

## **Implementation of Sustainability as a Strategy in Tea Industry for Saving on Social Cost and Maintaining Economic Viability: Case Study of a Tea Garden in the District of Darjeeling, West Bengal**

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### ***Abstract***

*Twenty first century`s main concern has become saving the planet Earth from destruction due to pollution. Hence, it is no wonder that sustainable growth will be an inevitable business process of today`s social responsibility conscious organizations. This paper attempts to present how this sustainability objective can be and is being implemented in reality by analyzing several scholarly articles. It attempts to presents a case study of a tea garden in the hills of Darjeeling District, West Bengal to show how it can be implemented in the tea/ agro-based industry to watch the practical approach to sustainability in a reputed organic farm. The paper also attempts to analyze the results of adopting the sustainability there in.*

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**Key Words:** *Sustainability, sustainable growth, business process, social responsibility.*

## **1. Introduction**

According to World Commission on Environment and Development: 'Our Common Future' (1987), United Nations General Assembly), the *Sustainability* in a broad sense is the capacity to endure. It can be defined as the ability of an ecosystem to maintain ecological process, functions, biodiversity and productivity into the future. It is the potential for long term maintenance of well-being, which in turn depends on the well-being of the natural world and responsible use of natural resources.

One of the critically important issues in sustainability is that of human over population combined with life style. With the increase in human population, natural ecosystem has declined and changes in the balance of natural cycles have caused a negative impact on both humans and other living systems. Returning human use of natural resources to within sustainable limits will require major collective efforts.

Since 1980s, human sustainability has meant the integration of economic, social and environmental spheres to meet the need of present world without compromising the ability of future generations to meet their own needs and *Corporate Sustainability* refers to the business approach by companies to consider not only economic needs in their strategies and practices, but also environmental and social needs. It is the opportunity for business to improve their profitability, competitiveness and market share without compromising resources for future generations.

Now, being sustainable Development the common goal among business firms in recent time, to know if they are succeeding in reaching this goal – first, they have to fix their strategies and next, get feedback on performance information in the form of some Indicators, according to Burns, S. (2000).

In 1990s, John Elkington introduced sustainability concept as 'triple bottom line'. According to Andrew Savitz, as summarized by Timothy F. Slaper and Tanya J. Hall (2011), the TBL explains the sustainability by measuring the impact of an organization's activities on the world including both its profitability and shareholder values and its social, human and environmental capital. TBL dimensions are commonly called the three Ps: which stands for- people, planet and profits. So, if sustainability performance is stepping towards sustaining profits and increasing profitability, without taking into consideration the triple Ps (place, people, and profit), a company cannot sustain its profit for long. Hence, the performance indicators are to be selected from all of the three Ps- Place, People and Profit.

### **1.1 What does it mean when comes to agriculture**

According to SARE (2012, Sustainable Agriculture Research & Education) the three pillars of sustainable agriculture are –i) profit over long term, ii) stewardship of our nation's land, air and water, iii) quality of life for farmers and their communities;

“Sustainable agriculture is the efficient production of safe, high quality agricultural products, in a way that protects and improves the natural environment, the social and economic conditions of farmers, their employees and local communities and safeguards the health and welfare of all farmed species,” Sustainable Agriculture Initiative Platform (SAI Platform) (2010).

“In simplest terms, sustainable agriculture is the production of food, fiber or other plant or animal products using farming techniques that protect the environment, public health, human communities and animal welfare. This form of agriculture enables us to produce healthful food without compromising future generations` ability to do the same,” GRACE Communications Foundations, (2014, p-1). The primary benefits of sustainable agriculture are- Environment preservation, Protection of Public Health, Sustaining Vibrant Communities and Upholding Animal Welfare.

### **1.2 Why sustainability in agriculture**

The Thematic Group on Sustainable Agriculture and Food system of the Sustainable Development Solutions Network- SDSN (2013) raised the following questions in its preamble suggesting a solution in ‘sustainable way’: i) How can India direct more of its economic growth towards rural development and eradicating widespread poverty and malnutrition? ii) How can agriculture become an attractive entrepreneurial undertaking, reducing drudgery, reducing unemployment and getting people- women and youth in particular- decent and fulfilling work? iii) To what extent can agro-ecological principle be harnessed in soil, plant and pest management to substitute for and /or improve the efficiency of external inputs?

Agriculture- the supplier of the basic human need- nutrition- is the world’s largest user of land, occupying more than 1/3<sup>rd</sup> of Earth’s terrestrial surface and also using vast amount of water.

According to SDSN (2013), the development of agriculture was essential for the rise and survival of early civilizations. Increase in the world’s population from 800 million at the start of the industrial revolution in 1790 to just over 7 billion today and the prospect that the human population will grow to around 9.3 billion in 2050 have created new concerns about our ability to feed the world in a sustainable manner.

According to N. G. Hegde (2000), it is necessary to promote sustainable agriculture to safeguard the economic viability of the farmers. Sustainable agriculture is a set of farming practices which can continue to maintain the farm productivity, efficiency and profitability in the long run, without depleting the natural resources and the environment.

### **1.3 If there is any Sustainability Standard in India**

There is no compulsory standard for sustainable farming practices world over. Widely agreed upon standard or sustainable agricultural practice are not available. SAI, IFOAM,

FLO, SAN have some voluntary Sustainable Standard and labels at the global level. In India, a well formulated standard in this regard is still wanting. The farm under study of the present paper has got several world based certification like Demeter, FLO label, etc.,

But, according to Hegde (2000), sustainable farming is the extension of the traditional practices with necessary modifications.

For ensuring sustainable agriculture, it is necessary to explore the traditional wisdom and promote local practices. The study of local traditions helps in understanding the social fertility and water management systems developed over the years. As these practices helped in the past to produce enough food grains before the introduction of chemical fertilizers, sustainable agriculture can be promoted on these traditions and to do this we need not depend on others or outsiders according to Hegde(2000).

#### **1.4 Need for application of sustainability in Tea Industry**

The observations of the Ministry of Commerce and Industry (2004) on causes of sickness of tea industry are summarized below: i) The Indian tea industry have been passing through a long period of depressed prices. Domestic prices of tea move in conjunction with international prices. The prices started declining from November 1999 onwards. The all India average auction prices for tea came down from about Rs. 76 per kg in 1998 to about Rs. 56 per kg during 2003. In the first half of 2004, the tea auction prices have increased marginally, especially in North India.

ii) High costs of production, sluggish rate of growth in domestic demand and increased age of tea bushes adversely affect the viability of tea gardens, particularly the medium sized and financially weak, resulting in closure/abandonment of some tea gardens. Presently, 54 gardens are closed, out of which 20 are in West Bengal, 17 in Kerala, 11 in Assam and 6 in Tripura. About 28,000 workers are affected due to the closures. As per available information, in some of these gardens, workers are plucking green leaf by forming workers' committees.

iii) In 2003 Government of India had appointed three Expert Committees to make in-depth study of the closed tea gardens. 36 gardens which were lying closed in 2002 (19 in West Bengal, 11 in Kerala and 3 each in Assam & Tripura) were studied. The main causes for sickness, as identified by the Committees, ' included the inherent weakness of the gardens due to poor yields arising out of the poor condition of the garden and factory, poor garden management and the management's excessive reliance on debt with negligible equity infusion.' "There is a need to make conscious efforts towards improving overall productivity, cost reduction, production of quality teas and adoption of better management practices. Government of India will continue to extend help to the Indian tea industry in this direction", said the union minister of Commerce and Industry in 2004 and to face situation arising out of the closure of a number of tea gardens in West Bengal, Assam, Tamil Nadu and Kerala

resulting in unemployment of thousands of workers, took some steps such as- additional subsidy for re-plantation , providing interest subsidy by the central government, as an integral part of the revival package which would include promoter's contribution, further loans from the concerned banks and restructuring of the accounts, as part of the government's efforts to revive sick tea gardens. But, only financial help does not seem to solve the problems of tea industry in India and today we see that overall condition of the tea cultivation has not changed much with a good number of gardens still remaining closed and some other facing danger of probable work suspension.

