

CASE STUDY – UP IN THE AIR: ANALYSIS OF AIR INDIA’S CURRENT OPERATIONS AND THE ROAD AHEAD

Sarbjit Singh, Institute of Management Technology, Nagpur
Bibuti Bushan Tripathy, Institute of Management Technology, Nagpur
Sayan Banerjee, Institute of Management Technology, Nagpur

ABSTRACT

Air India is the largest international carrier from India with an 18.6% market share. Over 60 international destinations are served by Air India across four continents. Additionally, the carrier is the third-largest domestic airline in India in terms of passengers carried (after Indigo and Jet Airways) with a market share (passengers) of 13% in the financial year 2016-17. The airline had become the 27th member of Star Alliance on 11 July 2014.*

This case study aims to analyze the present operations of Air India and tries to identify the root cause of its problems. The study also analyzes the various options available to the airlines and the pros and cons of each of those options. The case study analyzes the impact of the merger of Air India with Indian Airlines. It explores the viability of a commercial enterprise run by the Government.

Keywords: Merger and Acquisition Theory, Disinvestment, Airline Industry, SWOT Analysis, Public Sector Units.

INTRODUCTION

In 1932, an airline, named Tata Airlines, was founded by J. R. D. Tata. Mr. Tata himself flew its first single-engine de Havilland Puss Moth, carrying air mail from Karachi to Bombay's Juhu aerodrome and later continuing to Madras (Currently Chennai). After World War II, the airlines became a public limited company and was renamed as Air India. In 1953 India nationalized all Indian airlines, creating two corporations—one for domestic service, called Indian Airlines Corporation (merging Air-India Limited with six lesser lines), and one for international service, Air-India International Corporation. The latter's name was abbreviated to Air-India in 1962. On 21 February 1960, it took delivery of its first Boeing 707 named Gauri Shankar and became the first Asian airline to induct a jet aircraft in its fleet. Air India also operates flights to domestic and Asian destinations through its subsidiaries Alliance Air and Air India Express. Air India's mascot is the Maharajah (Emperor) and the logo consists of a flying swan with the wheel of Konark inside it.

Air India is the flag carrier airline of India. It is owned by Air India Limited, a government owned enterprise, and operates a fleet of Airbus and Boeing aircraft serving 90 domestic and international destinations. The airline has its hub at Indira Gandhi International Airport, New Delhi, alongside several focus cities across India. In 2000–01, attempts were made to privatize Air India and from 2006 onwards, it suffered losses after its merger with Indian Airlines (Temple & Peck, 2002).

*Star Alliance is one of the world's largest global airline alliances. Founded on 14 May 1997, its current CEO is Jeffrey Goh and its headquarters is located in Frankfurt am Main, Germany. As of April 2018, Star Alliance is the second largest global alliance by passenger count with 728 million, behind Sky Team (730 million) and ahead of One World (528 million). Its slogan is "*The Way The Earth Connects*".

The Financial Crisis of the Airlines

Air India, the brand that today encompasses both the erstwhile Air India and Indian Airlines, has been in serious financial trouble. The National Aviation Company of India (NACIL), formed by the merger of the two airlines, ran up losses of INR* 22 billion in 2007-08. Losses for 2008-09 was estimated at over INR 50 billion. Air India reported a record loss INR 5,3481.8 million for 2017-18 (Young et al., 2018).

Parliament's Committee on Public Undertakings (COPU) had come up with a report that seeks to identify the underlying causes. Even though the report does not put its finger on why Air India has run up huge losses, but it has posed the right questions and provides information that helps zero in on the causes of the problems at Air India today.

It is useful to begin by listing some perceived causes of Air India's losses and examining how far these are valid:

A common perception among general public is that Public ownership of the airlines is *the* problem, because governments just can't run commercial enterprises. Without sustained budgetary support, there is no way Air India and Indian Airlines could have survived in the face of greater competition. However, in reality, several public sector enterprises have successfully weathered greater competition post-liberalization and are doing better than before. Interestingly, in the period since 2001, Air India made a profit every year until 2006-07. Indian Airlines made a profit in three out of those six year in any case; losses in aviation are not unique to the Indian public sector. Private airlines in India too have been in the red. The airline industry is notoriously prone to losses. In fact, worldwide, the International Air Transport Association estimated losses at \$17 billion in 2008, \$11 billion in 2009 and \$3 billion in 2010.

