
The impact of organic transformation: strategies and innovative ideas towards profitability – a case of Hathikuli Tea Estate

Tripti Paul* and Sandeep Mondal

Indian Institute of Technology (Indian School of Mines),

Dhanbad, Police Line, Sardar Patel Nagar,

Hirapur, Dhanbad, Jharkhand 826004, India

Email: tripti_paul2004@yahoo.com

Email: sandeepmondal@hotmail.com

*Corresponding author

Abstract: Tea has occupied an important place in India's economy for the last several decades. But in the recent time, India's contribution to global tea production and exports are trailing behind. The study examined how an ordinary tea estate becomes sustainable at the same time increase the production of high-quality tea and captures the global market as well. The purpose of this paper is to study the operational challenges that a tea garden faces during the organic transformation, and comprehend the benefit of the organic transformation of a tea estate with reference to the outstanding practices and innovative business ideas of 'Hathikuli Tea Estate'. The paper reveals that, by bearing a huge loss, Hathikuli Tea Estate transformed into a sustainable organic tea garden, not only to capture the premium market of organic tea but also to dedicate efforts towards conservation of nature and provide the eco-friendly working environment. At the same time, the estate become profitable by introducing innovative ideas such as grow multiple products using the same resources, develop optimism tea supply chain to sell the organic tea by inventing a 'tea boutique' concept. The study includes a two-year detailed analysis of various tea estates in Assam including Hathikuli Tea Estate. Therefore, the study offers practitioners with a concise and pragmatic approach towards strategic decision making for organic transformation of a tea estate.

Keywords: organic transformation; organisational strategy; tea estate; tea supply chain; organic tea.

Reference to this paper should be made as follows: Paul, T. and Mondal, S. (2021) 'The impact of organic transformation: strategies and innovative ideas towards profitability – a case of Hathikuli Tea Estate', *Int. J. Strategic Change Management*, Vol. 7, No. 3, pp.217–234.

Biographical notes: Tripti Paul is a Senior Research Fellow at Indian Institute of Technology (Indian School of Mines) Dhanbad, India. Her areas of interest are supply chain management, and productivity improvement in service and manufacturing sectors and operations management.

Sandeep Mondal is an Associate Professor at Indian Institute of Technology (Indian School of Mines) Dhanbad. He completed his Master degree from Indian Statistical Institute, Kolkata and his PhD in Remanufacturing from Indian School of Mines, Dhanbad. He has done several projects funded by UGC and MHRD. His areas of interest are reverse logistics, remanufacturing and empirical data analysis.

1 Introduction

Majority of the tea producing countries are located in the continent of Asia where China, India, Sri Lanka are the major producers. Kenya, Malawi, Rwanda, Tanzania, Uganda are the tea growing countries in the continent of Africa, where some quantities of tea are also being produced. Tea cultivation is confined only to certain specific regions of the world due to specific requirements of climate and soil condition. India is the second largest producer of tea (*Cammellia Sinensis*) (Kadavil, 2005a; Karmakar and Banerrjee, 2005) in the world after China (Fallis, 2013) (Appendix 1). Where, Assam produces 52% of the tea produced in India (Tea Board of India, 2015) and about 1/6th of the tea produced in the world (Tea Board of India, 2017). Currently, many tea gardens in Assam are becoming old, and the productivity of these old gardens is declining. A huge number of tea gardens of the state have gone sick over the period, due to inadequate infrastructure, and using chemical fertilisers and pesticides for cultivation. The tea industry should be modernised through changes in plantation technique for improvement in quality and overall managerial excellence like quality improvement, cost effectiveness, optimise the tea supply chain, and newer export market identification (Roy, 2011), and to achieve this organic tea cultivation and production of organic tea is one of the best way. Cultivation in the organic way can maintain soil quality. The chemical use is hitting the sustainability in soil and decreasing its potency. Applying organic manure is the only solution to increase the productivity of a tea garden which was continuously depleting due to the use of the chemical farming method. So, adopting the organic farming by a tea garden not only increase the tea leaves production of their garden but also able to capture the organic Tea market which increases rapidly, because of the customers' health consciousness.

Although, India is one of the largest black Tea producers in the world (Kristbergsson and Ötles, 2016) but, has less number of organic tea gardens; though organic tea has huge market potential throughout the world. Some of the greatest challenges to organic farming are the initial crop loss and the overhead cost of hiring additional labour. On the other hand, the annual registration fee for organic certificate is also expensive (Gebauer and Mahoney, 2014; Bedingham and Thomas, 2006).

Hathikuli Tea Estate (<http://www.hathikuli.com/>) is an Indian tea plantation and manufacturing company under APPL (<http://amalgamatedplantations.co.in/>) (Appendix 2), started its journey in 1902 and now is Asia's largest organic garden. Management of APPL believes that the objective of any business should be to improve the quality of people's life; hence they framed a structure of welfare commitments for the workers of Hathikuli Tea Estate. Beyond that they give them pollution free healthy and organic working atmosphere. The estate adopts sustainable practices such as well-defined soil control process, use of herbal pesticides and vermicompost. The Hathikuli Tea Estate has received its organic certification in 2011. By bearing cumulative loss around 160 million INR, Hathikuli Tea Estate transformed into an organic tea garden, not only to capture the premium market of organic tea but also to dedicate efforts towards conservation of nature and to provide eco-friendly working environment. They have also introduced a new tea retailing concept called as 'tea boutique'. With this concept, 'Hathikuli Organic' tea brand able to capture a huge organic market. The key to success behind this venture is its lean supply chain where the tea leaves reaches the customer's cup of tea directly from the garden. Hathikuli Tea Estate not only produces organic tea, but also produces organic black pepper and inorganic fish. These multiple products make

the estate even more profitable (as per our discussion with the employees of Hathikuli Tea Estate).