In this context, the objective of this paper is to see whether sustainability as a strategy can be successful in the tea industry and can suggest solutions to the sickness of it.

And, it would be justified if we look for how sustainability in practice can be had of in our own country in agriculture.

The paper is discussed in 4 parts. In the second part, it analyses two scholarly papers to look for the way of implementing the sustainability; in the third, the case study is presented; in the 4th and last it concludes with some suggestions.

## **2. Literature review to look for the way to implement and blend sustainability performance in day to day business operations**

*1. Scope of sustainability concept:* The emergence of sustainability as a corporate strategy and making it an integral part of a company's business strategy in order to obtain the triple bottom line benefits requires dramatic change in the organization's performance against the economic, social and environmental bottom lines, according to (Enquist, 2000), as summarized by Samuel Petros Sebhatu (2008). Sustainability necessitates the transformation of mind set and commitment of the leadership and organization to include key stake holders, (Waddock and Bodwell, 2007), as summarized by Samuel Petros Sebhatu (2008).

*2. Strategy Change for Corporate Sustainability:* According to Sneller (2008), if a company opts for corporate sustainability, to act in that way, a drastic change in strategy is inevitable. The new strategy should be based on five 'P's: people, process, product, place and profit. The idea is that a company can only be sustainable when the five 'P's are developed simultaneously and failure in respect of any one or more will endanger the long-term existence of the company. After the strategy is fixed, a sustainable corporation fixes its short-term targets to align its current actions and plans with the companies' long-term vision. A short-term action serves as a platform for long-term goals. Setting of short-term targets is necessary for corporate sustainability performance. This is crucial in driving interests and investments in sustainability to the mutual benefit of companies and investors.

*3. Organizational Change:* Implementation of sustainability involves change as to several organizational matters as discussed below:

**TRM (Total Responsibility Management):** According to Enquist (2007), Waddock and Bodwell (2007), as summarized by Samuel Petros Sebhatu, integrating sustainability in company's day to day operations signifies a type of change involved in organization's top management's decision and commitment; leadership is one of the single most important requirement of sustainability and organizational change; as such, top management's commitment is a basis for change; *TRM (Total Responsibility Management)* consists of systems and procedures to ensure responsible business practices and management; hence, creating efficiency by integrating and adopting *different systems and measurements* – is within the scope of TRM.

4. *Measurement:* Measurement needs feedback/ information on performance and achievement. Implementation of sustainability entails change in *measurement* procedure also. Companies must know how they can improve sustainability performance and identify, manage and measure the drivers of improved sustainability performance and the systems and structures that can be created to improve performance measurement, (Epstein, 2008), as mentioned by Samuel Petros Sebhatu.

Here, we got to elaborate on what the *EPI* is. Most reputed companies today are having 'Sustainability Development' as their corporate goal and to know whether they are being able to reach this goal or not, *feed back* in the form of *Environmental Performance Indicators (EPI)* is necessary to get the needed information. An *indicator* is a measurement which reflects the status of a social, economic or environmental system over time. Unlike traditional indicators which used indicators like Regulatory Compliance, Waste Reduction etc. to measure and achieve progress towards environmental improvement, sustainability indicators are designed through the process of *back-casting* that enable us to see the whole picture and then help us reach a particular end state – *sustainability, according to Burns, S (2000)*.

Here we see a SPM (Sustainability Performance Measurement) framework developed by Samuel Petros Sebhatu (2008) includes some indicators which were categorized as *external and internal* as shown below:-

Table 1

Environment	Performance Measurement	Indicators
Surface/ External	Triple Bottom Line- Elkington,1998	Environmental
		Social
		Economic
Internal	TRM- Leadership- - Waddock and Bodwell,2007	Integration( of different standards)(*1)
		Descriptive/ Potential Values(*2)

		Normative/ Core Values(*3)
		Instrumental Value Creation (*4)

Explanation:

- 1) Integration of different standards on Environmental and Internal Business Performance;
- 2) Organization wide commitment, transparency, adopting sustainability as a culture in the organization;
- 3) Commitment to fully sustainability transformation and to the TBL; favourable stake holder relationship;
- 4) The Employer and Employee relation; Image of an Organization.

Hence, *measurement of sustainability performance* needs to include several factors based on economic, ecological and societal issues. It extends beyond the boundaries of a single company and addresses the performance of both upstream suppliers and downstream customers in the value chain, according to Fiksel(1999), as summarized by Sebhatu. SPM (Sustainability Performance Measurement) must be approached as a systematic business process in order to be integrated effectively into company`s strategic planning and day to day operations.

5. *Management Control Process*: According to Burns, S. (2000), management control process is embedded in the performance measurement system. Basically, business processes are designed to transform organizational strategies into operation and create a result of value to customers. Measurements are the key. If a thing cannot be measured, it cannot be controlled. If it cannot be controlled, it cannot be managed. If it cannot be managed, it cannot be improved.

An organization`s measurement system strongly affects the behavior of people both inside and outside an organization. If companies are to survive and prosper in the information-age-competition, they must have measurement system derived from their strategies and capabilities. In sustainability companies, the performance measurement systems and measurement control processes are *redesigned* to measure and monitor the effects of implementing the new strategy. Strategy and performance measurement system is closely related. For implementation of strategy, *objectives and target levels are fixed*. A performance measurement system enables *comparison* of actual with target levels for monitoring the implementation of the strategy.

### **3. Case Study**

Now, in the light of the conceptual discussion above, let us analyze the behavior of an agricultural organization that chose the strategy of sustainable development for their estate.

#### **3.1 Reality before adopting sustainable way**

In 1987, we, for the first time, heard about the term ‘Sustainable Development’ from Mrs. Brundtland, published in the United Nations report called “Our Common Future”. Well before that, in 1973, in Makaibari Tea Estate a change was observed when they introduced ‘permaculture’ as a tea cultivation system in their Estate’s gardens and thereby started journey towards sustainable future through conservation of nature.

