Indian Journal of Agriculture Business
Volume 4 Number 2, July - December 2018
DOI: http://dx.doi.org/10.21088/ijab.2454.7964.4218.1

Original Article

Economics of Agro-Tourism in Maharashtra

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Received on 15.11.2018
Accepted on 15.12.2018

Abstract

The investigation was conducted with, keeping in view the overall objectives of studying the Socio-Economic Appraisal of Agro-tourism in Maharashtra. The study was conducted to examine costs, (fixed cost and variable cost), gross returns, benefit-cost ratios, payback period, break-even point, and problems faced by the ATC (Agro-Tourism Center) owners. Maharashtra is one of the major tourist centers and there is large scope and great potential to encourage farmers to establish small and viable subsidiary agribusiness such as Agro-tourism in rural areas. The data were based on a sample of 4 ATCs selected from three districts; two from Pune, one from Satara and one from Ahmednagar district. The primary data were obtained by directly contacting the ATC owners. With the help of specially designed schedules for collecting the primary data relating to the objectives of study. The secondary data were scanned from published sources viz; research journals, books, reports, websites, etc.

The study revealed that, the fixed cost incurred on establishment i.e., initial investment costs was the highest (i,e. 2,04,32,200) for JMKPK (Jay Malhar Krishi Paryatan Kendra, Morachi Chincholi, 2008), followed by AETB (Agri and Eco-Tourism, Baramati, 2004) (1,54,40,000), VATW (Vishwakirti Agri-Tourism, Wadegavhan, 2014) (1,08, 38,400) and JATB (Janki Agro-Tourism Borgaon, 2015) (67,62,000) ATC. The major items of the fixed cost were land, construction structures of ATC, irrigation structures and tools, implements and machineries of ATC. Variable cost of ATC was highest (i.e. 75,72,433) for AETB ATC, followed by JMKP (69,16,426), VATW (25,72,304) and JATB (23,62,485) ATC. The major items of the variable cost were maintenance cost of ATC and labour charges of ATC. The tourist's arrival were maximum at AETB (28,576), followed by JMKP (21,387), VATW (10,337) and JATB (8,792). Benefit-cost ratios of ATCs were worked at variable cost and total cost. The B: C ratios of JATB, AETB, JMKP and VATW at VC were 1.36, 1.39, 1.37 and 1.79, respectively. The B: C ratios of JATB, AETB, JMKP and VATW at TC were 0.86, 0.99, 0.86 and 0.97, respectively. The running of ATC at VC was found profitable; however, the ATCs were seen to be in loss at total cost as the B: C ratios noticed to be little less than unity (one) this is because of negligence towards the Agro-Tourism in starting years. The payback period of ATCs at overall level was 7.56 years i.e. length of time required to recover the initial investment of outlay was 7.56 year of Agro-tourism business.

The break-even point considering the physical unit (i.e. number of visitors) and in monetary terms. The break-even point in physical unit is at which the ATC owner neither looses nor makes a profit in terms of number of tourists arrived. The BEP at monetary terms indicated there is a loss of running Agro-tourism business with small numbers. The major problem faced by the ATC owners in establishment and maintenance of ATCs, were lack of sufficient funds for establishment of ATC, non-availability of labour in time, high wage rates, non-availability of literature related to Agro-tourism and its running/operation practice, complexity in getting license from the government, maintenance cost is high, lack of trained personals in Agro-tourism and other related problems.

The study suggested that, providing scientific and practical knowledge about ATCs in establishment and maintenance is essential. Owners be trained for providing quality services and facilities to tourists. Provision of a complete tourism package, provision of sales and marketing support, more awareness programmes, developing contacts with the urban and Semi-urban people, Schools, Colleges, NGOs, clubs and other organizations, provision of license to farmers for lifetime and training had been suggested through NABARD Schemes. Provision of liberal and concessional loans with simple interest rate and two years gestation period and repayment period of 15 years be provided. Promoting Ayurvedic and Naturopathy through Agri-Tourisam centers can be a complimentary combination to ensure optimization in profit.

Keywords: Agro-tourism; NABARD; Agro-Tourism Center.

Introduction

Maharashtra Agricultural and Rural Tourism Federation (MART) defined 'Agro-tourism', is that it is the holidays concept of visiting farm or any agricultural, horticultural, or agribusiness operations for the purpose of enjoyment, education or active involvement in the activities of the farm or operation.

Agro-tourism includes wide variety of activities comprising buying produce direct from a farm stand, picking fruits, feeding animals or staying at bed and breakfast on a farm. Agro-tourism is a style of vacation that is normally spent on farms. The term, Agro-tourism is understood differently by tourists and providers of Agro-tourist services. For a tourist, Agro-tourism means familiarizing oneself with agricultural production or recreation in the agricultural environment or it may include an opportunity to help with farming task during the visit.

Today, the Indian Agriculture has to face tremendous competition due to the driven global trends of concentration, low commodity prices, and rising input costs. To add to this, the agriculture crop growth is also weakened due to the uncertain climatic conditions. These changes have altered the form and practices of farming operations. In many regions across the globe, farmers have now recognized the need and desire to diversify their farm products and supplement their agricultural incomes. As a result of which they are now looking beyond traditional farming for new opportunities to generate income through various forms of direct farm marketing and farm based non-agriculture business. Among these opportunities, a popular and growing opportunity is Agri-tourism and is one of the few activities which can provide a solution to these problems (Gopal et al., 2008).