The basic objectives of this study are: analyse the Indian tea industry in brief; study the tea plantation, production, operation process of the 'Hathikuli Tea Estate' with focus on best practices and innovative business ideas; identify the transformational challenges and strategic benefits of organic garden.

2 Background of the Indian tea industry

It has been a long journey for the Tea industry in India since the 18th Century (Dikshit and Dikshit, 2014). However, the country began its commercial production of tea after the conquest of large areas by the British East India Company in 1830's (Lader, 1994) in Brahmaputra valley, Assam. 'Green tea leaves' are plucked from the garden and processed in the tea factory. Tea leaves are plucked from 2nd or 3rd week of March to 1st or 2nd week of October (it varies from garden to garden). Very few tea leaves are plucked from November to February. Assam, Darjeeling, and Nilgiri are the three famous Tea growing regions in India. Darjeeling tea, known as the 'champagne of tea', it became world renowned because of its flavour (Datta, 1999), where Assam tea is famous for their bright liquor with distinctive taste (Roy, 2011), and, Nilgiri tea has a bright, amber colour and a refreshing, subtle taste (Mansingh and Johnson, 2012).

In 1838, the first shipment of 'Assam tea' was shipped to England (Sarma, 2011; Roy, 2011) that time tea gardens were growing rapidly across Assam. However, by 1860 tea production spread to other parts of India (Lader, 1994; Mohan, 2016). At present, India has over 563.98 thousands hectares under tea cultivation, 1,692 registered tea manufacturers, nine tea auction centres and 2,200 registered tea exporters according to the Tea Board of India, and total tea production was 1,233.14 million kilograms and 232.92 million kilograms was exported which worth was around 44,931 million INR¹ in 2015–2016.

In India, total area under organic certification is 5.71 million hectare and produced around 1.35 million MT of certified organic products which includes all varieties of food products namely sugarcane, oil seeds, cereals and millets, cotton, pulses, medicinal plants, tea, fruits, spices, dry fruits, vegetables, coffee, etc. (Willer Helga, 2015). The total volume of export during 2015–2016 was 263,687 MT. The organic food export realisation was around 298 million. Whereas organic tea contributed only 2% of the total organic products exported from India (Groosman, 2011). Therefore, it is clear that India has a fewer number of organic tea Gardens although it has huge market potential throughout the world (Tea Barometer, 2010).

Organic Tea cultivation and production cost is 25% more than conventional tea cultivation and production costs, therefore, this challenge account for the unwillingness of majority 'tea garden owners' to adopt organic techniques for their tea gardens. Considering this limit, the Tea Board of India is giving a big push to organic tea production by declare special incentives towards the cost of conversion into an organic garden, and also takes following few steps to increase organic tea production in India (Tea Board of India, 2013b):

- 1 Subsidy and incentive:
 - Provide subsidy for conversion from conventional to organic cultivation about 0.2 million INR/subsidy/per hectare. in two instalments:
 - a 1st instalment: about 0.05 million INR/per hectare.
 - b 2nd instalment: about 0.15 million INR/per hectare.
 - Provide incentive for the planting and certification cost.
- 2 Workshops and training:
 - Workshops at a maximum of about 0.02 million INR/per workshop to be conducted at field level by sub-regional offices of the board.
 - Need based campus training and seminars are also conducted.
- 3 Study tours:
 - Conducted study tour at a maximum of about 0.05 Million INR/per journey (by air is not allowed).
- 4 Promotion:
 - Promoting organic tea growers to participate in International fairs and exhibitions.
 - Advertisements on PPC, Bulk SMS and other modes of information dissemination and publicity are also covered under Tea Board.

It is a progressive move by the Tea Board of India to encourage tea garden owners to adopt organic techniques. These incentives lead to a huge growth of organic tea garden as compared to the previous conditions (Table 1). Some Tea gardens such as Hathikuli Tea Estate became organic even before the announcement of any special incentives by the Tea Board of India.

Table 1 Growth of organic tea gardens (in 2013)

	<i>In 2007</i>	<i>In 2013</i>	<i>Percentage growth</i>
Number of organic tea gardens	53	77	45.28 %
Area under organic tea (in hectares)	10,208	15,726	54.05 %
Production (in million kilogram)	7.64	11.09	45.15 %

Source: Tea Board of India

2.1 *Tea Board of India*

The Tea Industry, by an Act of Parliament, comes under the control of the Union Government. The genesis of the Tea Board India dates back to 1903 when the Indian Tea Cess Bill was passed (Nair and Ghosh, 2005). During the initial years, the tea industry was governed by the Indian Tea Licensing Committee functioning under the Indian Tea Control Act, 1938 and the Central Tea Board functioning under the Central Tea Board Act, 1949. However, these bodies were repealed and consequently the Tea Board was constituted on 1st April 1954 u/s 4 of the Tea Act 1953 and has headquarters in Kolkata, West Bengal. The Tea Board of India is separated into Standing Committees referred to as the Executive Committee, the Development Committee, the Labor Welfare Committee

and the Export Promotion Committee. Along with head office, it has 23 offices which include zonal, regional and sub-regional offices at various cities in India, and three foreign offices in London, Moscow and Dubai. The objective of the tea board is to promote the cultivation, processing, and domestic trade as well as Tea export from India (<http://www.Teaboard.gov.in/>).