‘The tea monoculture’, an age old practice in tea cultivation, (the system in which only tea plants will be there on the field, no other plants), caused destruction of tea cultivation itself. “All over the region, nature was destroyed, trees were cut down, huge problem with erosion and many animals died due to insecticides,” as reported by MAA MATI MANUSH (2014). It threatened Himalayan foothills. It was not environmentally, economically or socially sustainable. Tea production in Darjeeling in the decade of `90s declined severely. Plantations were closed or abandoned because of unavailability of suitable prices. Overuse of chemical fertilizers to become more economical reduced the fertility of the thin soil or fertility was washed away by soil erosion. Forests that were the natural protection against heavy rain fall was also destroyed by illegal cutting of trees for fire woods or logs for short-term profit, Use of chemical fertilizers destroyed the ecological system and affected the all that were in the food chain of the ecological system of the locality. ‘.. the millions of organisms were annihilated by a single dose of (chemical) fertilizer,’ according to Banerjee (2008), in 1970s. Not only the inanimate nature, but also the workers community were under stress and exploited hard for the same cause as it led to low and irregular wages. Lady workers were the most exploited and the most hardworking on the Estate from dawn to the dusk –from collecting the firewood, plucking of green tea leaves for earning livelihood, to all of the household work.

In the decade of 1970s, Rajah Banerjee, (present owner and director of the estate) returned from London finishing his studies there to the family tea estate in Darjeeling. He was farsighted man and could visualize of the dangerous future waiting ahead. He felt his duty at this situation and did not go back to London. He decided to stay here to work for his country. A change of strategy became evident from taking of various pioneering steps by the farm according to the different objectives set; their implementations were taking place gradually over the years.

Located at 1,200 meters (5,000 feet) in the Himalayan foothills of West Bengal, Makaibari Tea Estate (total area - 670 hectares, planted area 270 hectares, others -Factory,



Villages, Road- 400 hectares), one of the many farms producing Darjeeling tea, thus emerged as today`s one of the most successful holistic sustainable agricultural organization, not only in India but also the world over. The strategies and objectives of the farm are discussed in detail below:

#### Statement of the Strategy:

Changing of strategy and setting of objectives accordingly was inevitable when the Estate opted for sustainable development. Their strategy was: showing real performance against the triple bottom line (place, people and profit) and balanced development of three Ps.

### **3.2 Statement of Objectives according to the Strategy**

Strategy of M.T.E. became to save nature (soil, forest, etc.), so as to be able to sustain and production of good quality organic tea free of any chemical residues. This is the strategy of sustainable growth. Target was entering and participating in the world tea market.

### **3.3 Objectives**

The objectives that are evident from their activities are enlisted below: i) applying ‘permaculture’ with integrated forest conservation; ii) conservation of top soil through mulching; iii) preservation of wild life in the adjacent forest; iv) complete use of organic fertilizers; v) complete use of organic pesticides; vi) use of biogas energy to save forest and woods and save time in collection of fire woods from the forests; vii) development of local area through ‘Organic Ekta’ by knowledge and experience sharing; viii) upbringing of life style of the community members; ix) creating sustainable social environment by instilling spontaneous sustainable practices in everyday life of the community members. Adopting ‘permaculture’ discarding monoculture; not dependence, but independence on the garden for next generations of the families of the employees; labour welfare for motivation on the part of the community members, etc., to state in brief, became the farm`s objectives.

### **3.4 Acting on the objectives**

Well before concept of Sustainability (in 1987), Makaibari Tea Estate started walking on the path of sustainability. In 1975, they pioneered sustainable use of compost. It was the first garden to be certified organic in 1988.

**Steps taken:** Before going in to the detail of the three P wise accounts of the activities of the farm, let us see the steps taken by the estate in brief:

- i) Encouraging use of non-pollutant energy sources by the households on the estate instead of air polluting forest wood by the households on the estate for clean and green environment by establishment of bio-gas plants using manure as input for those plants.
- ii) ‘Self help’ group which meant the families in the community will help each other and thereby help themselves in economic activities in order to raise their living standard was invoked. Economic activities have included in them activities like selling milk and

manure, tea boxes, silk screen printing to the estate and participating in the entrepreneurial scheme of providing accommodation to the tourists of the estate as paying guests in the 'Home Stay' scheme.

- iii) Implementation of different projects on the estate was funded from money earned through taking premium on the sale of organic tea which has good demand in world market and through sharing the thoughts of 'Fair Trade' practices.
- iv) Micro credit facility was provided to help families on the estate by lending money for housing, medical needs, education, live stock purchase and starting small businesses.
- v) Scholarship funds are raised through 'Fair Trade' premium. From this fund young generations on the estate get to study or learn profession oriented courses outside for their future economic independence.
- vi) The traditional cultivation system (monoculture) was left out and scientific cultivation method (permaculture) was introduced. This resulted in preservation of fertility of soil, bio-diversity leading to increase in productivity and revenue.
- vii) It followed the principle of nature based on the theory of Bio-dynamic Agriculture discovered by Dr. Rudolf Steiner (1924). The goal of a bio-dynamic farm is to be able to support a balance of people, plants and animals. This is an integrated network of planting, weeding, fertilising and harvesting. Compost fertilizers were specially made to preserve the micro-organisms that live in the soil so that they can naturally prepare the soil for the plants, according to Banerjee (2008).
- viii) Participatory management system was introduced; most of the office staffs are members of families who work on the estate. This was initiated in 1994; in managing different affairs of the tea estate a Joint Body was set up in the estate with the purpose of regulating the activities of 7 villages of it and also managing the developmental work there in.
- ix) Labour welfare was at the centre of every action; electrification was done for the estate's 7 villages. Women are undertaking the job of field supervisors. Interest free educational and medical loans have been made available. Marginal farmers are inspired to become grass root entrepreneurs in a way when they involve themselves in the scheme of 'home stay'.

Concern for people, place and profit, though without any EPI (Environmental Performance indicator) having been selected for the management to facilitate measurement and comparison, was observed from their activities.

**3.5 The following section of the paper attempts to present detail accounts of these connecting them to the three external indicators of SPM as mentioned earlier**

*The Pioneering activities at a glance:* 1971- Bio-gas plant was installed and used cow dung as a non-polluting fuel substitute to shift to alternative renewable energy; 1973- Pioneered mulching practices with integrated permaculture; 1975- Introduced sustainable use of compost; 1991- Pioneered biodynamic practices for the tropics and the first tea garden to have been certified Demeter (the Greek goddess of agriculture), as reported by Makaibari Tea Estate (2010).

### **3.5.1 Concern for People (Social)**

Makaibari has taken up human welfare programs such as: i) Electrification of the villages of the estate. ii) Training of women workers in basic midwifery and health education. iii) Making interest free educational and medical loans available. iv) Operating of low interest revolving loan funds for workers to improve their standard of living by helping them in extending their houses or setting up small business. v) Women Empowerment: by setting of 'Self help group': It is an example of corporate social responsibility programme. The members are all women. They earn money by selling tea boxes, silk-screen printing to the M.T.E. which they produce themselves. This brings independence for them. In 1994 a Joint Body was setup to regulate activity of seven villages and take up developmental work. The MJB (Makaibari Joint Body) has women members in majority. "With an increased awareness of women's capacity and a new way of looking at them, instead of being seen as second class citizens, the whole society will develop." (Eurenius, H. et al., 2009; p-16).

According to Banerjee (2008), introduction of biogas plants has three-fold effects in the community:- i) it led to save in forests, ii) new employment generated in care and maintenance of the cows and biogas units, iii) it created grassroots entrepreneurs who can sell milk and compost. Each family on the estate was provided with their own cows for milk and manure (later one being the source of fuel for the bio-gas plant). It helped in saving forest and environment as well as decrease work load of women who used to spend morning hours in collecting fire woods for household use as cooking fuel before going to the factory.