In India, total contribution of tourism and travel to GDP was in Rs 5651 billion (6.4 per cent of GDP) in 2011 and is forecasted to rise by 7.8 percent p.a. to Rs 12891.2 billion in 2020. (Ministry of Tourism, Govt. of India 2011). It has been also mentioned in World Trade Tourism Centre (WTTC) report (2009) that India will be a tourism hotspot from the year 2009-2018 having the highest 10 year growth potential. In XIIth Five Year Plan, the Planning Commission highlighted the need to adopt "pro-poor tourism" for increasing net benefits of the poor by ensuring the tourism growth, contributing

to poverty reduction. Tourism plays a key role in socio-economic progress through creation of jobs, enterprise, infrastructure development and revenue earnings.

Every year, Maharashtra state Agri and Rural Tourism Co-operative (MART) celebrates May 16 as World Agro Tourism Day. On this day, farmers and entrepreneurs who have done notable work in the field are felicitated. It is believed that Agro-tourism will bring a new perspective to rural development, thereby widening the scope of development of entire Maharashtra.

Maharashtra has a great potential to the development of Agro-tourism, because of natural conditions and different types of agro-products as well as variety of rural traditions and festivals. Therefore the present study entitled "Socio-economic Appraisal of Agro-tourism in Maharashtra", were taken with following objectives.

1. To examine the status of Agro-tourism in Maharashtra,
2. To study different entertainment or informative facilities provided in Agro-tourism centers,
3. To estimate the economic viability of the Agro-tourism centers and
4. To study problems in establishing and running the Agro-tourism centers.

Methodology

Location of study

Study was conducted in Pune, Ahmednagar and Satara districts of Maharashtra. Out of 137 registered ATCs in the state, 74 are in Pune region, (i.e 54 per cent). Therefore, Pune region was considered for selecting the ATCs for study. Pune and Ahmednagar district are having 79 (57.66%) registered ATCs and Satara district having 23 registered ATCs, Hence, these three districts were considered for the present study.

Selection of Agro-tourism centre's

A list of active or running Agro-tourism centre's along with the names and locations of each the centre in Western Maharashtra was obtained from MART office, Pune. The number of ATCs that were studied depended upon the existing of centers in the district of Maharashtra. Four operating / running centers were selected from Western Maharashtra region. Hence the, following Agro-tourism centers have be selected for the present study.

1. Agri and Eco-tourism, Baramati (AETB)
2. Janki Agro-tourism, Borgaon (JATB)
3. Jay Malhar Krishi Paryatan Kendra, Morachi Chincholi (JMKP) and
4. Vishwakirti Agri-tourism, Wadegavhan (VATW)

Sources of data

The primary data were collected from those who are connected with Agro-tourism business like owners of Agro-tourism centre's, employees on ATCs and the Managers, Members of MART, Tourists visiting ATCs, workers from ATCs, people from Tour and Travel agencies, Agriculture Officers, farmers, etc.

In addition, secondary data were collected from the e-journals available with G-Gate, government website, official website of the various organizations, such as World Tourism Organization, WTTC, MART, etc. Secondary data were also collected from books related to agriculture tourism and newspaper articles associated with Agro-tourism, etc.

Statistical tools used for data collection

Specially designed schedules for ATC owners were prepared for collecting the primary data relating the objectives of study and the secondary data were collected from publish sources viz; journals, books, reports, websites, etc.

Analysis of data

Primary data and secondary data collected from various sources were tabulated and analyzed so as to get economics involved in the business of ATCs. For estimating the total cost of Agro-tourism, the concepts of fixed cost and variable cost was used.

a) *Fixed costs:* These costs included fixed resources as below.
   1. Land
   2. Water structures
   3. Transport vehicles

4. Construction of Agro-tourism facilities, other permanent structures.

b) Variable costs: These costs included variable resources such as.

1. Electricity charges
2. Labour charges
3. Transportation facilities charges
4. Structures and Machineries maintenance charges
5. Miscellaneous charges, etc.

c) Total cost: Fixed cost plus Variable cost

(TC = FC + VC)

Tabular method of analysis were used for compilation and arriving at results.

d) Amortization cost of ATCs.

The Amortization cost of ATCs was find out by using following formula.

$$\text{Amortization cost} = \frac{P \times r\,(1+r)^n}{(1+r)^n - 1}$$

Where,

P = Establishment cost of ATCs (Total Fixed cost)

r = Rate of interest @ 10 %

n = Economic life of ATCs (20 years)

e) *Estimation of the economic viability of the ATCs*

The analytical or statistical tools and techniques viz; B:C ratio, Payback period, BEP were employed forthe analysis.

Total return/Total cost

$$\text{Payback period} = \frac{\text{Initial outlay}}{\text{Annual cash flow}}$$

Break-even point analysis (BEP) of ATCs:

The point at which the two curve i.e, total cost curve and total revenue curve intersect is called Break-even point (BEP),which indicates the level of production at which the producer neither loses many nor makes a profit, in other words the quantity at which all costs allocated to a product are equal to all revenues from its sell is known as Break-even point (BEP).

