areas of Information Criteria, that is, effectiveness, efficiency, confidentiality, integrity, availability, compliance, and reliability.

The discussions in the context of Green IT should be communicated honestly with authenticity.

Ethics and code of conduct for Green IT can control displeasing activities and bring in clarity and positive focus.

This increases reliability and trust in green data, information, and knowledge dissemination.

From the ethical point of view, Green IT needs to ensure that the transformation of the organization to a green organization contributes to society and human well-being.

Thus the code of conduct provides the organization with guidelines and direction to remain compliant to the guidelines.

Green transformation process must ensure ongoing compliance while evaluation of IT systems, analysis of possible risks, with their impacts.

Advantages of Green IT code of Conduct:

The following are the advantages of establishing code of conduct in Green IT:

Agree to a fundamental obligation of business to reduce carbon emissions in all the activities.

Conform to total honesty in recording, analyzing, and reporting of carbon data.

Ensure that the effort to reduce carbon is undertaken in a socially responsible way and with no harm to people involved in the reduction attempt.

Ensure ongoing effort at all levels of IT ranging from architecture, design, development, testing, deployment, and maintenance to reduce their carbon footprint.

Ensure ongoing effort to reduce carbon in procurement, operation, and disposal.

Promote confidentiality and integrity within the organization and the IT profession.

Maintain security and confidentiality of carbon data and information.

Make the carbon data available publically.

Avoid green washing or incorrect promotion of the **organization's carbon reduction effort.**

Contribute toward development of Green IT standards worldwide and their application in practice.

Ensure participation in industry and research surveys including workshops to increase the overall body of knowledge.

Attempt to use all emerging technologies to reduce existing carbon emissions and prevent increase in carbon emissions due to future business activities.

Endeavour to maintain validity of carbon data by subjecting itself to regular reviews and audits.

Maintain the security and privacy of carbon data.

Honor contracts, responsibilities, protocols, and agreements associated with Green IT and carbon trading.

Promote public understanding of the issues related to carbon emissions particularly in the context of the industry sector in which the individual/organization operates.

Prioritize all business activities based on their ability to reduce carbon emissions.

Adhere to these ethics and endeavour to create values that are based on the new green order of things.

Ensure high level of competency in all carbon-related activities of the organization such as measurement and reporting of carbon data.

Honestly represent ―skills, knowledge, service and product‖ relating to carbon.

Endeavour to interact with other disciplines within the organization to reduce the overall carbon footprint.

4.2.7 Privacy and Security issues in Green IT

The transformation of an organization to green enterprise needs to address the privacy and confidentiality related issues of the information that is generated in the process.

The sensitive nature of the carbon data requires careful control, secured storage, and proper reporting.

It is the sole responsibility of the management to secure this data as the firm undergoes green transformation and later, as the data gets stored in the organizational systems.

A trade off has to be maintained between data security and access of green information.

The carbon data that is stored may include the emissions data pertaining to an individual, a department, or an organization in varied timespans.

The organization has to compare their carbon footprint level with the benchmark set by the government in regular time intervals.

Preserving the confidentiality of these data is a challenging task in large organizations.

Elements of enterprise data architecture, principles of backup and security of data, and risks associated with maintenance of data needs to be applied to carbon data as well.

Provisioning smart metering for automatic recording and analysis demands stricter security measures to protect data.

4.2.8 Communications in Green Transformation Projects

Effective organizational communication, from a green viewpoint, focuses on creating and understanding of the technologies and processes that are explicit and the green attitude that are implicit.

The subjectivity of attitude toward Green IT requires communication at multiple levels and various forms.

The purpose, content, channel, frequency, entities involved, feedback, and interactivity are all part of the Green IT communication.

Communication is required between internal departments of organizations to relate corporate philosophies, encourage teamwork, and develop strong relationships within and outside of an organization.

The internal communication of the organizations includes instruction in the development and maintenance of transformed green process.