A holistic approach towards sustainability ensures balanced growth of all. The garden is different in a manner from other traditional gardens as it does not follow the techniques of the old colonial English style; instead, it works on the human understanding and their relationship, relationship between the management and the workers – better known as 'community'. For the development of the community the garden has initiated plans which are at least twenty years advanced from the present age, such as:

- a) The garden practices fair trade policies;
- b) Social empowerment and development of unemployed youths through giving self employment opportunities like planting of more and more trees, grasses, fruit trees, making of composts at their own place;

- c) Distributing the knowledge of the garden to the outside world that comes to it as guests;
- d) Women empowerment of the garden brings a revolution and develops the society. The garden has home-stay arrangement in which each houses are being given visitors and the money that goes to the lady of the house are used for education of her children. This is unique. 'I personally feel, the whole state should change into a home-stay and the world become the guests of this natural beauty', said manager Mr.Das of the Estate.
- e) The other developments include the unique idea of library with lots of different type books and computer facilities.
- f) The management also encourages the local youths to join the movement of sports and outdoor games.

The garden has till now run on its own. Mr. Banerjee on being asked about his business plans and policies- he points out the salient strategies of not only for his garden but also for the sustainability of Darjeeling Tea industry by:

- a) Creating awareness amongst the producers to be organic and do it religiously;
- b) Encouraging small growers to make their own plantations with technique and current practices of the garden;
- c) Working for the socio-economic development of the garden;

Running garden would require more and more of funding for development and marketing they would require strategic partners to stand in unite as the inflation has negatively or adversely affected the Indian agriculture. Targets of the garden for socio-economic development are:

- a) Increasing the number of home-stay by methods of adaptability;
- b) Setting bio-generation unit which can not only cater to the garden but also to the outside world;
- c) Encouraging the youth towards more of education to get other jobs;

### **3.5.2 Concern for Place (Environmental)**

Already mentioned, 'Permaculture' is a cultivation system that forms a biodynamic eco-system by integrating the tea bushes into the six tiers of plants; thereby, enriches health of soil, checks soil erosion and encourages wild life to expand. Introduction of 'permaculture', replacing monoculture helped create the healthy environment. Pioneering permacultural practices of the estate have tea plantations amidst the forest, tiers of leguminous shade trees and banks of repellent grasses used for mulching, temporary legumes, fruits and different kinds of herbs and weeds are the constituents of the system, according to Banerjee (2008). Traditional botanicals found in the Makaibari forests are used as pesticides for protection of tea plants. Tea plants now grow amid fruit and bamboo, herbs and clover; the soil is dark and

soft; is fed with organic compost prepared on the estate; herbs, such as, India's native neem tree, etc, are used as pesticides.

Mulching (different weeds are cut and is used to lay on the ground between the tea bushes) is the main weapon of 'soil management' at hands of the estate. During monsoon it prevents soil erosion and in drought maintains moisture present in the soil. Beside this, the mulching material decomposed naturally and converts into humus. Thus, it helps in soil rejuvenation also.

Specially fermented preparations of select herbs and plants named from (BD500 and 501) for adding to the ground and (BD502 to BD508) for adding to compost were the invention of Rudolf Steiner, the great organic agriculturist of Germany. Adding of these BD preparations helps 'convert the compost into a dynamic organism, according to Banerjee (2008). The farm started practicing this BD culture for furtherance of sustainability in the estate. Demeter certification in 1991 to the estate proved their success in this.

Vermi-composting is the method of converting waste into compost by feeding action of the earthworms. 'Earthworms are the best conditioners of the soil', according to Banerjee. Hence, vermiculture was also introduced to increase soil fertility.

According to Steiner Rudolf, as summarized by Banerjee (2008), that a farm is an organism as a whole and as such should have a closed self-nourishing system. All these mulching, permaculture, using of organic fertiliser and pesticide, application of biodynamic preparations, introduction of vermi-composting helped in correcting the imbalance, if any, in the rule of nature and maintaining a healthy ecological system in the entire area of the estate. Now, two-third of the estate is covered by subtropical virgin rain forest. It contains a rich wildlife like rare birds, monkeys, leopards, tigers and snakes, etc. The forest is a shelter for many animals facing extinction.

Following Steiner, the father of biodynamic agriculture (who said 'if all agricultural practices are truly holistic, then, the principal crop will be reflected in the mimicry,' as mentioned by Banerjee), it can be said that sustainable and organic practices at the estate has been proved successful by the presence of an insect 'Tea Deva' (named by Mr. Banerjee and is member of Phyllidae family, the group of walking insects adept at mimicry) which was recorded for the first time in the world, in the estate doing mimicry of a tea leaf, according to Banerjee (2008).

As mentioned earlier, there are six layers of matters that are applied to the soil and washed out top soil in the hilly areas; lots of soil erosion was the natural phenomenon due to the slop and the rain fall pattern in the region (as we have seen it like in recent times in Uttarakhand, in India- in northern region); to prevent such disaster, the garden has been

resorting to the following taking the help of mostly those natural resources that were locally available, as mentioned below in brief:

1) The natural leaf and flower dropping from the forest surrounding tea area 24 hrs. X 365 days in a year in themselves are source for the soil rejuvenation. 2) Garden has different types of leguminous plants like Crotalaria, African medola, Indigofera, Tiesmani, Soya bin, which are cut across three to four times a year to add on to the soil. 3) There are different types of grasses- Guatemala, Tusentery, Artemisia, and Lemongrass which are also cut and used as mulching material. 4) The spontaneous growth of weeds of different varieties are sickled at least twice a month and added on as a decomposed material. 5) The tea bushes are pruned every second year; LP, DS, MS, LS methods of pruning are used and the litters of this are used as mulch which adds on own generated nitrogen to the plants. 6) Garden has its own bio-composed, vermin-composed system of preparing fertilizer that make the same throughout the year from cow dung and green material for applying during cold weather.

Further the garden has a unique policy of spraying herbal and floral products produced in their garden (e.g., Chamomile, Dandelion, Stinging Nettle, Ghenthu, Sunflower etc.) These products are used for the bio-dynamic preparations (BD).

Not only for the estate itself, concern for simultaneous development of the nearby society and the adjacent area and other tea gardens were also noticed there. Organic Ekta or Organic Union, a programme that supports about 200 small organic farmers in 8 communities was initiated by Makaibari Tea Estate in collaboration with Mercy Corp( an U.S.A. based charitable society) was launched to save on the social cost by sharing with other tea gardens the experience and knowledge in conservation of nature. Being invited by neighboring state of Sikkim, Makaibari provided support to a project of sustainable agricultural practices at Sang Martam., Tea became a part of agricultural diversity that includes herbs, cereals, vegetables, fruits, flowers in these projects following the organic practices, according to Banerjee (2008).