2.2 Tocklai Tea Research Institute

Tocklai Tea Research Institute in North-East is an important centre of research for tea in India, it gives advice on soil fertility and plant nutrition, pest and disease management methods, develop appropriate technologies for Tea processing, and develop management tools for quality tea production (<https://www.tocklai.org/>). It is Asia's largest and oldest tea research institute established in 1912 (Sarma, 2011). Tocklai has tied up with National Aeronautics and Space Administration (NASA) in its soil-mapping project. NASA has been instrumental in helping out the Indian Tea industry that suffered many hitches due to climate changes that resulted in unpredictable weather and increasing pest attacks (As per our discussion with the scientists of Tocklai Tea Research Institute).

3 Background of the Hathikuli Tea Estate

Hathikuli Tea Estate (Tea Board of India, 2010) is one of the biggest employers in the Kaziranga area and not only India's but also Asia's largest organic garden (Talukdar et al., 2009). Imagine one-horned rhinoceros and elephants moving leisurely around the Tea Garden, this silence is busted by the singing birds and buzzing of insects. That is the nature of the Hathikuli Tea Estate, established near Kaziranga National Park (Appendix 3) in 1908. According to the Assamese language 'Hathi' means elephant and 'Kuli' means frequent, that means 'Hathikuli' is a place which is frequently visited by elephants. It is situated adjoining the Kaziranga National Park and the Karbi Anglong Hills. The estate is spread over two districts: Golaghat and Karbi Anglong in Assam. The estate stretches for 15 kilometres along the National Highway (NH-37) and spread across 674.65 hectares (Figure 1). In 2007 Hathikuli Tea Estate adopted an organic way of farming and received its organic certification in 2011 (Tea Board of India, 2013a) (Exhibit 4).

Hathikuli Tea Factory has the capacity to produce 1,000 tons of organic tea. They mainly produce three types of teas namely: CTC, green tea and orthodox². Retails packs of certified tea under the brand name of 'Hathikuli Organic' are available in five varieties (Table 2) in Hathikuli Tea Shop, online shopping sites (Appendix 5), and mega-retailers such as 'Spencers' and 'Metro Cash & Carry'. The 'Hathikuli Organic' Tea is also exported to the US, UK, Germany, and West Asian countries.

Average total annual production of Hatikuli is nearly 600 metric tons including organic tea, organic black pepper, and inorganic fish, and is India's largest integrated organic farm.

Figure 1 Geographical location of the Hathikuli Tea Estate (see online version for colours)

Source: Google Maps

Table 2 Available varieties of ‘Hathikuli Organic Tea’

Sl. no.	Tea type	Weight
1	Hathikuli Organic Green Tea	100 grams
2	Hathikuli Organic Green Tea	250 grams
3	Hathikuli Organic CTC Tea	100 grams
4	Hathikuli Organic Leaf Tea	100 grams
5	Hathikuli Organic Tea Bags	100 grams (25 tea bags)

Source: Hathikuli Tea Shop

3.1 Best practices in Hathikuli Tea Estate

APPL is founded on some pronounced beliefs like: “Real purpose of a business is to improve the quality of people’s life” and “Bringing a smile across faces is as rewarding as profits in company’s balance sheets.” Therefore, APPL has always focused on the aspirations of the community around it by committing itself to create an enabling environment for their employees and surrounding wild life frequently visiting the estate. The estate has an in-house bio production and vermi-compost units for organic formulations for soil nutrition, foliage growth and integrated pest management. The estate also implements the rain forest’s instructions on waste disposal methodically (as per our discussion with the employees of Hathikuli Tea Estate).

- *Eco-friendly working environment* – Hathikuli uses all natural agricultural practices and have encouraged newer species of birds, animals and insects to thrive in the region, and become a testament to the commitment towards safeguarding the rich bio-diversity of the Kaziranga region and a clarion call for other plantations in the area to adopt similar measures.
- *Soil control process* – Hathikuli Tea Garden does not use artificially produced manures like urea in the plantation; rather they use vermin-compost and heap

compost to enrich the humus and organic compounds in the soil. In addition, hedges are planted along the peripheries to prevent soil erosion. Use of bio-fertilisers in the garden reduces the chemical load on soil and increases its productivity and health in the long term.

- *Herbal pesticides* – Herbal pesticide is a part of pest management method used to control unwanted plants. Pest management used in organic Tea farming is focused more on taking steps to prevent the growth of pests. The Hathikuli Tea Estate uses a mixture of various herbs produced in-house using conventional methods. Variety of exotic herbs which have anti-pest properties are plucked, collected, cut, chopped and fermented for 72 hours and used to control pest in the tea garden. Another method of pest management is the use of natural predators like birds/insects/bacteria that are natural enemies to pests. In order to create an environment suitable for birds to nest, Hathikuli Tea Estate has planted several fruit trees apart from the shade trees, in the Estate.
- *Vermicompost* – In order to sustain as an organic tea producer, Hathikuli Tea Estate uses vermicompost instead of chemical fertilisers. This vermicompost is made with the dung of lactating cows and mixing it with water hyacinth or banana tree trunk. No artificial/chemical soaps or detergents are used in the processing unit for distillation purpose. They use Reetha³ (Sapindus) for distillation. They meticulously train the workers to be able to adapt these traditional cultural practices. The process requires 20% more workers for the same amount of work. The vermicompost production unit at Hathikuli Estate has an annual capacity of 1,100 million tons in a year, which is touted to be one of the largest such units in the North Eastern.

4 Strategic benefits of organic garden

Although, organic farming has lots of challenges, also have huge long term benefits, which encourage the management of APPL to take the decision.

4.1 Environmental conservation

Management of APPL dedicates efforts towards conservation of nature, so Hathikuli organic growers work in harmony with nature by maintaining ecological balance.