One of the often highlighted causes of the financial woes of Air India is that it suffers from a bloated work force typical of the public sector. Air India performs in-house a wide range of functions that other airlines outsource. However, Air India's workforce per aircraft of 214 compares favorably with that of several other airlines. Malaysian Airlines (230), Virgin Atlantic (282), KLM (220), etc. Wages account for just 16% of total costs, so the scope for reducing losses through wage or employee reductions is quite small (Lin et al., 2019).

The failed merger is responsible for non-performance and losses. There is little doubt that the merger of the two airlines, done in 2006-07, has turned out to be a nightmare. But it is hard to ascribe the mounting losses to the merger per se. The synergies expected from the merger were fairly modest in the first place: around INR 9 billion. Of these, INR 5 billion was realized in the first year itself. The failure of the merger cannot explain losses of over INR 50 billion in 2008-09 and the even higher losses projected for next few years. Merger made it more difficult for Air India to respond to the situation it is in, but it is not the cause of the situation. Thus, none of the perceived causes can explain the mess Air India is in today (Doan, 2021).

The report submitted by COPU provides useful clues. Air India's problems, it turns out, arise from two errors, one strategic and the other structural. In 2007-08, one-third of the increase in losses was on account of increased interest rate and depreciation charges. Increase in wage

costs contributed a little less than a third. For 2008-09, estimates indicate that half the increase in losses was on account of increase in interest rate and depreciation.

*INR=Indian Rupee (1 INR=0.014 Us Dollar on 12th March, 2019)

Root Cause Analysis

Managing human resources: One of the bigger reasons for the downfall of this airline was the merger between erstwhile Air India and Indian Airlines, which was done despite the fact that both carriers were totally opposite of each other in all probable dimensions. There were differences between the two companies in terms of work culture, areas of operation, compensation, working conditions, entitlements etc. The merger resulted in massive discontent and frustration amongst the staff. The subsequent demerger of ground handling and engineering companies added to the problems. As per merger and acquisition theory success for the merged airline may lie in its employee relations. They have to be willing to invest in ways that build organizational capability to get high levels of productivity. They have to work with their labor force, they have to train their managers to do that. The keys to increasing productivity and service quality are a high level of engagement and a good labor relations system. This requires that workers use their discretionary effort to solve problems for us as passengers, which means they must be motivated and authorized to do so on the front lines (Source: <https://executive.mit.edu/blog/the-role-of-employee-satisfaction-in-successful-airline-mergers>).

Operations related management issues: Less income in passenger revenue: Air India earned a total of INR 157.73 billion from passenger revenue, almost 20% lower than projected INR 212.97 in FY16. The airline failed to meet the revenue target despite meeting its load factor targets. That implies that airline lost revenue due to its own inefficiency like lack of aircraft availability, faulty deployment, low utilization of human resources and lack of ancillary revenue. Low monetization of assets: Lack of faulty initiatives to monetize its assets was one of the primary causes of the revenue deficiency, which led to dip in the company's fortunes. The audit noticed that for five out of 12 properties, the airline's terms and conditions made it impossible to monetize them. The turnaround plans envisaged that INR 5 billion will be earned from monetization of 12 properties but Air India till February 2016 had marked only six.

Non-availability of proper aircraft: There had been a mismatch in demand and availability of the airline. For instance, there was over provisioning of wide body aircraft where as it didn't have required number of narrow body aircraft (Naser & Hadi, 2014).

After the recommendation by the consultant to induct A320 aircraft to reduce maintenance cost, it took three years for the airline to float a global tender. Till March 2016, it could only induct five A320 s which jeopardized the plan of reducing maintenance cost Such long delays points to the inefficiency of the procurement process given the urgency of the requirement (Ahmed et al., 2021).

Mismanagement in granting bilateral agreements with foreign countries: It was observed that more than required granting of bilateral seats to carriers of foreign countries hurt Air India's prospects. As a result, sixth freedom traffic carried by foreign airlines rose significantly which had an adverse impact on Air India's business plans. For instance, bilateral seats was enhance from 13,330 seats to 50,000 seats in the India-Abu Dhabi befitted Etihad Airways at a cost of Indian carriers "Considering the significant equity funds committed by the government to Air India decision to grant additional bilateral rights to foreign carriers should take into consideration its impact on Air India," the audit said (Straub, 2007).