### **3.5.3 Concern for Profit (Economic)**

Fairtrade label is recognition of an organisation that it is following sustainable practices and developing place and people in balance; is developing local society in an economic and social way and respects the environment and promotes organic production, according to Eurenus, H. et al. (2009). Makaibari got the label in 1995. The Makaibari tea is sold as Fairtrade labelled in England and Max Havellar (also an FLO brand) labelled in France. 'About 30% of their total tea production is sold as fairtrade today' (Eurenus, H. et al., 2009; p-4). Fairtrade market includes a premium for social development projects. Premiums are received from tea sales in Europe and USA via the Fairtrade Labelling Organisation (FLO). The fund earned from fairtrade premium is applied on different social welfare projects

selected by the Makaibari Joint Body for the purpose. “Fairtrade affects many people here. Makaibari and Fairtrade share a common vision” (Banerjee, 2008).

In 1988 Makaibari got the certificate of its being organic. It gave them a chance to open up foreign market for them. Their entire crop was imported by OTG of Germany – one of the largest tea distributors of Europe. It was for the first time in tea marketing in the conservative global tea trade that a single estate was promoted like this and avoided participation in tea auction by the brokers in India.

Demeter Certificate, the trade mark that products are certified as biodynamic, was accorded to Makaibari after 5 years of its being organic in 1993. Makaibari was the first tea plantation in the world to achieve this rare honour. As a result, their reputation as producer of high quality organic tea spread world over. Hence, it got to have a tie up with the Hampstead Tea and Coffee Company in 1996 which helped them to market their organic product in the European market. The H.T.C. is a leading business house in distributing the finest organic produce through Europe and is one of Makaibari`s biggest buyer today. It was in 1988, that an interview with the owner of the H.T.C. and sharing of knowledge on sustainable practices in MTE over the next few years pave the way for the future collaboration, according to Banerjee (2008).

Eco-tourism, a project of the MTE was initiated by the MBBJ in 2006. It was an innovative and ambitious project of the estate to find out a solution to decline in global tea sales and to explore other income generating activities for the community members. The object of investment was construction of eco-lodge guest house and building house paying guests (two visitors) accommodation system to strengthen the economic activities of the local community. Opening up for tourists was a really good initiative. It created an increased understanding and knowledge about the Makaibari tea estates globally, according to Eurenus, H. et al. (2009)

*The farm`s profit motive related to its liability to the stockholders and concerned for-increasing customer loyalty, increasing production/ productivity, increasing revenue, etc.*

Thus, sustainable development concerns all round development for all of its stakeholders (owners, suppliers, consumers, workers community, neighbours and government). Discussion made above on the activities of the estate relates to the external indicators of SPM. Regarding the selection of EPIs, measurement and management of change for sustainability, let us see the following part.

### **3.6 Internal Indicators of SPM**

*1) of different standards on Environmental and Internal Business Performance:*

World's *Integration* best organizations like DEMETER, Central Union, Eco-Cert, ISO, HACCAP, FSSAI, Fair Trade helps setting the global standards for maintaining and controlling the garden, as said by the manager of the Estate Mr. Das.

*2) Organization wide commitment, transparency, adopting sustainability as a culture in the organization:*

Owner Mr. Banerjee himself stays in the estate, directly interacts with the community members and actively takes part in managing day- to- day operations. This induces a sense of commitment among all levels of the community. Institution of MBBB for taking up development work funding from the Fair Trade premium money entails transparency. Encouraging even children of the estate in collecting plastics litters proves that the estate tries to instil the culture of living sustainably in entirety in the estate.

*3) Commitment to fully sustainability transformation and to the TBL; favourable stakeholder relationship:*

Their commitment in this is proved by the fact that Mr. Banerjee was awarded 'Rastriya Ratan' in 2002; he has also been given the Green Nobel in 2004, as mentioned by Eurenus, H. et al., (2009).

*4) The Employer and Employee relation; Image of the Organization:*

Different social welfare project from community learning centre, Day care centre to the self-help group "Prayatna", etc, could help creating warm employer- employee relation in the estate.

MTE has got Fairtrade label for their product in England and France. 'To become a member of FLO, both producers and buyers have to fulfill all the criteria and standards set by FLO,' (Banerjee, 2008, p-106). They got FLO certification in 1995, according to Eurenus, H. et al. (2009). FLO has the motto of encouraging creation of exploitation free working environment for workers and uplifting 'marginalised folk' (Banerjee, 2008, p-103).

Their image as organic farm was firmly established after they got organic certificate in 1988 and DEMETER certificate in 1991. As a result of these, foreign market for their products got opened; it could get a tie-up with OTG of Germany and Hampstead Coffee and Tea Company of London.

### **3.7 Management of the change: motivation and measurement**

#### **3.7.1 Control by measurement**

For implementation of sustainability strategy efficiently and in a systematic way, a type of performance measurement system was required, though not at that scale at which it can be expected in case of a big manufacturing organization. But, the farm neither selected EPIs nor looked for eco-points as to different sustainability performance indicators. Setting targets as to different EPI and measurement and comparing of the actual performance in that regard was



not done. But, natural indicators of success of sustainable practices were noticed, as mentioned in his book by Mr. Banerjee. For example, mentioned can be made of that mimicking insect 'tea deva' and others occasionally. But, time bound tasks were assigned sector wise and performance or coverage achievement report was taken and maintained regularly.

### **3.7.2 Control by Motivation**

'Power of bio-dynamics' was discovered or rediscovered in Makaibari. According to Rajah Banerjee, miraculous power of bio-dynamics has made the region prosper with peace and harmony. It talks of balanced growth of all- including the planet (which means the natural environment: ecological development) and the people (social and economic development of workers community and the society). Inspired honest actions and good governance ushered in the right combination of all the good things that in turn led to good motivation on the part of the workers. This has been made possible in M.T.E. through different women empowerment schemes, establishment of self-help group, introduction of MBBJ (Makaibari Joint Body), future planning for running garden on co-operative basis (according to Euraneous, H. et al. ,2009), social health care activities and programs, spreading knowledge of organic procedures for apply in other gardens, etc. All these things have helped in creating a healthy work environment in the estate which in turn helped in adding values to the product of the estate.

## **4. Result of Sustainability Activities**

### **4.1 Customer Loyalty**

Reputation as an organic farm has enable MTE to create a group of customers who are loyal to the Makaibari brand. This is evident from the following:

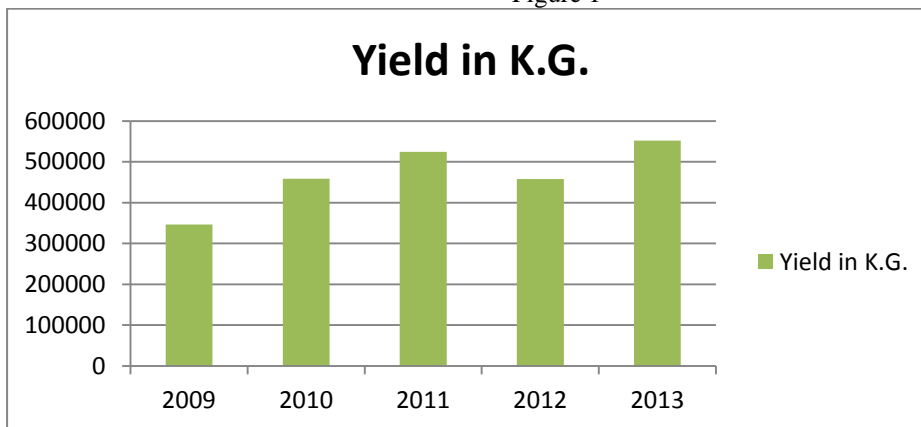
- i) FLO (Fairtrade Labeling Organization), based in Cologne of Germany, which allocates various brands for identifying Fairtrade products in Europe, USA and other countries, has labeled products of Makaibari to Europe as 'Fairtrade', according to Banerjee (2008).
- ii) 'The Makaibari tea is well known and thank to their good product they obtain a lot of money. The tea sold as Fairtrade, also generates Fairtrade premium money and the CHAI project, a cooperation between them and the American charity organization Mercy Corps together with Starbucks/Tazo, generates money as well', as expressed by (Eurenius, H. et.al., 2009; p11)
- iii) America and Europe continent being highly conscious about the presence of any chemical residue of pesticides and fertilizers in tea, Makaibari`s products have entered and been able to create a market there in – it would not have been possible without their organic image that has emerged as a result of being certified as bio-organic firm. According to Eurenius et al.,

(2009), the differences that are carried through are both benefiting the community members and are also creating goodwill that in the end, again, increases the sale.