At quantities smaller than the BEP, there is a loss and at larger quantities there is a profit. The same principlewas employed were in the present study for estimation of break-even point.

i) Estimation of Break-even point in physical unit

$$\text{BEP} = \frac{F}{P-V}$$

ii) Estimation of Break-even Point AT Monetary terms.

$$\text{BEP} = \frac{F}{1-V/P}$$

Where,

F = Fixed cost of ATC

P = Charges paid by per visitors

V = Variable cost incurred per visitor

$$(V = \frac{\text{Total Variable cost of ATC}}{\text{Number of visitors visited to ATC}})$$

$$(P = \frac{\text{Total cost of ATC}}{\text{Number of visitors visited to ATC}})$$

SWOT analysis of ATCs

SWOT analysis was carried out for knowing strengths, weakness, opportunities and threats of the ATCs. The purpose of SWOT analysis is to help policy makers and management body to take strategic decisions within given situation. SWOT analysis was carried out by making use of quantitative data on various indicators.

Result And Discussion

I. General Information of Agro-Tourism

a) Janki Agro-Tourism Borgaon (JATB)

This ATC is located at village Borgaon, near Borgaon police station, Satara, NH-4 Satara-Kolhapur highway, Maharashtra. From Pune airport, it is located at a distance of 100 kms and from Satara railway station16 kms and from Satara bus stands, it is 15 kms away. The ATC owner grows crops like wheat, fodder and vegetables like cauliflower, chilli, tomato, etc and plantation crops like mango. The farm house was established in the year 2015. The main activities on the farm included village tour on jeep riding, spider net climbing, bullock cart riding, bridge hanging, rain dancing and tractor ride, cultural activities, etc. Tourists can experience harvesting in the rabi and kharif seasons when the crops are ready. Tourists are given experiences of farm operations such as milking of cows, harvesting crops, etc and the farm offer watching cattle grazing in the open fields. All meals from breakfast, lunch, evening snacks

and poolside dinner at night are provided while watching "Lavani" the folk dance of Maharashtrian performed by the village boys and girls. Visitors can also swim in fresh water pools on the ATCs. The ATCs which was spread over an area of 4000 square meter has three rooms with all modern facilities. Moreover, the guests staying here have pick and drop facility. The daily visit to the farm costs 350 per person.

b) Agri and Eco-Tourism, Baramati (AETB)

This ATCs is situated at Malegaon Khurd village of tehsil Baramati, Malegaon at a distance of 100 kms from the Pune airport and 5 kms from the nearest railway station, Baramati. It was established in the year 2004. This ATCs ownership is co-operative type i.e Trust. The ATCs grows fruit crops like pomegranate, mango, avonla and custard apple on farms. Besides fruit crops some medicinal plants are also planted on the boundaries of the farm. It is a purely organic farm and utilise modern farming technologies such as drip irrigation, sprinklers system, video surveillance to maximize productivity. The main activities on the ATC include visit to 110 Acre horticultural fruit gardens, visit to farm and hi-tech nursery farm of citrus and other fruits and exposure of the tourists to various agricultural practices of different crops as per season and showing of honey production, visit to dairy, wine factory, museum, Supa wild life sanctuary and tractor and bullock cart riding, etc. The total area of ATC is 25000 square meter had six rooms; four bedrooms which are air-conditioned and attached bathroom with geyser, one hall with cooler, one bed room with fan. Internet facilities are provided as per need of the tourists. The owner had received training in Agro-tourism from MH heritage and tourism promotion board and is a MART membership holder (registered ATC). The daily visit to the farm-costs adult is 360 per person and children are 250. Thus, committed to a harmonious balance between nature and modern human life, Agri and Eco-Tourism, Baramatiis a testimony to the fact that agriculture if taken up as an innovative enterprise can not only yield successful results but can also help to conserve natural resources.

c) Jay Malhar Krishi Paryatan Kendra, Morachi Chincholi (JMKP)

The ATC farm is situated at village Morachi Chincholi of district Pune, Maharashtra. From Pune airport, it is 50 kms. The nearest big towns cities to the village are Shirur and Shikrapur, from which it is 25 kms. The ATCs is established on 25 hectares of land. It comprises of residential complex, storage rooms, dairy and animal section cowsheds, fort-museum, swimming pool, rural life line hall, dining hall, cow shed study farm, Mayurkatta, games area and lobby area, etc. Crops like maize, wheat, cotton, sorghumand gram are grown on the farm. It is a natural farm and popular in its area. The main activities included organic agriculture farm visit, demonstration of milking of cows, village tours, tube-well bath, harvesting and processing of agricultural crops and various other activities,viz; dairy farm visit, bee-keeping farm visit, horse riding, bullock cart riding, visit to mandir, local panchayat, visit to local school, teaching of organic food processing, also famous activity of the ATC is directly watching Peafowl (peacocks). The ATC farm house has a swimming pool, home theatre and a play ground. The ATC is established in the year 2008 on an area of 25 hectare and had six tourist niwas rooms with all the modern facilities. The owner had received training from Maharashtra Agriculture and Rural Tourism Promotion Board (MART). The daily visit to the farm costs 450 per person.