Loss making international operations: Air India was planning for expansion drive to new international destinations but it was observed that most of such routes burn a hole in the airline's pocket as it fails to recover the cost. For instance, flights to North America and Europe results in a loss of INR 23,2376 billion in 2015-16. In the Delhi-New York-Delhi route the occupancy stands at 77% as Air India faces competition from other airlines.

Mismanagement of manpower: According to the requirement, the company had 11,433 employees as against the envisaged requirement of 7,245. In addition, there was underutilization of pilots and cabin crews which led to losses for the airline (Hayes, 1981).

Financial Management Related Issues

Highlight of financial report of 2016-17

1. Total Revenue increased from INR237, 601.2 million in 2015-16 to INR257, 716.5 million during 2016-17, an increase of 8.47%.
2. Passenger Revenue increased from INR187, 036.1 million to INR195, 098.8 million during 2016-17, an increase of 4.31%. Other Revenue increased from INR23,284 million during 2015-16 to INR35,214.2 million during 2016-17, an increase of 51.24%.
3. Group Operating Profit was INR2, 119.8 million as against the Operating Profit of INR2, 983.4 million during previous year.
4. Group had shown Consolidated Net Loss for 2016-17 at INR62, 885.2 million which was more by INR19, 778.7 million compared to the previous year's loss of INR43, 106.5 million.
5. EXPENDITURE: there was an increase in Total Expenses by 6.85% from INR279, 780.2 million during 2015-16 to INR298, 943.7 million during 2016-17. There was an increase in Staff Cost by 7.55% from INR41, 850.6 million in 2015-16 to INR45, 012.4 million during 2016-17.
6. Finance Cost had decreased from INR47,179.4 million during 2015-16 to INR44,626.9 million during 2016-17
7. Cash Flow Statement is given in Appendix

Air India showed a high operating expenses throughout the period from 2010-11 to 2016-17. Especially among them is the high cost incurred in aircraft fuel and other operating expenses. The airline incurs around 63% to 87% of the total revenue in operating costs. It has incurred around 55-75% of the total expenses on the operating expenses and fixed interest charges. One of the reasons for such operational expense was that the company had the biggest fleet of long-haul planes, it plies to 41 international destinations and 72 Indian ones, massive ground holding and airport services infrastructure. Analyzing the balance sheet (see Exhibit) one can find that the airline had raised a substantial amount through short term and long term borrowing. High amount of borrowing leading to high fixed interest charges i.e. that the company had a high degree of financial leverage. The interest burden had increased from INR 381675.4 million to INR 370479.6 million to the current situation (Fin Year 2016-17) of INR 520,000 million which was around 36.24 % increase over the period of time (Rottig & Reus, 2006).

During the period of study, the Air India had negative profits (PAT) from INR 68651.7 million although it has reduced to 43106.5 million but still company is in big financial problem. The company had negative reserve and surplus in the initial period and had subsequently raised substantial amount of equity shares to cover the losses. Initially it had INR 122 million which increased to INR 456 million. The Company had negative EPS through the period which had reduced over the period of time due to high operating costs, disproportionate increase in sales with respect to cost and constant cumulative losses. The EPS has reduced from INR 58.1 from 2011 to INR 2.5 in 2016. The Company has high outsider's debt burden of around INR 520

billion which makes the company unattractive for another company to purchase. The carrier was surviving on an INR 302.31 billion bailout package, spread across ten years, announced by the UPA government in 2012 and the funds were being provided subject to the airline achieving certain operational parameters. Under the 2012 Turnaround Plan (TAP), the government would infuse INR 189.29 billion for repayment of government-guaranteed loans/interest till 2010-21. This equity infusion included the financial support towards repayment of principal as well as interest on government-guaranteed loans taken for aircraft acquisition and the annual interest outgo against these loans itself stood at a whopping INR 40,000 million. The government has allocated INR 17,130 million to the airline as part of this bailout package for the current fiscal against the carrier's request for INR 3,9014.9 million. But these funds have not been used in a way that really made any significant difference in Air India's financial condition. Such condition is due to non-performance and continuous losses (Kanter & Seggerman, 1986).