Silver Green, Bai Mu Dan, Silver Tips Imperial, to mention particularly, are the different well-known brands of the farm. Silver Green was appraised by the USA as the tea with greatest content of anti-oxidants in 2007; the Bai Mu Dan is favored by ‘the global connoisseurs’; Silver Tips Imperial is the current record holder as the world’s most expensive tea, according to Banerjee (2008). These prove that MTE has a group of loyal customers who trust in the products of Makaibari.

#### 4.2 Increasing Production/ Productivity

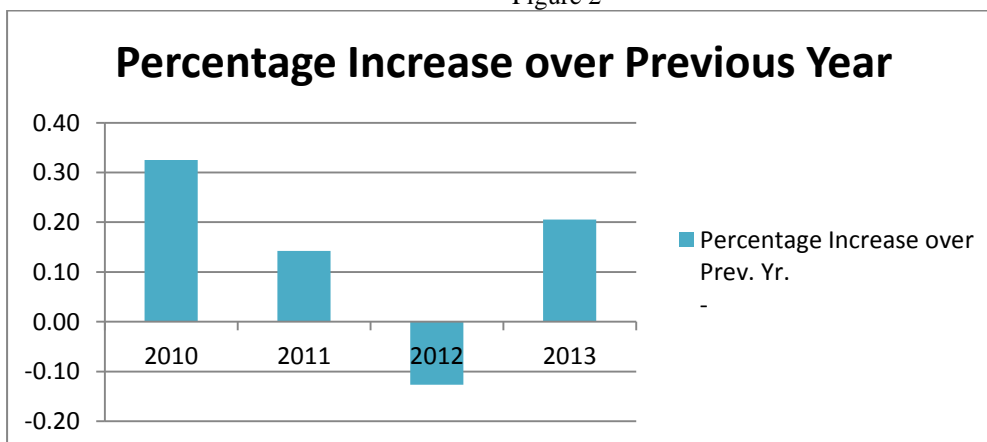
Figure 1



Source: Unpublished data from the farm.

The chart shows increasing trend in green tea leaf production in the Estate. It was slightly less in 2012 compared to the previous two years. This year had a record of lowest rain fall in the last five years since 2009 to 2013. 2010 experienced 33% growth in production over the previous year. 2012’s total production was more than that of 2009. So, we see that there is an increasing trend in green tea leaf yield. This has been made possible without using chemical fertilizers and pesticides.

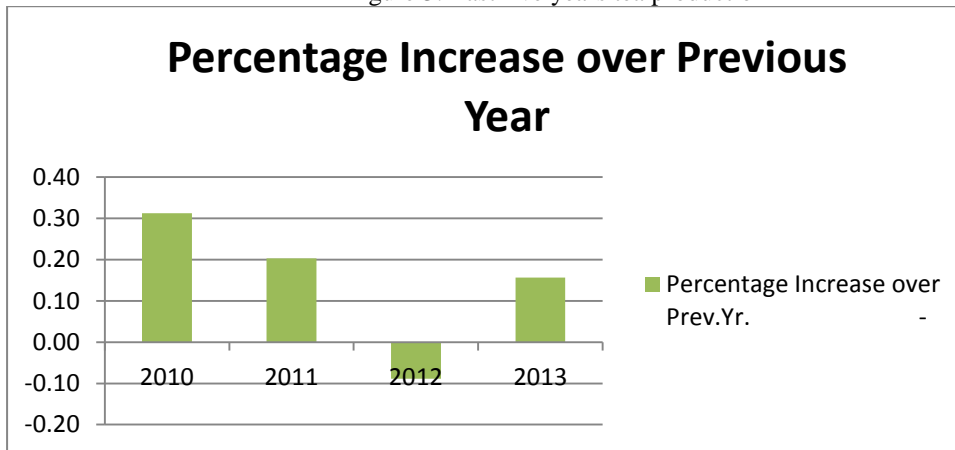
Figure 2



Source: Unpublished data from the farm.

The chart shows that the farm experienced varying rate of increase in production. Total production in 2013 was more than that of 2010.

Figure 3: Last five years tea production

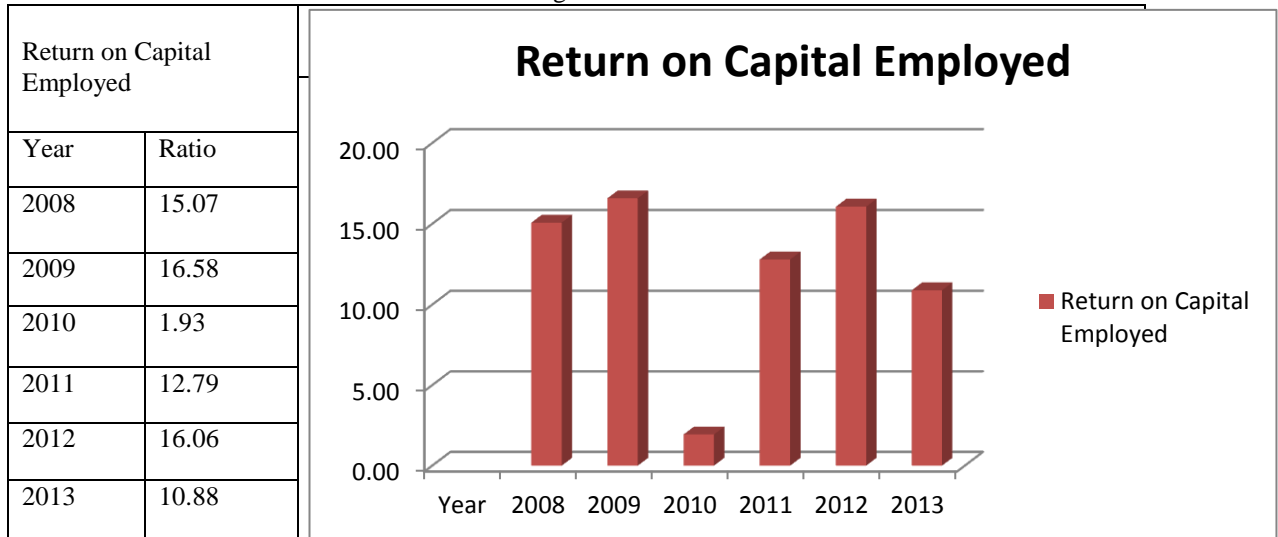


Source: Unpublished data from the farm.