Thus, from the above information it can be concluded that in terms of accessibility Jay Malhar Krishi Paryatan Kendra, Morachi Chincholiis easily for the tourists as the ATC is just 25 kms drive from Shirur bus stand.

d) Vishwakirti Agri-Tourism, Wadegavhan (VATW)

The farm is located on Ahmednagar-Pune main highway, at Wadegavhan, district Ahmednagar, Maharashtra. The ATC is spreads over 10 hectare with natural hilly area. The various attractions of the farm are famous monsoonkatta. The main activities on the farm include hilly area farming, agriculture farming, rural game, popular farm, panchayat meeting, visit to natural lakes, visit to grain market, vegetable and market mandi, etc. The farm house had four rooms with all the modern days facilities. The daily visit to the ATCs costs 450 per person. The farm house has also swimming pool, besides attractive hill area, and green environment.

The general information of selected ATCs are depicted in table 1.

Table 1: General information of selected ATCs.

Sr. No.	Name of Agro-tourism centres	Establishment year	Operating experience
1	Agri and Eco-tourism, Baramati (AETB) (Pune)	2004	12

2	Jay Malhar Krishi Paryatan Kendra, Morachi Chincholi (JMKPKMC) (Pune)	2008	8
3	Vishwakirti Agri-tourism, Wadegavhan (VATW) (Ahmednagar)	2014	2
4	Janki Agro-tourism, Borgaon (JATB) (Satara)	2015	1

II. Land use pattern of ATCs owners

Land utilization indicates the area of land actually utilized for different purpose such as crop production, ATCs, etc. Total operational land holdings of sampled ATCs were classified in three group such as irrigated, unirrigated and fallow land. The information of land use pattern is depicted in Table 2.

The land holding of the four ATCs was 64 ha. Maximum land holding was 25 ha and minimum was 4 ha. Average land holding was 16 ha. The average unirrigated land of ATCs was 2.50 ha, irrigated was 10.45 ha and follow land was 3.05 ha. Maximum land utilized for construction of ATCs was 67.50 per cent and remaining utilized cropping pattern. The average land utilized for ATCs was 10.80 ha and crop production was 5.20 ha.

III. Cropping pattern of sample ATCs

The cropping pattern is another vital factor influencing the level of expenses on farm and returns from farm business. It is also an indicator of the economic condition of selected farm families. The cropping pattern of ATCowners is presented in Table 3.

The gross cropped area, at the overall level, worked out to 7.26 ha. The area under kharif crops was 27.69 per cent, rabi crops 29.26 per cent and perennial crops 34.42 per cent of the gross cropped area. The ATC AETB was having the gross cropped area 13.20 ha, followed by gross cropped area 11.20 ha of JMKP, the cropping intensity of the ATC, JATB was maximum, i.e. 206.25 per cent, followed by JMKP 160 per cent. The ATCs AETB and JMKP were having perennial crops to the extent of 6 ha and 4 ha, respectively.

Table 2: Land use pattern of ATCs owners (ha)

Sr. No.	ATC	Type of land				Used for ATC	Crop prod^{n}
		Unirri.	Irri.	Fallow	Total		
1	JATB	--	3.80	0.20	4.00	3.20	0.80
			(95.00)	(5.00)	(100)	(7.41)	(3.84)
2	AETB	3.00	17.00	5.00	25.00	14.50	10.50
		(12.00)	(68.00)	(20.00)	(100)	(33.56)	(50.48)
3	JMKP	4.00	17.00	4.00	25.00	18.00	7.00
		(16.00)	(68.00)	(16.00)	(100)	(41.67)	(33.65)
4	VATW	3.00	4.00	3.00	10.00	7.50	2.50
		(30.00)	(40.00)	(30.00)	(100)	(17.36)	(12.03)
	Total	10.00	41.80	12.20	64.00	43.20	20.80
		(15.63)	(65.31)	(19.07)	(100)	(100)	(100)
	Average	2.50	10.45	3.05	16.00	10.80	5.20

(Figures in parentheses are the percentages to the total holding)

Table 3: cropping pattern of sample ATC owners (ha)

Sr. No.	Particulars	JATB	AETB	JMKP	VATW	Total	Overall
1	**Kharif season**						
a)	Vegetable	0.35	0.50	0.20	--	1.05	0.26
		(21.21)	(3.79)	(1.79)		(3.61)	(3.58)
b)	Pulses	--	1.50	--	0.50	2.00	0.50
			(11.36)		(16.67)	(6.88)	(6.88)
c)	Cereals	--	2.50	2.50	--	5.00	1.25
			(18.94)	(22.32)		(17.22)	(17.22)