Recent Developments in Air India

Agreement with rites: Air India had signed agreement with RITES, the state run consultant specializing in transport infrastructure service covering railways, airports, highways, ports and harbors, to work together on future projects. Both the companies were to handle planning, designing and construction management of aircraft maintenance hangars, Maintenance Repair and Overhaul (MRO) buildings, workshops, administrative buildings, air cargo terminals, etc. They would look into project feasibility report, site investigation and material surveys, environmental impact assessment, preliminary project reports, preliminary cost studies and economic evaluations, surveys and traffic forecasts.

RITES would also help the airline in the preparations of detailed project reports, design of airport pavements, preparation of specifications & schedule of quantities, preparation of contract documents, project management, construction supervision, quality control, procurement, detailed design and cost planning of all engineering & construction works.

The recycle green project: Exploring alternate means for disposal of the green waste to reduce air pollution and also contribute to the '*Cleanliness Campaign*', employees of Air India deliberated on the various options that were feasible.

After consultation with the Brihanmumbai Municipal Corporation (BMC) authorities, it was decided to convert the waste into organic manure using vermiculture which is the most economical and environment-friendly alternative for disposal of green waste.

Four units were commissioned and over a year, with the active guidance and cooperation between Team Air India, BMC, and Hariyali NGO, the recycling of dry green waste had enabled the production of 500 kg of organic manure soil, which will be used for all tree plantation and gardening. The Recycle Green Project will help prevent air pollution due to burning of dry waste, reduction in carbon dioxide (CO₂) emissions resulting from transportation of the waste to the dumping ground, and recycling of organic wastes. It was 100 per cent natural and free from chemicals and will result in a healthier atmosphere.

Introduction of sap: The SANGAM SAP Project had gone live on 31 January 2013. The System has been implemented in Finance, Materials Management and Human Resources Departments. It was to be integrated with all other systems already implemented/to be implemented in Air India.

Present Operations and Future Plans

Starting new international and national destinations: Air India had added a new route to Stockholm followed by, a month later, to Copenhagen. Later it began start their New Delhi-Los Angeles flight operations. At present, Air India had a network of more than 30 destinations across the US, Europe, Australia, Far-East and South East Asia, and the Gulf regions. It gets over 65 per cent of its revenue from overseas operations and had deployed most of its assets on foreign routes. Acquiring new Aircrafts for the expansions of the destination as well as hiring new pilots for the same (Alzyadat, 2021).

Sale of Air India through strategic sales or selling it through stock market: The option is to sale possibly in alliance with Singapore Airlines, Indigo and Qatar Airlines. Just the way Air Lanka was sold to Emirates as a total airline, which was rechristened as Sri Lankan. It was considered that the government could have got more if the landing slots were sold separately.

Critical analysis of fuel consumption on all flights: By setting up flight council and fuel managers Implementation of recommendation made by IATA Group on Fuel Efficiency Gap Analysis. Increase in passenger, cargo, excess baggage revenue through aggressive sales and marketing strategy including a passenger cell for attracting government traffic.

Promotional activities: Promotions of web bookings and other promotional schemes like AI Holidays has been implemented.

Disinvestment of Air India Ltd

In view of the NITI (National Institute for Transforming India) Aayog* recommendations on the disinvestment of Air India and followed by the recommendations of the Core Group of Secretaries on disinvestment (CGD), the Cabinet Committee on Economic Affairs (CCEA) gave an *'In-Principle'* approval for considering the strategic disinvestment of Air India and five of its Subsidiaries in its meeting held on 28 June 2017 i.e. after 31.3.2017.

CCEA also constituted an Air India Specific Alternative Mechanism (AISAM) to guide the process of strategic disinvestment from time to time and decide on the following:

1. Treatment of unsustainable debt of Air India.
2. Hiving off of certain assets to a Shell Company.
3. Demerger and strategic disinvestment of three profit making Subsidiaries.
4. Quantum of Disinvestment.
5. Choosing of Bidders.

CONCLUSION

*The NITI Aayog (Hindi for Policy Commission), also National Institution for Transforming India, is a policy think tank of the Government of India, formed with the aim to achieve Sustainable Development Goals and to enhance cooperative federalism by fostering the involvement of State Governments of India in the economic policy-making process using a bottom-up approach.

The question to be answered, however, is whether the airlines could save itself from the financial run it has ended up with in the post-merger period? Can it salvage itself from going bankrupt by making operational changes, or by implementing an all-out sale?