The chart shows the same trend as it was in case of green tea leaf production.

#### 4.3 Increasing Revenue (Responsibility to stockholders)

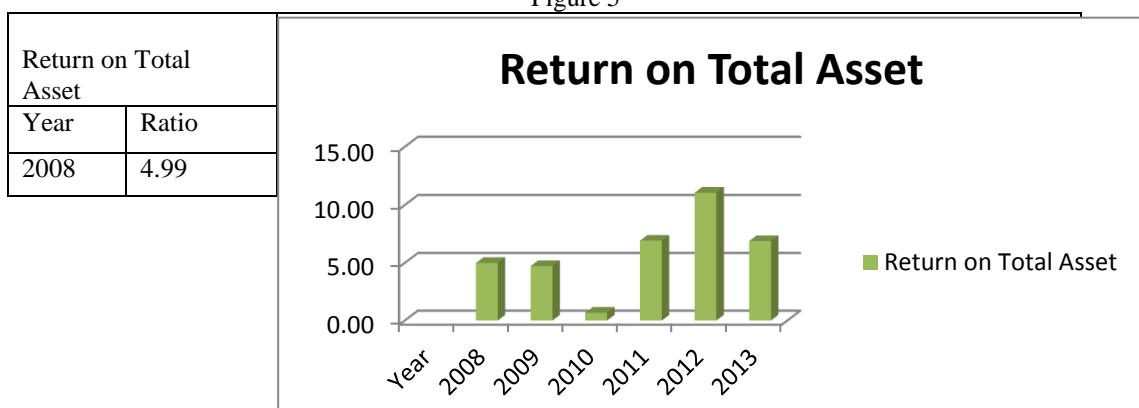
Figure 4



Source: Unpublished data from the farm.

We see from the chart that the estate could maintain almost stable rate of return on the capital employed except in 2010.

Figure 5

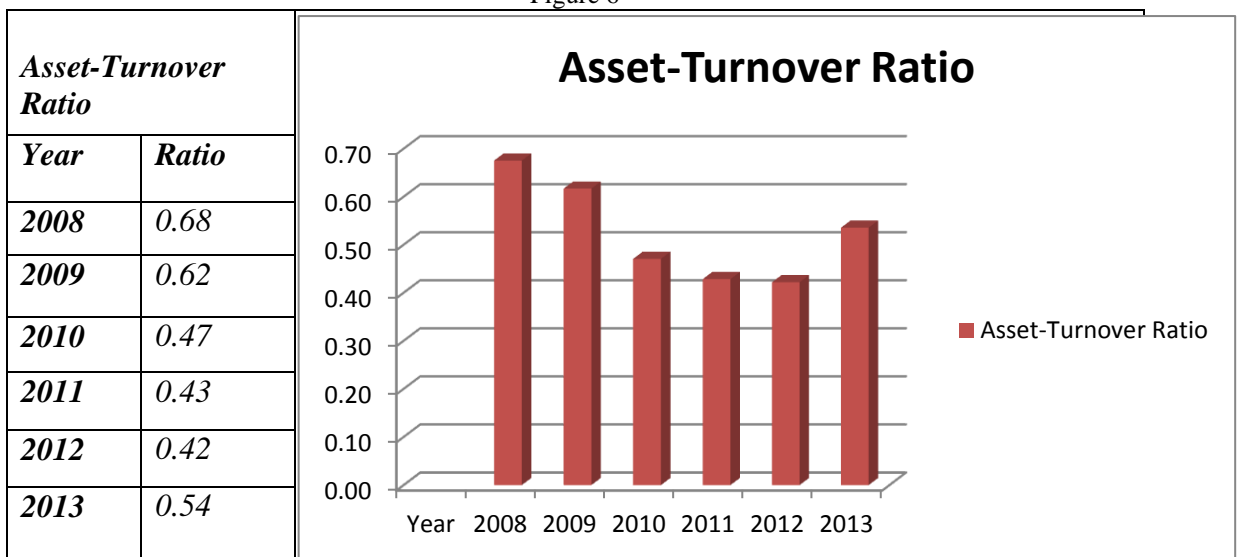


2009	4.72
2010	0.67
2011	6.93
2012	11.05
2013	6.89

Source: Unpublished data from the farm.

Ratio is calculated using total assets (operating) as the denominator. This ratio measures the extent to which the available resources have been effectively used. Except in 2010, there has been a stable ratio. Current assets were less than current liabilities all the years under study implying over trading and weakness in liquidity position.

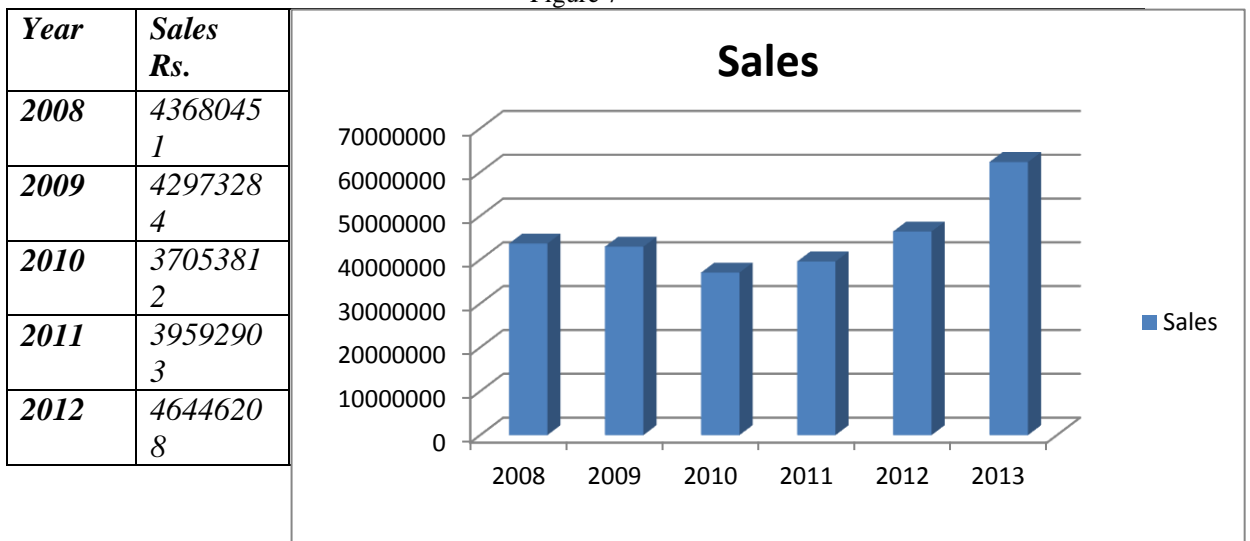
Figure 6



Source: Unpublished data from the farm.

The ratio measures farm's ability of generating sales from its operating assets. This was very good in 2008 and 2009 after which decreased till 2012 and again has shown upward moving in 2013.

Figure 7



<b>2013</b>	6231071 4	
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Source: Unpublished data from the farm.

Farm`s total sales shows upward trend since 2010.