		Total	**0.35 (21.22)**	**4.50 (34.09)**	**2.70 (24.11)**	**0.50 (16.67)**	**8.05 (27.71)**	**2.01 (27.69)**
2		**Rabi season**						
	a)	Sorghum	0.50 (30.30)	2.00 (15.15)	2.00 (17.86)	2.00 (66.67)	6.50 (22.38)	1.625 (22.38)
	b)	Gram	0.30 (18.18)	--	--	0.50 (16.66)	0.80 (2.75)	0.20 (2.75)
	c)	Other crops	--	0.20 (1.52)	1.00 (8.93)	--	1.20 (4.13)	0.30 (4.13)
		Total	**0.80 (48.48)**	**2.20 (16.67)**	**3.00 (26.79)**	**2.50 (83.33)**	**8.50 (29.26)**	**2.125 (29.26)**
3	**Summer season (Maize and Groundnut)**		0.50 (30.30)	0.50 (3.79)	1.50 (13.39)	--	2.50 (8.61)	0.625 (8.61)
4	**Perennial crops**							
	a)	Mango	--	2.00 (15.15)	4.00 (35.71)	--	6.00 (20.65)	1.50 (20.65)
	b)	Pomegranate	--	1.00 (7.58)	--	--	1.00 (3.44)	0.25 (3.44)
	c)	Aonla	--	1.00 (7.58)	--	--	1.00 (3.44)	0.25 (3.44)
	d)	Custard Apple	--	2.00 (15.15)	--	--	2.00 (6.89)	0.50 (6.89)
		Total	**--**	**6.00 (45.45)**	**4.00 (35.71)**	**--**	**10.00 (34.42)**	**2.50 (34.42)**
		Gross Cropped Area	**1.65 (100)**	**13.20 (100)**	**11.20 (100)**	**3.00 (100)**	**29.05 (100)**	**7.26 (100)**
		Net cropped Area	**0.80**	**10.50**	**7.00**	**2.50**	**20.80**	**5.20**
		Cropping intensity (%)	**206.25**	**125.71**	**160.00**	**120.00**	**139.62**	**139.62**

(Figures in parentheses are the percentages to the total).

Table 4: Total capital assets of ATCs(/ATCs)

Sr. No	**Particulars**	**Name of ATCs**				**Total**	**Overall**
		JATB	**AETB**	**JMKP**	**VATW**		
1	Land	40,00,000 (59.15)	1,25,50,000 (81.28)	1,71,50,000 (83.94)	81,00,000 (74.73)	4,18,00,000 (78.17)	1,04,50,000 (78.17)
2	Construction structures of ATCs	10,92,000 (16.15)	18,04,000 (11.68)	18,21,000 (8.91)	14,01,000 (12.93)	61,18,000 (11.44)	15,29,500 (11.44)
3	Irrigation structures	6,10,000 (9.02)	5,08,000 (3.30)	5,53,000 (2.71)	5,29,000 (4.88)	22,00,000 (4.11)	5,50,000 (4.11)
4	Tools, Implements and Machineries	10,10,000 (14.94)	4,87,000 (3.15)	7,96,800 (3.90)	7,17,000 (6.62)	30,10,800 (5.63)	7,52,700 (5.63)
5	Livestock	50,000 (0.74)	91,000 (0.59)	1,11,400 (0.54)	91,400 (0.84)	3,43,800 (0.65)	85,950 (0.65)
	Total	67,62,000 (100)	1,54,40,000 (100)	2,04,32,200 (100)	1,08,38,400 (100)	5,34,72,600 (100)	1,33,68,150 (100)
	a) Interest on fixed capital @ 10% (excluding land)	2,76,200	2,85,200	3,22,000	2,69,700	11,53,100	2,88,275
	b) rental value of land at 10%	4,00,000	12,55,000	17,15,000	8,10,000	41,80,000	10,45,000
	c) Annualized Establishment cost	6,76,199	15,43,999	20,43,219	10,83,839	53,47,256	13,36,814
	Total imputed costs (a+b+c)	13,52,399	30,84,199	40,80,219	21,63,539	1,06,80,356	26,70,089

(Figures in parentheses are the percentages to the total).

IV. Capital Asset Investment

The capital assets investment of the sample ATC owners are given in Table 4.The initial capital investment of JATB, ATC was 67,62,000, AETB 1,54,40,000, JMKP 2,04,32,200 and VATW initial investment was 1,08,38,400. At overall level, the initial capital investment was 1,33,68,150 per ATCs. The proportionate share of the individual items of capital assets in the total capital investment varied greatly over the period of time.

The investment in land was nearly 78 per cent of the total investment, followed by investment in construction structure of ATCs was 11.44 per cent, irrigation structure was 4.11 per cent and tools, machineries and implements investment was 5.63 per cent. The interest on fixed capital at 10 per cent of total initial investment of ATCs which excluding the land value. At the overall level interest on fixed capital was 2,88,275 and rental value of land at 10 per cent was 10,45,000 and The imputed cost of ATCs at overall level was 26,70,089.

V. Variable costs and Maintenance charges of ATCs

Variable costs are the costs of using the variable resources or inputs. These costs vary with the level of production and extent of use of these variables. Higher the productions more are the variable costs and lower the production lower are the variable costs.

These costs included variable resources such as, electricity charges, labour charges, transportation facilities charges, structure and machineries maintenance charges, miscellaneous charges, employment wages, etc.

The variable costs information of sample ATCs are depicted in following given Table 5.

The total maintenance cost of ATCs on the various items and activities was estimated to 1,23,03,700, the average maintenance cost was 30,75,925 of the total cost incurred by the ATCs. The highest maintenance cost was incurred on catering charges (67.04 per cent). The maintenance cost of transport facilities and services was to the extent of (15.58 per cent) and it was (6.13 percent) for maintenance of machineries of the ATCs.

VI. Services provided by ATCs and its charges

The common services provide by ATCs areas: farm restaurants, visiting park and garden, fresh food and diet products, animal assisted activities, horse riding, bullock cart riding, animal milking demonstration, bird watching, tractor/jeep riding, swimming and rain dancing, puppet show, bridge hanging, cultural activities, etc.Some of the popular festivals that are celebrated in Maharashtra are Diwali, Ganesh Chaturthi, Gudhi Padawa, Dashera, Nag Panchami, Gokul Ashtmi, Narali Pournima, Pola, Makar Sankranti, Holi, Ganesh Utsav, etc.The glimpses and shows of these are presented idols, statues, etc, ATCs museum and cultural needs. The services or activities charges are presented in Tables 6 and 7.