APPENDIX

The Mission and Vision Statement of Air India

Vision statement : To create an eco-system to enable 30 crore domestic ticketing by 2022 and 50 crore by 2027.

Mission statement: Provide safe, secure, affordable and sustainable air travel with access to various parts of India and the world.

Cash Flow Statement for the Year Ended 31st March 2017				
(INR in Million)				
Particulars	2016-17		2015-16	
A. Cash Flow from operating activities		(36,197.8)		(37,510.0)
(loss) before Exceptional & Extraordinary Items and tax				
<u>Adjustments for:</u>	(21,454.0)		(857.8)	
Exceptional & Extraordinary Items (Net)	(2,334.20)		366.7	
Unrealised Foreign Exchange(Gain)/Loss	16,065.9		18,699.1	
Depreciation and amortization (incl reserve & surplus and prior period items)	1,491.3		(842.1)	
Provision for Obsolescence/Inventory Reconciliation*	2224.5		843.9	
Provision for Bad & Doubtful Receivables and Advances*	330.5		(524.0)	
Provision for Employee Benefits*	-		(0.5)	
Provision for Wealth Tax	(57.0)		(22.3)	
Provision for Frequent Flyer Programme	391.4		(705.1)	
(Profit)/Loss on sale of fixed assets	(75.2)		(97.6)	
Dividend income	(2,687.1)		(2,567.6)	
Interest income (on Bank Deposits, advances to subsidiary companies& others)	42,358.7		44,740.0	59,032.8
Interest and Finance Charges		36,354.8		21,522.8
		57.0		
Operating (Loss)/Profit Before Working Capital Charges				
Adjustments for:				
(Increase)/Decrease in Inventories	752.7		(1,913.7)	
(Increase)/Decrease in Trade and Other Receivables	(14,181.6)		(8,714.9)	
(Increase)/Decrease in Trade and other Payables	28,262.4		15,993.5	
Cash Generated from Operations		14,833.5		5,364.9
Direct Tax paid		14,890.5		26,887.7
Net Cash Flow (used in)/ from Operating Activities		(208.9)		(572.7)
		14,681.6		26,315.0
B. Cash Flow From Investing Activities				
Acquisition of fixed assets				
Proceeds from sales of fixed assets	(23,851.3)		(33,034.8)	
(Increase)/ Decrease in Investments (net)	63,116.6		7,874.3	
(Increase)/Decrease in Bank Deposits (Maturity of more than 3 months)	0.1		(4,825.0)	
Interest received (on Bank Deposits, advances to subsidiary companies and others)	(1,002.2)		(572.7)	
Dividend Received	2,652.6		2,948.1	
Net Cash Flow used in Investing Activities	75.2		97.6	
		40,991.0		(27,512.5)
C. Cash Flow From Financing Activities				
Issue of Shares/share application money received				
Proceeds from Long Term Borrowings	24,652.1		33,000.0	
Repayment of long term Borrowings	(1,479.6)		31,052.2	
Proceeds from Short Term Borrowings	(21,225.2)		(18,494.6)	
Repayment of Short Term Borrowings	50,059.7		18,135.7	
Addition to Capital reserve	(67,647.2)		(18,161.6)	
Interest paid	825.2		494.1	
Net Cash Flow form/(used in) Financing Activities	(42,541.4)		(44,596.9)	
Net increase/(Decrease) in Cash and Cash equivalents		(57,356.4)		1,428.9

Unrealised Foreign Exchange Gain/(Loss) in Cash & Bank Balances	(1,683.8)	231.4
Cash and Cash equivalents (Opening Balance)	(21.9)	1,019.7
Cash and Cash equivalents (Closing Balance)	5,365.1	4,114.0
	3,659.4	5,365.1