- *Improve the ecology of Kaziranga National Park:* As the estate is situated adjoining the Kaziranga National Park, the management⁴ of APPL sought to preserve and protect this heritage from chemical farming (monocultures) and its negative impacts on environment as well as soil fertility, by restoring its soil ecosystem with the help of organic tea farming methods.
- *Provide eco-friendly working environment:* They provide an eco-friendly and healthy working environment for the workers.
- *Protect wildlife:* By refining the overall ecological system of Kaziranga National park, they are providing the wild life with an eco-friendly and healthy environment for them to survive in a natural habitat.

4.2 Business enhancement

Apart from environmental conservation, organic cultivation enhancement the business in follows ways:

- *Capture organic market:* Organic tea segment is estimated to occupy a dominant market position, due to the increasing awareness amongst people about the health advantages obtained from the organic Tea and the organic market is expected to grow in the coming years. Hathikuli Tea Estate exploited this opportunity.
- *Increase export:* They are also trying to capture the organic export market which is rapidly growing every year (Hm et al., 2017). In the organic export market, they are targeting countries like Germany and Japan besides US and UK.
- *Increases productivity:* Hathikuli is one of the oldest tea garden in Assam that initially used conventional techniques of farming with chemical fertilisers and pesticides. This hampered its productivity as well as quality. And this is the other reasons which also encourage the management to convert this garden as organic. As a result of adopting organic farming methods they could take the advantage of increase in production of good quantity and quality of tea, which was continuously depleting due to the use of chemical farming methods.

Therefore, organic tea farming not only improves soil quality in terms of organic matter and biological parameters, and brings high tea quality in terms of high concentrations of antioxidant compounds, but also upgrades the industrialisation and systematisation levels of tea enterprises as well.

5 Transformational challenges

The estate faced following challenges during the organic transformation (as per our discussion with the employees of Hathikuli Tea Estate):

- *Crop loss:* Organic method of tea farming leads to immediate crop loss during the conversion period including five years of gestation period after adopting organic techniques, and takes almost 10 to 12 years to regain the original level of production. In Hathikuli, initially the production fell from 800 ton (in 2007–2008) to 350 ton (in 2009–2010) because they were not using chemical fertilisers to control pests. But the production started increasing gradually and currently its production is 1000 ton which is even better than the previous production.
- *Increase labour cost:* The organic garden requires more human efforts to maintain the organic field input, especially for plant protection. This meant additional labours and in turn additional cost required in employing extra labourers for field inputs and proper maintenance of the plantations.
- *Annual registration fees:* In order to fetch a premium edge it is necessary that the tea growers get their organic tea garden certified for which they have to pay a large amount of registration fees every year, which includes an application fee, site inspection fee, and an annual certification fee. This involves additional cost thereby increasing the production cost indirectly. And the other limitation is, the domestic

and foreign certifications are not recognised each other, resulted in high cost of certification as this estate sells its organic tea both in domestic and foreign markets.

- *High production cost:* Average yield after adopting organic techniques drops by 44% and the cost of production increases over 65% as compared to the conventional cultivation technique.

6 The way forward through innovative business ideas

After facing huge losses during and after organic transformation, they are forced to review their strategies towards profit. In 2007 the management came up with a strategy of using their available resources to cultivate black pepper and fishery. This strategy raised their substantial revenues. The estate also introduced compelling business strategies such as optimised tea supply chain and tea boutique concept which elevated the estate to new heights (as per our observation, and discussion with the employees of Hathikuli Tea Estate).

6.1 Multiple product lines

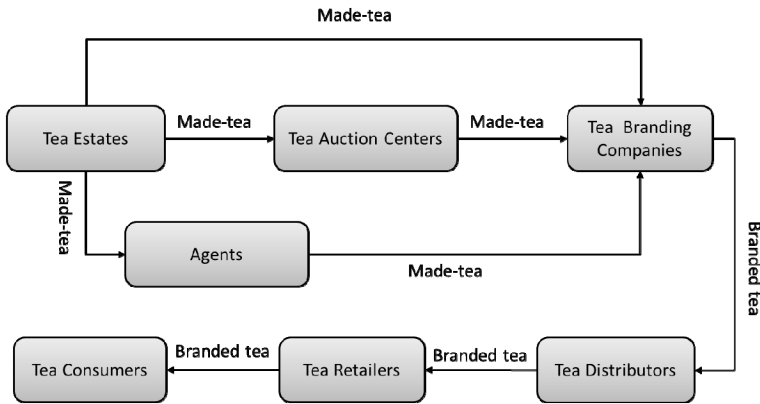
Tea plants grow better when planted along shade of trees. ‘Sarish’ (*Albizia lucida*) trees are mainly used as shade trees in Assam. Although these shade trees do not add any additional revenue to most of the tea gardens in India. Where, Hathikuli Tea Estate utilises the shade trees to earn additional revenue. Hathikuli Tea Estate uses its shade trees as supporting trees for Black pepper plants and started cultivating Black pepper (*Piper nigrum*) along with tea. The pepper plant is a perennial woody vine growing up to 4 metres (13.12 ft) in height with the help of supporting trees (or poles, or trellises). The cost and efforts required to cultivate black pepper are low since, they use available resources from Tea garden.

They have also taken up fishery in the garden ponds which are used to supply water to the garden. Rohu (*Labeo rohita*) and Katla (*Catla catla*) fish from the carp family are produced in the estate. Fish are sold at farm gate, local markets and at its kiosks at Hathikuli gardens in the state. APPL has tied up with Fish Research Centre, AAU and CIFA, Bhubaneswar for technical guidance.