Effective organizational communication, from a green viewpoint, focuses on creating an understanding of the technologies and process that are explicit and the green attitude that are implicit.

The two major communication in the organization occurs:

Within the organization—between managers and employees.

Outside of the organization—with the customers, partners, and regulators

The communications can occur in standard documents, emails, verbal phone, and so on.

4.2.9 Channels of communication in Green IT projects

Communication can be through various channels in a Green IT transformation program. The important parts of a green transformation project need to be explained in the most clear and understandable way. Green IT terminology can be a challenge in this communication and needs to be articulated correctly. The frequency of communication needs to be high earlier in the project. Standard meeting protocols like taking the minutes and circulating them to apply in particular to Green IT projects. Following are the categories of communication channels:

Personal: face-to-face communication

Collaborative: group-based electronic communication mechanism

Mobile: phones and SMSs that enable context-based communications.

Asynchronous: electronic communication that can be **uploaded on the organization's site and then accessed by** employees and users at their own convenience.

Physical: paper form of communication

Group: electronic as well as physical communication facilities (webinars, seminars, workshops).

4.2.10 Green HR and Changing Organizational Structures

Organization's social changes due to Green IT transformation initiative include changes to the skill set of individuals supporting the organizational systems and processes. This requires support from the green HR function of the organization in terms of understanding, positions, training, and rewarding the staff for their Green IT effort. It is favorable to equip the organization with greater automated, location-independent, and personalized capabilities of IT. The same occurs in business process reengineering initiatives. Changing skill sets of highly skilled workers demands advanced problem solving, superior communication skills, and the ability to leverage on Green I T is within the domain of HR.
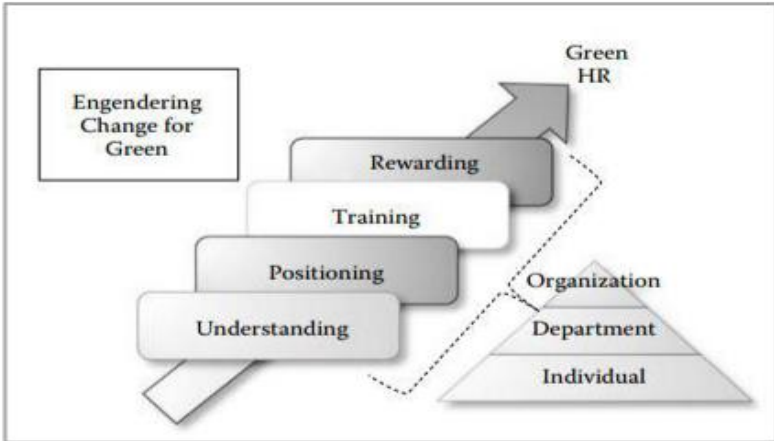
Fig 4.4: Genesis of Green IT in an organization

The following are pipeline of activities in bring the Green IT transformation in the organization:

A HR has to engender change from the social perspectives.

This change is initially focused at an individual level with the organization. The departmental change deals with procedures and practices. The organizational change involves restructuring the hierarchy, creation of new green-specific role, and spelling out the reward structure for meeting green goals.

The HR department need to be organized.

The adoption of the changes in working lifestyle will also occur in different ways and with differing pace in the new green enterprise. The various types of individuals and their varying speeds of adoption should be carefully planned for, and factored in, in the green HR initiatives of the organization.

The three parameters that motivate the employees towards any transformation are:

Work with the support of technologies

Personalization of working style

Rewards and incentives

The subjective or tacit aspects of Green IT systems are an important consideration in the social dimension of Green IT transformation

Bridging of the gap between this tacit knowledge and the corresponding explicit knowledge stored in the green knowledge-base of the organization is vital in the social dimension.

Green IT systems should offer spaces of interaction, permitting people to ask questions, to discuss themes, to define priorities, in ways of fostering the creation of knowledge, and doing a better use of the available knowledge.