Source: <http://www.airindia.in/AnnualReport.htm?28>

Timeline for Air India's Various Financial Milestones

1. Air India clocked a small profit of INR162.9 million in 2005-06, while Indian Airlines posted an INR 495.0 million profit. Both had a paltry equity base of about INR1050 million and INR1530 million, respectively. They had combined debt of about INR 50,000 million and there was no financial support from the government.
2. In 2007, the Congress-led United Progressive Alliance (UPA) government decided to merge the two airlines and ordered planes worth more than INR 500 billion. The airline took on heavy debt to purchase these planes while employees agitated over wage disparities. The carrier sold three Airbus A300 and one Boeing 747-300M in March 2009 for \$18.75 million to finance the debt.
3. Till 2010, the airline kept paying for these planes, many of which it did not even need as the national auditor pointed out in 2011, from its internal resources and loans.
4. In 2011, when the airline reached a point that it could not pay salaries on time, the UPA government agreed to provide Air India about INR 300 billion in equity funding, spread over a decade. Every month, Air India's expenses are INR 3-4 billion more than its revenue. To bridge this gap, it borrows routinely. For better terms for loans and equity infusion, it had to go to the finance ministry.
5. In September 2017, the government decided to sell some of Air India's real estate directly to expedite the state-owned carrier's divestment. This follows the discovery that some of the assets are not owned by the carrier but on a 99-year lease from the government.

SWOT Analysis of Air India

Strengths

1. Strong Backing by the government of India is a big boost for Air India
2. Brand New Fleet of aircraft acquired by Air India
3. Air India is known for its unique and high quality "Maharaja" advertising
4. The company has its presence in more than 20+ countries
5. Air India covers approximately 50 destinations in India
6. Good advertising and branding has increased brand value
7. Online ticketing and low prices have increased the sales of Air India
8. The airline offers inflight entertainment, lounge services etc
9. Merging of Indian Airlines in Air India increase the business operations of the airline.

Weaknesses

1. Labor Problems and political intervention is a cause of worry for Air India
2. High Operational cost
3. Financial crisis leading to payment issues of employees.

Opportunities

1. Dedicated set of customers can boost Air India's business. Also, it can leverage on brand new fleet
2. The company can benefit from expansion of routes and international destinations
3. Solving internal issues regarding workforce can hugely boost image and operations

Threats

1. Rising Labor Costs can affect Air India's business operations
2. Rising Fuel Costs directly impact the running costs
3. Losing Market share due to other carriers can affect business of Air India

REFERENCES

- Ahmed, Z., Shakoor, Z., Khan, M.A., & Ullah, W. (2021). The role of financial risk management in predicting financial performance: A case study of commercial banks in Pakistan. *The Journal of Asian Finance, Economics and Business*, 8(5), 639-648.
- Alzyadat, J.A. (2021). Sectoral banking credit facilities and non-oil economic growth in Saudi Arabia: application of the autoregressive distributed lag (ARDL). *The Journal of Asian Finance, Economics, and Business*, 8(2), 809-820.
- Doan, H. Q. (2021). Critical Factors Affecting Consumer Buying Behaviour of Organic Vegetables in Vietnam. *The Journal of Asian Finance, Economics and Business*, 8(9), 333-340.
- Hayes, R. (1981). What happens to my people after I sell? The human side of acquisitions. *Handbook of Mergers and Buyouts*, S. Lee and R. Colman (eds.), Englewood Cliffs, Prentice-Hall.
- Kanter, R., & Seggerman, T. (1986). Managing mergers, acquisitions, and divestitures. *Management Review*, 10, 16-17.
- Lin, L., Revindo, M.D., Gan, C., & Cohen, D.A. (2019). Determinants of credit card spending and debt of Chinese consumers. *International Journal of Bank Marketing*.
- Naser, S., & Hadi, P. (2014). A Study of Installment Sale and Its Formation in the Banking Systems of Iran, France, and the United States. *European Online Journal of Natural and Social Sciences*, 3(3), 707.
- Rottig, D., & Reus, T.H. (2006). Organizational and national cultures' consequences for acquisition performance: A meta-analysis'. *Southern Management Association, Clearwater Beach, FL*.
- Straub, T. (2007). Reasons for frequent failure in Mergers and Acquisitions: A comprehensive analysis.
- Young, C.W., Russell, S.V., Robinson, C.A., & Chintakayala, P.K. (2018). Sustainable retailing–influencing consumer behaviour on food waste. *Business Strategy and the Environment*, 27(1), 1-15.

Received: 26-Jan-2022, Manuscript No. AAFSJ-22-10999; **Editor assigned:** 26-Jan-2022, PreQC No. AAFSJ-22-10999(PQ); **Reviewed:** 09-Feb-2022, QC No. AAFSJ-22-10999; **Revised:** 14-Feb-2022, Manuscript No. AAFSJ-22-10999(R); **Published:** 21-Feb-2022