6.2 Optimised tea supply chain

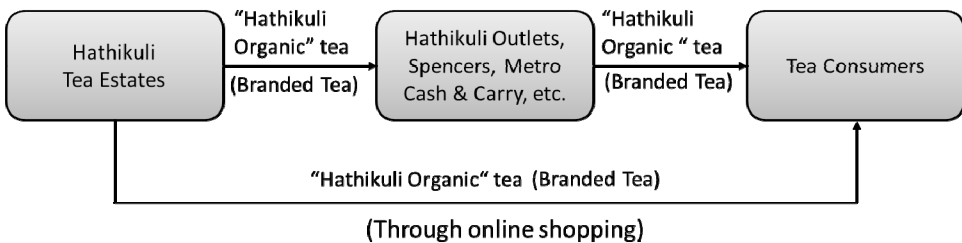
This study found that, generally a tea estate (i.e., tea processing factory of a tea estate) produces ‘made-tea⁵’, which is sold to various tea branding companies through Tea Auction Centre. In many cases, tea estates also sell some amount of their produce made-tea to the agents or directly to the tea branding companies. After purchasing, the made-tea from the tea estate the agents sell the same to the tea branding companies. The tea branding companies produce ‘branded-tea’ (as a finished product) after blending and packaging (Braga et al., 2012) of the made-teas. Then, the ‘branded-tea’ reaches the end customers through a distribution network of distributors and retailers (Figure 2) (Kadavil, 2005b; Ganguli, 2014). Therefore, a traditional tea supply chain in Assam includes a numbers of players such as, tea estates, tea auction centre, tea agents, tea branding companies, distributors, retailers and tea consumers.

Figure 2 Tea supply chain of a common branded tea



Source: Created by Authors based on field study in Assam

Figure 3 Supply chain of the Hathikuli Organic Tea



Source: Created by authors based on field study in Hathikuli Tea Estate, Assam

Whereas, Hathikuli Tea Estate has the capacity to produce 10 lakh kilograms of final products (Hathikuli Organic⁶) such as Hathikuli Organic CTC Tea, Hathikuli Organic Leaf Tea, Hathikuli Organic Green Tea, those are directly sold from Hathikuli outlet, which is situated in the periphery of Hathikuli Tea Estate and another one in Gauhati. Hathikuli Organic Teas have also tied up with mega-retailers like ‘Spencers’, ‘Walmart’, ‘Nilgiri’ and ‘Metro Cash & Carry’, and even sell products through online (Figure 3). Thus, management of the Hathikuli has successfully optimised the tea supply chain in height level.

Therefore, Hathikuli Tea Estate is the only player of this ‘optimised tea supply chain’ apart from the customers: cultivates tea leaves as a ‘raw material supplier’, manufacture Hathikuli Organic Tea as a ‘manufacturer of branded tea’, and finally sell the product (organic tea) in their own outlets (or through online) as a ‘retailer’.

This optimum tea supply chain is faster and increase the profitability of ‘Hathikuli Organic Tea’ by reducing supply chain costs through the optimisation of the network infrastructure.

6.3 *Tea boutique*

The Estate established its first Tea boutique 'Hathikuli Tea Shoppe' in its own estate area on NH-37 road where they sell their organic products in retail. This tea shop is located nearby Kaziranga National Forest where a number of tourists from distinguish parts of India and world visit through the year and often purchase different types of organic Tea from the 'Hathikuli Tea Shoppe'. To globalise the 'Hathikuli Organic' tea brand, the estate recently established another tea boutique shop in Guwahati, which provides a one-stop tea shopping experience to the tourists as well as the local tea lovers.

They choose Guwahati for their second boutique location because the city is major educational, cultural, political, transportation, commercial hub, and also as it serves to be the gateway to the Northeast. The prime objective of this tea shop is to promote Assam organic tea rather than earning profits. This initiative may encourage others to open up similar ventures in Guwahati, or other smaller cities of the region.

7 **Conclusions**

India is the second largest black tea producer in the world but, has less number of organic tea gardens; though organic tea has huge market potential throughout the world. Governing Body of Tea Industry, i.e., the Tea Board of India is making sincere efforts to increase organic tea production by offering special incentives towards the cost of transformation from conventional to organic garden. Tocklai Tea Research Institute has covered almost all aspects of tea cultivation and processing within the scope of its research activities.

Hathikuli Tea Estate is an Indian tea plantation and manufacturing company under APPL, started its journey in 1902 and now is Asia's largest organic garden, spread across 674.65 hectares, situated adjoining the Kaziranga National Park, Assam. The paper reveals that, by bearing a huge loss, Hathikuli Tea Estate transformed into a sustainable organic tea garden, not only captures the premium market of organic tea but also to dedicate some positive attitude to nature and to provide eco-friendly healthy working environment. Now Hathikuli Tea Estate is one of the biggest employers in the Kaziranga area and the Asia's largest organic garden. The garden has the capability to produce 10 lakh kilograms of organic black CTC, Orthodox, and Green tea. Instead of chemical fertilisers, they use vermicompost and instead of dangerous pesticides, they let nature create its own predators of pests. Hathikuli Tea Estate not only produces organic Tea but also cultivate organic Black pepper and inorganic fish spawns, this feature rendering the estate as a firm with total annual production nearly 600 metric tons (including all products). In 2007 Hathikuli Tea Estate started its organic transformation and received its organic certification in 2011. The Estate has received its organic certification in 2011. OneCert Asia is the certifying body for Hathikuli Tea Estate; it is accredited by Agricultural and Processed Food Products Export Development Authority (APEDA) under National Programme for Organic Production (NPOP).

Organic farming is a production system which escapes the use of pesticides and synthetically compounded fertilisers. Organic farming system is dependent on crop rotations residues, animal manures, legumes, green manures, off-farm organic wastes, and aspects of biological pest control to maintain soil productivity. Tea qualifies as

organic only when there is active use of environment-friendly techniques and it is certified to be so by the accredited inspecting authority.