Table 2: Annual Rainfall for five years

<b>Year</b>	<b>Rainfall (cm)</b>
<b>2009</b>	369.9
<b>2010</b>	366.87
<b>2011</b>	409.61
<b>2012</b>	308.27
<b>2013</b>	375.82

Source: Unpublished data from the farm.

Annual rain fall was lowest in 2012. The farm depends on rainfall for irrigation in most of the gardens of the estate; shortage in that may affect the yield of the green tea leaf considerably. Alternative ways of irrigation is to be explored and maintained side by side to cope up with the adversity.

## **5. Conclusion**

### **5.1 Preserving the Environment**

Current agriculture system in India that defies laws of nature is unsustainable and worsening. There is no doubt that present agricultural system has some adverse effect on environment. It caused natural capital like top soil, water, nutrient and diverse species to degrade over time, according to Goodland (1997). Excessive use of chemical fertilisers, pesticides, mono-cropping and other intensive agricultural practices the like has exploited the environment to the maximum possible, in such that, we are now seeing it difficult to sustain even the present production level, not to talk about of increasing the production to feed the increasing population.

To change this situation, to turn around from this, we have no other way than to resort to the ecological farming or sustainable farming. Our age old valued practices like mixed cropping, crop rotation, using organic manure and pest management are to be brought back to keep our agriculture sustainable. This is necessary so as to rejuvenate our soil and water resources, to protect our climate, to maintain bio-diversity and to resist the chemical intensive model of agriculture which was ‘imposed up on us through the Green Revolution in 1965’, according to Green Peace,(2014).

“Small-scale farmers and agro-ecological methods are the way forward if the current food crisis is to be solved. To meet the needs of local communities, indigenous and local

knowledge need to be declared as important as formal science,” concluded by International Assessment of Agricultural Science and Technology for Development [IAASTD], an initiative of the United Nations and World Bank, as summarized by Green Peace (2014).

Agro-forestry is to be promoted as it helps to produce biomass which is useful as green manure. Cultivation of green manure crop of short duration between two crops is another option to enhance soil fertility. Adaptation of dairy farming and installation of biogas plants can generate farmyard manure, as well as, additional income and energy. Agricultural byproducts and domestic garbage can be used for composting. Use of earthworms can further improve the quality of the manure. All these new concepts coupled with old proven agricultural practices and suitable management and co-ordination system will not let us down in the long run, as indicated by Green Peace (2014).

### **5.2 Benefits of Sustainability:**

Today we see, leading sustainability companies show high levels of competence in addressing global and industry challenges in varieties of areas :-

- i) Strategy – integrating long-term economic, environmental and social aspects in their business strategies while maintaining global competitiveness and brand reputation.
- ii) Financial – meeting shareholders` demands for sound financial returns, long-term economic growth, open communication transparent financial accounting.
- iii) Customer and Product – fostering loyalty by investing in customer relationship management and product and service innovation that focus on technologies and systems, which use financial, natural and social resources in an efficient, effective and economic manner over the long-term.
- iv) Governance and Stakeholders – setting the high standards of corporate governance and stakeholder engagement, including corporate codes of conduct and public reporting.
- v) Human Resources – managing human resources to maintain workforce capabilities and employee satisfaction through best-in-class organization learning and knowledge management practices and remuneration benefit programs.

This we can expect from an agricultural farm also if sustainability practices be can successfully implemented there in.

### **5.3 Picture of the state and the country**

Ananda Bazar Patrika (2013) article indicates that according to Minister of Labour of West Bengal Mr. Purnendu Basu, out of 278 tea gardens of the state, 25 are sick and 6 are closed. Problems in drinking water supply, electricity, etc., are faced by working gardens. There had been no study on the economic conditions of the tea gardens in the last three decades. The low wages of garden workers are of most concerns. In the last three years, their wages were raised to meager Rs.95 only from Rs.65. Side by side, steps are to be taken for

weeding and getting new plantations done through 100 days job schemes to improve the health of the gardens.

According to Greenpeace India (2014), though with the industrial expansion in India, contribution of agriculture to country's GDP is falling, it is still occupationally holding the first place in the economy. But, slow agricultural growth is a concern for policymakers as some two-thirds of India's people depend on rural employment for a living. Current agricultural practices are neither economically nor environmentally sustainable and India's yields for many agricultural commodities are low. According to the World Bank (2008), poorly maintained irrigation systems and almost universal lack of good extension services are among the factors responsible; farmers' access to markets is hampered by poor roads, rudimentary market infrastructure, and excessive regulation.

Chottopadhyaya's (2014) article indicates that in the closed tea gardens of doors in WB 35 people died of starvation or malnutrition in the last one year as was disclosed in a joint recent work of NABARD and Indian Institute of Statistical Institute (ISI ) on tribal poverty. Chottopadhyaya suggested that different private social welfare organizations like R.K.Mission are preferably to be engaged in developmental activities than the government initiatives as latter being less successful owing to lack of quick action, corruption etc. Here, we see that private organizations with good will, close and direct supervision and control are more likely to succeed in bringing in the required change in the agriculture also. It is necessary to provide them with proper knowledge and experience based planning.

All round concerted efforts are required for applying sustainable agricultural practices over wide area. We have to act locally and think globally. Examples from experienced and successful micro organizations are to be followed in this regard.

#### **5.4 Regarding Management of Change towards the sustainability**

Sustainability is not a talk of short run. Keeping a target in view we have to move ahead continuously for long time and also once we reach that sustainable stage, have to maintain that for endless future also. Here lies the importance of being able to identify the new constrains or problems if any and also to explore new thoughts and ideas for further improvement if possible. We have to be careful about the deviations and in case they occur, corrective measures are to be taken to be on the track. Hence, for this purpose, it is necessary that the required goal specific performance indicators are selected and proper feedback and information are collected and reported timely.

If we do not measure and get feedback on the performance over time continuously without any break, we may not be able to take note of successes and deviations.

### **6. Suggestions**

According to the Thematic Group on Sustainable Agriculture and Food system of the Sustainable Development Solutions Network (2013), clear operational metrics are to be developed to reach the target of sustainable development. Indicators help in measuring the change. “Countries must have the capacities to measure robust indicators of progress. Metrics are important for setting a base line by which to measure progress, for tracking and anticipating socio-economic, nutritional and ecological change,” (SDSN, 2013,p-54). Aggregate national data fails to provide measures of local economic, social and ecological change. Hence, according to SDSN (2013), a core set of agreed upon indicators to be developed; necessary data is to be collected in a systematic reliable manner; and , for this purpose, upbringing of human resource and infrastructure, including new information technology is most important.

According to Greenpeace India (year), there is need to close the gap between theory and practice of sustainability in agriculture. The lack of systematic and transferable indicators which characterize agricultural and other eco-systems regarding all dimensions of sustainability, the deficit of an adequate evaluation of agro-ecosystem and the lack of principal guidelines for the formulation of management advice for practical application restrict to transfer the theoretical sustainable paradigm into agricultural practice.

“An agricultural farm as a whole is an organism and therefore should have a self-nourishing system,” said Steiner, R, as summarized by Banerjee (2008). Therefore, if approached sincerely, a sustainable system may be expected to be able to cure the problems of low productivity, poor infrastructural facility, lack of government support, insufficient credit system and absence of alternative income opportunities and suitable counseling services like a living being through maintaining all round balance in order to survive and prosper.

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