Institutionalized support for the available use of social media communication in Green IT transformations is vital. These social media networks also enable participation from employees, customers and public.

4.2.11 Decision Makers in Green IT: Roles and Skill Sets

Green HR considerations has led to creation of new job profile namely green collar worker. Green HR has to define and position green-collar workers correctly.

Green-collar workers are the ones that are associated directly or indirectly with an organization's endeavor to become a green organization.

A Green IT project will create new roles, as well as transform the known roles in IT and in the business. The business analysts, project managers, architects, and quality assurance managers may also be classified as green-collar workers. The following are the three main green collar categories:

> Roles that are newly created within the organization and that are specific to the green initiatives.

> Roles that exist within the organization but are modified to befit the green organizational initiatives.

> External roles that deal with the specification of carbon levels, and audits of its compliance.

4.2.12 Skill set Framework for Information Age (SFIA) and Green HR

The possibility of applying an industry-wide standard to the green collar roles should be considered by Green HR. The skills framework for information age (SFIA) provides an excellent framework for positioning Green IT roles within the organization. The mapping is given in Fig 4.5. SFIA is increasingly becoming popular because it enables identification of suitable levels of competencies within the IT industry. SFIA can be used to create formal description, registration, certification, and training of Green IT roles. Green HR will be most interested in the description and the training aspect of these

new roles. Existing roles can also be redefined and/or mapped to the SFIA skill set. Together with the CMM scale for green maturity, and Green IT code of conduct, SFIA can be used in helping in the maturing of Green IT as a profession.

Scaling of Skillset

The SFIA skill levels can be mapped into three categories for carrying out Green activities:

Level 1 to 4: Managers and Team Leads

The functions carried out at this level are Operational reporting and Training on reporting of green metrics within business operations

Level 4 to 6: Senior Management

Functions to be accomplished are Operational risk management and Training on environmental risk and carbon risk within risk management

Level 6 to 7: Strategists and leaders

They are responsible for Risk Anticipation Plan for carbon risks, legislative changes and global carbon trading.
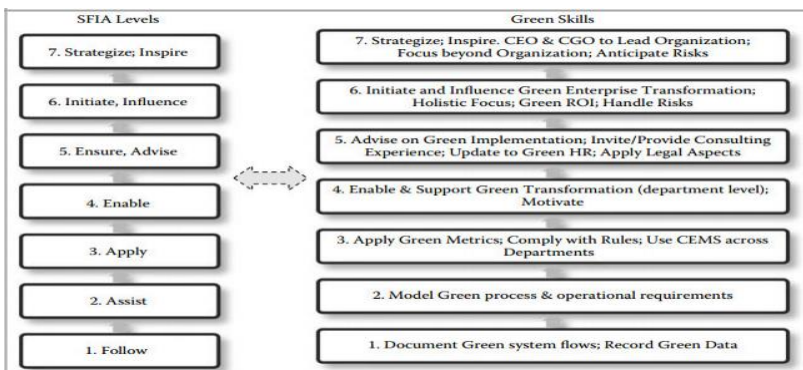

Fig 4.5: Mapping of SIFA roles with Green IT

Fig 4.6: Levels of SIFA and green collar roles

4.2.13 Green Virtual Communities

A virtual community formed through social networks allow people to interact irrespective of geographical and political boundaries.

Green virtual communities can be social groups that addresses green issues.

As people spend more time in these communities, they travel less, thus reducing carbon foot prints.

They also play a major role in formulating consensus and opinion on green initiatives and enable diffusion of knowledge on environmental sustainability.

The knowledge created through these communities can be embedded in knowledge management systems of the organization.

Green enterprise transformation also implies a level of generalization that can be applied in the context of green environment

Socialization and virtual communities help creation of subjective green knowledge which can then be codified into explicit green knowledge.

Social networks can also participate in collaborative effort from a group of organizations rather than a single organization in creating and maintaining data centres.