Due to the closeness of the World Heritage Site ‘Kaziranga National Park’, management of the APPL took the organic transformation decision for Hathikuli Tea Estate, to give a tribute to the nature and the wildlife of the Kaziranga National Park. This novel objective not only improves the ecology of Kaziranga National Park and save wildlife but also improves the sustainability of the Estate in the following ways:

- provides the eco-friendly working environment
- increase productivity of the garden
- improve the quality of the tea
- captures organic market that commands high prices
- increase export of ‘Hathikuli Organic’ tea.

Hathikuli Tea Estate faced a lot of challenges during the transformation such as immediate crop loss, requires much more efforts to maintain the organic field input which increase labour cost, need to pay a big amount of annual registration fees to get the organic certificate, high production cost. But, to avoid being marginalised, Hathikuli Tea Estate finds ways to grow by introducing multiple product lines, optimised tea supply chain and tea boutique concept which make this estate extremely successful and profitable.

Hathikuli Tea Estate is a revolutionising tea farming and producing sector. The estate sets an example for other conventional tea garden depicting how organic transformation can be beneficial both for the tea estate as well as for the environment.

References

- Bedingham, K. and Thomas, T. (2006) ‘Issues in the implementation of strategic change programmes and a potential tool to enhance the process’, *International Journal of Strategic Change Management*, Vol. 1, No. 2, pp.113–126, <https://doi.org/10.1504/IJSCM.2006.011106>.
- Biggs, E.M., Gupta, N., Saikia, S.D. and Duncan, J.M.A. (2018) ‘The tea landscape of Assam: multi-stakeholder insights into sustainable livelihoods under a changing climate’, *Environmental Science and Policy*, January, Vol. 82, pp.9–18, <https://doi.org/10.1016/j.envsci.2018.01.003>.
- Braga, T., Strelbel, H., Ionescu-Somers, A. and Seifert, W. (2012) *Unilever Tea (A): Revitalizing Lipton’s Supply Chain*, IMD-6-0327, IMD.
- Datta, T.K.V. (1999) *Darjeeling Tea*, India. [online] <http://www.fao.org/docrep/013/i1592e/i1592e03.pdf> (accessed 6 January 2019).
- Dikshit, K.R. and Dikshit, J.K. (2014) ‘Agriculture in North-East India: past and present’, in *North-East India: Land, People and Economy*, pp.587–637, Springer Netherlands, <https://doi.org/10.1007/978-94-007-7055-3>.
- Fallis, A. (2013) ‘Analysis of tea industry in India – focus on value chain to suggest a method to improve productivity of tea’, *Journal of Chemical Information and Modeling*, Vol. 53, No. 9, pp.1689–1699, <https://doi.org/10.1017/CBO9781107415324.004>.
- Ganguli, P. (2014) ‘Small tea growers of Assam: theories, practices and challenges of an indigenous entrepreneurship’, *International Journal of Informative and Futuristic Research*, Vol. 59, No. 1, pp.21–27.

- Gebauer, J. and Mahoney, J.T. (2014) 'Joining supply and demand conditions of IT enabled change: toward an economic theory of inter-firm modularisation', *International Journal of Strategic Change Management*, Vol. 5, No. 2, p.140. <https://doi.org/10.1504/IJSCM.2014.060259>.
- Groosman, M. (2011) *Tea: Sector Overview. IDH – The Sustainable Trade Initiative* [online] <http://www.bibalex.org/Search4Dev/files/432041/460374.pdf>.
- Hm, U., Narayan, S., Kumar, P. and Nabi, A. (2017) 'Export of organic products: opportunities and challenges', *Journal of Pharmacognosy and Phytochemistry*, Vol. 6, No. 6, pp.1084–1088.
- Kadavil, S.M. (2005a) *Indian Tea Research* [online] <https://www.somo.nl/wp-content/uploads/2007/01/Indian-Tea-Research.pdf> (accessed 6 January 2019).
- Kadavil, S.M. (2005b) *Tea Value Chain and Market in India*, Funded by European Union-India Economic Cross Cultural Programme, New Delhi.
- Karak, T. and Bhagat, R.M. (2010) 'Trace elements in tea leaves, made tea and tea infusion: a review', *Food Research International*, Vol. 43, No. 9, pp.2234–2252, <https://doi.org/10.1016/j.foodres.2010.08.010>.
- Karmakar, D.K.G. and Banerrjee, D.G.D. (2005) *The Tea Industry in India: A Survey*, Mumbai [online] <http://krishikosh.egranth.ac.in/bitstream/1/429/1/R-15162.pdf> (accessed 6 January 2019).
- Kristbergsson, K. and Ötles, S. (2016) *Functional Properties of Traditional Foods*, Springer US, <https://doi.org/10.1007/978-1-4899-7662-8>.
- Lader, M. (1994) 'Historical introduction', in Willson, C.K. and Clifford, M.N. (Eds.): *Tea: Cultivation to Consumption Acta Psychiatrica Scandinavica, Supplement*, Vol. 89, pp.1–23, Springer, <https://doi.org/10.1016/j.bbrc.2014.04.145>.
- Mansingh, P. and Johnson, L.T. (2012) *Comparative Analysis of Existing Models of Small Tea Growers in Tea Value Chain in the Nilgiris*, Working Paper, NRPPD-CDS Discussion Paper 20, National Research Programme on Plantation Development, CDS.
- Mohan, S. (2016) 'Institutional change in value chains: evidence from tea in Nepal', *World Development*, February, Vol. 78, pp.52–65, <https://doi.org/10.1016/j.worlddev.2015.10.004>.
- Nair, A. and Ghosh, S. (2005) *The Role of Codes of Conduct in the Indian Tea Industry*, Delhi [online] <http://www.cec-india.org/libpdf/1451046180CodeofConductResearch.pdf> (accessed 6 January 2019).
- Roy, S. (2011) 'Historical review of growth of tea industries in India: a study of Assam tea', *International Conference on Social Science and Humanity*, Vol. 5, pp.166–170, IACSIT Press, Singapore [online] <http://www.ipedr.com/vol5/no1/35-H00082.pdf> (accessed 6 January 2019).
- Sarma, G. (2011) 'A historical background of tea in Assam', *Pratidhwani the Echo*, Vol. 1, No. 4, pp.123–131.
- Talukdar, N.C., Bhattiacharyya, D. and Hazarika, S. (2009) 'Soils and agriculture', in *The Brahmaputra Basin Water Resources*, pp.118–156, Springer, <https://doi.org/10.1002/9781444308785.ch4>.
- Tea Barometer (2010) *Tropical Commodity Coalition for Sustainable Tea Coffee Cocoa*.
- Tea Board of India (2010) *Tea Directory-Assam* [online] <http://teaboard.gov.in/pdf/notice/TeaDirectory-Assam.pdf> (accessed 6 January 2019).
- Tea Board of India (2013a) *59 TH ANNUAL REPORT 2012–2013* [online] http://www.teaboard.gov.in/pdf/59_English_AR_12_13_pdf6101.pdf (accessed 6 January 2019).
- Tea Board of India (2013b) *Tea Development and Promotion Scheme for Medium Term Framework*, Kolkata [online] http://www.teaboard.gov.in/pdf/MODALITIES_FOR_TEA_DEVELOPMENT_PROMOTION_SCHEME_for_MEDIUM_TERM_FRAMEWORK_PERIOD_as_approved_by_Government_pdf1967.pdf (accessed 6 January 2019).
- Tea Board of India (2015) *Tea Area and Production 2015–2016*, Kolkata.