Table 5: Total Variable costs (₹)

Particulars	ATCs				Total	Average
	JATB	AETB	JMKP	VATW		
Total maintenance (M)	14,05,960 (59.50)	46,95,805 (62.01)	44,42,931 (64.23)	17,59,004 (68.38)	1,23,03,700 (63.35)	30,75,925 (63.35)
Total employment (L)	**8,23,200 (34.84)**	**24,48,000 (32.33)**	**20,82,000 (30.10)**	**6,67,700 (25.95)**	**60,20,900 (30.99)**	**15,05,225 (30.99)**
Subtotal (M+L)	22,29,160	71,43,805	65,24,931	24,26,704	1,83,24,600 (94.34)	45,81,150 (94.34)
Interest on working capital (@ 6%)	1,33,749 (5.66)	4,28,628 (5.66)	3,91,495 (5.66)	1,45,602 (5.66)	10,99,476 (5.66)	2,74,869 (5.66)
Total variable costs	**23,62,909 (100)**	**75,72,433 (100)**	**69,16,426 (100)**	**25,72,304 (100)**	**1,94,24,076 (100)**	**48,56,019 (100)**

(Figures in parentheses are the percentages to the total).

Table 6: Sale of services and visiting charges (Charges/day) (₹).

Sr.No.	Type of Services	ATC wise per person charges							
		JATB		AETB		JMKP		VATW	
		M/F	C/S	M/F	C/S	M/F	C/S	M/F	C/S
1	Farm Restaurants	50	30	-	-	40	25	60	40

2	Visiting fee for Park and Garden	30	30	70	40	60	30	10	-
3	Boarding charges	150	120	200	150	250	190	250	230
4	Bullock cart riding charges	20	10	30	20	20	10	30	20
5	Tractor/Jeep riding charges, etc	60	40	30	20	40	25	40	20
6	Boating, etc	20	10	-	-	-	-	-	-
7	Swimming, etc	20	10	-	-	40	20	30	20
8	Other charges	-	-	30	20	-	-	30	20
	Total	**350**	**250**	**360**	**250**	**450**	**300**	**400**	**350**

(M/F = Male/Female, C/S = Children/Student).

The ATCs are mainly aims in providing the services and participatory to the tourists as per their interest. The ATC charges different rates as per the type of service provided and the participatory activities/demonstration shown.

Table 7: Halting charges (₹).

Sr. No.	Type of services	Per head Halting charges (only adult)			
		JATB	**AETB**	**JMKP**	**VATW**
1	Lodging, Dinner and other services	500.00	560.00	650.00	800.00

The service charges for different activities varied from ATC to ATC. The charges per male and female for the services stated in the table 6 are 350/day were as, these charges are 250 for children/student by the ATC, JATB. Near about same charges were are charged by the ATC, AETB. The ATCs, JMKP and VATW are charging in 450 for adult (male/female) and 300 for children/student.

The ATCs charge differently for the tourists staying at night. The staying charges (halting) include lodging, dinner, and other service charges. The information of these charges is given in the Table 7. The charge for staying at night the ATCs ranged from 500 to 800. The ATC, JATB was charging 500 and the ATC, VATW was charging 800 which is maximum among this four.

VII. Income of ATCs

Table 8: Income of ATCs from tourists (₹/Tourist).

Sr.No	Particulars		JATB	AETB	JMKP	VATW	Overall
I	No. of tourists arrived in one year (2016)	M	2300	12707	5148	4642	6199
			(26.16)	(44.46)	(24.07)	(44.90)	(35.89)
		F	3132	4994	6164	3031	4330
			(35.62)	(17.48)	(28.82)	(29.33)	(25.07)
		C/S	2068	7629	7270	1498	4616
			(23.52)	(26.70)	(33.99)	(14.49)	(26.72)
	Total Tourists		**7500**	**25330**	**18582**	**9171**	**15145**
			(85.30)	**(88.64)**	**(86.88)**	**(88.72)**	**(87.68)**
	Total Income (₹) (From per head	M	8,05,000	45,74,520	23,16,600	18,56,800	23,88,230
			(26.27)	(45.30)	(25.47)	(41.02)	(36.07)
		F	10,96,200	17,97,840	27,73,800	12,12,400	17,20,060
			(35.77)	(17.80)	(30.50)	(26.79)	(25.98)
		C/S	5,17,000	19,07,840	21,81,000	5,24,300	12,82,535
			(16.87)	(18.99)	(23.98)	(11.58)	(18.25)
	Total (₹)		**24,18,200**	**82,80,200**	**72,71,400**	**35,93,500**	**53,90,825**
			(78.91)	**(82.00)**	**(79.95)**	**(79.39)**	**(80.30)**
II	No. of tourists stayed at Night in one year (2016)	M	680	1848	1474	703	1176
			(7.73)	(6.47)	(6.90)	(6.80)	(6.81)
		F	612	1398	1331	463	951
			(6.96)	(4.89)	(6.22)	(4.408)	(5.51)
	Total (Night tourists)		**1292**	**3246**	**2805**	**1166**	**2127**
			(14.70)	**(11.36)**	**(13.12)**	**(11.28)**	**(12.32)**

Total Income (₹) (From per head) (Night)	M	3,40,000 (11.10)	10,34,880 (10.25)	9,58,100 (10.54)	5,62,400 (12.43)	7,23,845 (10.93)
	F	3,06,000 (9.99)	7,82,880 (7.75)	8,65,150 (9.51)	3,70,400 (8.18)	5,81,107 (8.77)
Total (₹) (Night)		**6,46,000 (21.09)**	**18,17,760 (18.00)**	**18,23,250 (20.05)**	**9,32,800 (20.61)**	**13,04,952 (19.70)**
Grand total of Tourists (M+F+C/S)		**8792 (100)**	**28576 (100)**	**21387 (100)**	**10337 (100)**	**17273 (100)**
Grand total of Income (₹) (M+F+C/s)		**30,64,200 (100)**	**1,00,97,370 (100)**	**90,94,650 (100)**	**45,26,300 (100)**	**66,20,630 (100)**

(Figures in parentheses are the percentages to the total).

The income received from these sources has been presented in Table 8, 9 and 10. The income of the ATCs under study has been assessed for two categories of tourists, i.e. income received from tourists visiting during day time and the tourists stayed/made a stay at ATC over night during the year 2016. The total income from ATCs was estimated at overall level to 66,20,630, of which 80.30 per cent share was of income from tourists visiting ATCs on day time and 19.70 per cent from the visitors making stay at night the ATCs. The income of the ATC, AETB from these two kinds of tourists for the year 2016 was recorded highest, 1,00,97,370 followed by the income ATC, JMKP 90,94,650.

The average number of visitors (visiting day time) and the tourists making stay at ATCs, were 17,273 of which nearly 88 per cent were tourists visiting day time and 20 per cent visitors making stay at night at ATCs. The similar kind of trade as that of income was noticed in the case of tourists/ visitors visiting AETB and JMKP during the year.

Other Income of ATCs owners

The gross income of the ATCs is comprised of the income from crop production and income from livestock. In assessing the net income from these two sources of the ATC, the expenditure on these two farm enterprises have been considered and net income has been estimated. The net income from these two major sources of ATCs was amounted to 10,24,580. The net income from crop production was 5,36,600 (52.37%) and that of livestock was 4,87,980 (47.63%). The average net income from crop production and livestock enterprises of these for ATCs amounted to 2,56,145.

The table 10 revealed that, total net income of the ATCs studied estimated to, 2,78,07,100. Of this, the major share was of income from Agro-tourism enterprise (96.32 per cent) and just 3.68 per cent from crop production and livestock enterprises of these ATCs.

Table 9: Other Income of ATCs owners (₹)

ATCs.	Crop production			Livestock			Net Income (C+L)
	Gross Income	Expend-ture	Net Income (C)	Gross income	Expend-ture	Net Income (L)	
JATB	1,44,000	74,000	70,000	1,75,600	98,040	77,560	1,47,560
AETB	5,50,600	3,14,250	2,36,350	3,54,000	1,53,920	2,00,080	4,36,430
JMKP	4,02,750	2,09,000	1,93,750	2,90,000	1,29,700	1,60,300	3,54,050
VATW	87,500	51,000	36,500	1,50,040	1,00,000	50,040	86,540
Total	11,84,850	6,48,250	5,36,600 (52.37)	9,69,640	4,81,660	4,87,980 (47.63)	10,24,580 (100)
Overall	2,96,212	96,068	1,34,150	2,42,410	1,20,415	1,21,995	2,56,145

(Figures in parentheses are the percentages to the total).

Table 10: Total Net Income of sample ATC owners (2016) (₹)

Sr. No.	Item	Total Income in (₹)				Total	Overall
		JATB	AETB	JMKP	VATW		
1	ATC	30,64,200	1,00,97,370	90,94,650	45,26,300	26782520	6695630
		(95.41)	(95.86)	(96.25)	(98.12)	(96.32)	(96.32)
2	Crop production	70,000	2,36,350	1,93,750	36,500	536600	134150
		(2.18)	(2.24)	(2.05)	(0.79)	(1.93)	(1.93)
3	Live stock	77,560	2,00,080	1,60,300	50,040	487980	121925
		(2.41)	(1.90)	(1.70)	(1.09)	(1.75)	(1.75)
	Total Income	32,11,760	1,05,33,800	94,48,700	46,12,840	27807100	6951775
		(100)	(100)	(100)	(100)	(100)	(100)

(Figures in parentheses are the percentages to the total).

The average income of the ATCs from these activities (Agro-tourism, crop production and livestock enterprises) thus, estimated to, 69,51,775.

The data thus, analyzed of the ATCs (Table 5.20, 5.21 and 5.22) revealed that the Agro-tourism was the major sources of income during the year 2016 for all these ATCs studied. The crop enterprises and livestock rearing notice to be the secondary enterprises having very meagre share in the total income received.

VII. Economic viability of ATCs

The analytical or statistical tools and techniques viz., benefit: cost ratio, payback period and break-even point of the ATCs was be employed. Economic viability indicates where the Agro-tourism enterprise in profit or in loss, etc.

Benefit: Cost Ratio of ATCs

Benefit: cost ratios worked out of the ATCs studied are presented in Table 11.