- Tea Board of India (2017) *Global Tea Statistics*, Vol. 295, Kolkata [online] http://www.teaboard.gov.in/pdf/Global_tea_statistics_pdf4619.pdf (accessed 6 January 2019).
- Willer Helga, L.J. (2015) *The World of Organic Agriculture-Statistics and Emerging Trends 2015* (1. Auflage), Bio Suisse (Hrsg.), FiBL (Hrsg.).

Websites

- 1 Official website of Hathikuli Tea Estate: <http://www.hathikuli.com/>
- 2 Official website of Amalgamated Plantations: <http://amalgamatedplantations.co.in/>
- 3 Official website of Tea Board of India: <http://www.Teaboard.gov.in/>
- 4 Official website of Tocklai Tea Research Association: <https://www.tocklai.org/>
- 5 Official website of TATA: <http://www.tata.com/>

Notes

- 1 Major importers of Indian tea are Russian Federation (6,705.7 million INR), Iran (5,718 million INR), UAE (3,336.49 million INR), Germany (2,627.6 millions INR), etc.
- 2 Orthodox tea is also known as leaf tea.
- 3 Reetha is one type of soap nuts, The botanical or scientific name of Reetha/Sapindus is *Sapindus Mukorossi*.
- 4 Mr. Deepak Atal, managing director of Amalgamated Plantations Pvt. Ltd. (APPL), is the person behind the idea of converting Hathikuli tea estate to an organic one in 2007.
- 5 'Made tea' is intermediate product that requires further processing before selling it to the consumer (Karak and Bhagat, 2010).
- 6 'Hathikuli' itself is a well-known organic tea brand in the market.

Appendix 1

Tea production in India and world tea production

Table A1 Tea production in India

<i>Financial year</i>	<i>Production in million kgs</i>
2017–2018	1,325.05
2016–2017	1,250.49
2015–2016	1,233.14
2014–2015	1,197.18
2013–2014	1,208.78

Table A2 World tea production (in million tons)

Country	2018(P)	2017	2016	2015	2014
China	2,616,000	2,496,412	2,404,947	2,248,999	2,095,717
India	1,311,630	1,321,760	1,267,360	1,208,660	1,207,310
Kenya	492,999	439,858	473,011	399,211	445,105
Sri Lanka	303,843	307,720	292,574	328,964	338,032
Vietnam	168,000	175,000	180,000	170,000	175,000
Indonesia	131,000	134,000	137,015	132,615	144,369
Other countries	832,942	823,236	818,733	796,426	803,435
Total	5,856,414	5,697,986	5,573,640	5,284,875	5,208,968

Source: Tea Board of India

Appendix 2

Amalgamated Plantations Private Ltd.

Amalgamated Plantations Private Ltd. (APPL) is a tata enterprise (<http://www.tata.com/>) earlier known as Tata Tea until April 2007, and then alienated into Tata Global Beverages (TGB) and APPL. APPL is the second largest Tea producer in India. The company has 25 gardens in Assam and Bengal including ‘Hathikuli Tea Estate’, covering 24,000 hectares of areas and employing approximately 30,000 workers. APPL received the ‘Wind under the Wings’ award on 30th November 2012, for their farsighted decision to turn Hathikuli Tea Estate from conventional to organic plantation, a step that took great courage and conviction. In 2014, APPL also sanctioned about 1,000 million INR to promote organic farming in the Northeast. And because of its strong organic credential, the group is now a key player in about 6,400 Million INR worth organic tea market in India and also a major exporter of organic tea to Europe and North America.