The benefit cost ratios for the ATCs have been worked out for the costs – (i)variable cost, (ii) total costs incurred by the ATCs. The benefit:costratios at total level (considering the cost incurred just on Agro-tourism) was worked to 0.92 and at variable costs it was pretty good, 1.43. The B:C ratios of the individual ATCs were in the range 0.86 to 0.99, i.e. nearly approaching to unity, thereby implying that the running of Agro-tourism enterprise alone could be stated as a promising enterprise/activity on the farm.

IX. Payback period of ATCs

The payback period of ATCs studied at the overall level, worked out to, 7.58 years. This period of 7.5 years is a good economic period for recovery of the investment made on agro-tourism activity as it is not a longer one. Considering the payback period of individual ATC under study, the minimum period worked out to five and half years and maximum period of nearly 10 years.

The table 12 concluded that overall payback period was 7.58 years i.e.,length of time required to recover the initial investment of outlay is 7.58 year of Agro-tourism business.

Table 11: Benefit: cost ratios of ATCs (₹)

Sr. No.	ATCs	Costs(₹)			Total Income	B:C ratios at	
		Fixed	Variable	Total		VC	TC
1	**JATB**	13,52,399	23,62,909	37,15,308	32,11,760	1.36	0.86
2	**AETB**	30,84,199	75,72,433	1,06,56,632	1,05,33,800	1.39	0.99
3	**JMKP**	40,80,219	69,16,426	1,09,96,645	94,48,700	1.37	0.86
4	**VATW**	21,63,539	25,72,304	47,35,843	46,12,840	1.79	0.97
	Total	1,06,80,356	1,94,24,076	3,01,04,432	2,78,07,100	1.43	0.92

Table 12: Payback period of ATCs.

Sr. No.	ATCs	Particulars				
		Initial Investment	Gross Income (I) from ATCs	Variable Costs (VC)	Net Income (I – VC)	Payback period (Yrs)
1	JATB	67,62,000	30,64,200	23,62,485	7,01,715	9.64
2	AETB	1,54,40,000	1,00,97,370	75,72,433	25,24,937	6.11
3	JMKP	2,04,32,200	90,94,650	69,16,426	21,78,224	9.38
4	VATW	1,08,38,400	45,26,300	25,72,304	19,53,996	5.55
	Overall	1,33,68,150	66,20,630	48,55,912	17,64,718	7.58

X. Break-even point (BEP) of ATCs

The break-even point indicates the level of production at which the producer neither losses nor makes profit. In other words, the quantity at which all cost allocated to a product are equal to all revenues from its sell is known as break-even point (BEP). The break-even point has been worked out for knowing whether the Agro-tourism enterprise, i.e. been run by the sample owners is in profit or otherwise. The information regarding BEP worked out for the ATCs is depicted in Table 13.

The break-even points have been estimated, (i) on the basis of number of tourists visiting the ATCs (on the basis of physical units), (ii) on the basis of revenue earn by the ATCs (in monetary terms).

cost of ATC and fixed cost incurred, the break-even point worked out to, 17,274. This number implies that the ATCs under studies at least have these number of visitors during a year for having no loss or no profit.

XI. SWOT analysis of ATCs

SWOT analysis was carried out for knowing strengths, weakness, opportunities and threats to ATCs. The purpose of SWOT analysis is to help policy makers and management body to take strategic decisions within given situation. SWOT analysis were work out by making use of quantitative data on various indicators.

Table 13: Break-even point analysis of ATCs.

Sr. No.	Particulars	JATB	AETB	JMKP	VATW	Overall
1	Fixed cost (FC)	13,52,399	30,84,199	40,80,219	21,63,539	26,70,089
2	Variable cost (VC)	23,62,909	75,72,433	69,16,426	25,72,304	48,56,019
3	Total cost (TC)	37,14,884	1,06,56,632	1,09,96,645	47,35,843	75,26,001
4	Total Income	32,11,760	1,05,33,800	94,48,700	46,12,840	69,51,775
5	VC incurred /Visitor(V)	268.70	264.99	323.39	248.74	281.12
6	Per head Charges (P)	422.53	372.78	513.88	457.74	435.70
7	Total number of visitors	8,792	28,576	21,387	10,337	17,273
	i) BEP in Physical Unit (Tourists)	8,791	28,613	21,419	10,352	17,274
	ii) BEP in Monetary terms	36,55,132	1,06,53,225	1,09,88,704	47,29,393	76,28,825

BEP in terms of monetary terms

Considering the fixed cost, per visitors variable cost, and per visitors charges, the BEP worked out to 76,28,825. This figure of income implies that at the overall level, the ATC must receive this income per year, so as to have no loss or no profit.

BEP in terms of physical unit

By considering the per head charges and variable

Strength

- Employment opportunities to the farmers including farm family members and youths.
- Additional income source for the farmers to protect against income fluctuations.
- Farmers can improve their standard of living due to the contacts with urban people.

Weakness

- Most of the common people can't afford are such expenditure on weekend picnic, it is just few people in the society as he affords the expenditure.
- ATCs business depends on urban people.

Opportunities

- Potential to increase Agro-tourism centre's in Maharashtra.
- High potential to development in rural areas.

Threats

- High cost of establishment of Agro-tourism centres.
- The upcoming/new ATCs will make the competition among the ATCs more acute and they may also provide better facilities to attract the tourists.

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