Appendix 3

Kaziranga National Park

Kaziranga National Park is situated in Assam, a State of India in the north-eastern region. Assam is famous for its natural beauty, temples and monuments, national forests, bird sanctuaries and above all the tea gardens. The name ‘Assam’ is derived from ‘Asom’ which means ‘one without equals’. It is the first Tea growing state of India and world’s largest tea-growing region. This state produces about 1/6th of the Tea produced in the world.

Kaziranga National Park is a UNESCO world heritage site; spread over a vast 430 km², Kaziranga has achieved notable success in wildlife conservation. Kaziranga not only hosts two-thirds of the world’s great one-horned rhinoceroses, but also boasts the highest density of tigers among protected areas in the world, and was declared a Tiger Reserve in 2006. Kaziranga is home to large breeding populations of elephants, wild water buffalo, swamp deer, gaur, sambar, hog deer, Indian muntjac and many more. It is

also recognised as an important bird area by Birdlife International for Conservation of Avifaunal Species.

Exhibit 4

Hathikuli Tea Estate in brief

Expedition

In 1902, the Estate belonged to James Finlay & Company, a Scottish Company that came all the way from Scotland to Assam. In March 1983 the estate came under the ownership of Tata Tea. APPL took up the reins of the plantation in March 2007 and took the decision to convert this Estate into an organic garden. The transformation was carried out in two phases; in 2007, it was decided to convert 161.23 hectares land to organic farming and in 2008, the entire estate under tea plantation (479.57 hectares) was taken up for organic conversion, which completed in 2011. During the transformation, Hathikuli faced a cumulative loss of 160 million INR, which is mainly due to the loss of production in that period. In March 2010, organic certification was received for 161.23 hectares area. In March 2011, the entire estate along with the production and processing unit was certified as fully organic under the standards of NPOP, NOP and EEC.

Certifications and awards achieved

Hathikuli is certified organic tea garden according to the Indian, US (USDA), European Union and Japanese organic agricultural standards such as ISO 22000, SA 8000, ETP, One Cert Organic, JAS and Rain Forest Alliance (Figure 2). And ‘Wind under the Wing’ awarded by Sanctuary Asia, Family Welfare Award 1st in 2006, and 2nd position for 2009, 2012 and 2013 by ABITA. It was recently awarded at the Sanctuary Asia Wildlife Awards in Mumbai for protecting biodiversity.

Tea plantation area

The estate spread across 674.65 hectares. Where, 474.57 hectares land is under tea cultivation and 12.8 hectares land suitable for planting, 2.81 hectares land used for kitchen gardens, 184.01 hectares land used for other than cultivation, and 0.46 hectares land is requisitioned.

Society welfare commitments




Hathikuli Tea Estate has 836 permanent employees and they appoint additional 1,200 temporary workers during the peak season. Plucking during the rainy season is more productive, i.e., from June to September, when powerful monsoon rains from the Indian Ocean falls on the fertile ground. The estate has 555 staff quarters, including six quarters to accommodate the management Team. Hathikuli also has a 36 bedded well-equipped hospital and three dispensaries to handle any emergency at a primary level. The estate has three furnished day care centres along with audio-visual technology for the children’s of the garden workers. There is the provision of a free school bus service for the students of the estate; those going to the nearby schools.

Workers in the fields work eight hours a day (including one hour lunch), six days a week (Sunday – weekly off), the workers get wages (Biggs et al., 2018) weekly along the following facilities (as per our observation at Hathikuli Tea Estate):

- free accommodation
- free weekly ration (limited)
- 48 days paid vacation
- 84 days paid maternity leave (tea plucking labourers are mainly women)
- all medical care paid for workers and their family.

Tea product

The Hathikuli Tea factory has the capacity to produce 1,000 tons of organic tea. They mainly produce three types of teas namely: Hathikuli Organic CTC, Hathikuli Organic Leaf Tea and Hathikuli Organic Green Tea (orthodox).

Different types of 'Hathikuli Organic' tea	Description
 <p>Hathikuli Organic CTC</p>	<ul style="list-style-type: none"> • 100% organic garden fresh teas and Pure blend. • Rich in anti-oxidants. • Rich in flavonoids, which helps in treating cancer. • Enhanced source of fluorides, which reduces blood cholesterol and blood pressure. • Free from foreign particles like chemicals, pesticides, toxic residues, etc.
 <p>Hathikuli Organic Green Tea</p>	<ul style="list-style-type: none"> • 100% organic garden fresh teas and pure blend. • Rich in anti-oxidant. • Environment friendly product.
 <p>Hathikuli Organic Leaf Tea</p>	<ul style="list-style-type: none"> • 100% organic garden fresh teas and pure blend. • Rich in anti-oxidants, this is anti-ageing in nature and rich in flavonoids. • Tea is an enhanced source of fluorides, which reduces blood cholesterol and blood pressure while regular consumption boosts immune system and metabolic rate, thereby reducing obesity and keeps heart healthy.

Source: Hathikuli Tea Shop

Appendix 5*List of website where Hathikuli Organic Tea is sold online*

<i>Website</i>	<i>Link</i>	<i>Last viewed on</i>
Tea-and-coffee.com	https://www.Tea-and-coffee.com/assam-Tea-hathikuli-organic-tgbop	6th January 2018
amazon.in	http://www.amazon.in/Organic-Assam-CTC-Tea-Hathikuli/dp/B00YSAA4I6	6th January 2018
infibeam.com	https://www.infibeam.com/Grocery/i-Hathikuli-Organic-Tea-Green/P-H-G-Hathikuli-Organic-AAOHAPLGR1.html	6th January 2018
chaimart.in	http://www.chaimart.in/Hathikuli-organic-Tea-id-2212599.html	6th January 2018
Teabox.com	https://www.Teabox.com/Tea/hathikhuli-classic-organic-summer-assam-black-Tea	6th January 2018