DHĀRANA

Vol 6, 2
(July-December 2012)
ISSN 0974-0082

A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE

BHARATIYA VIDYA BHAVAN, Bangalore

Research Articles

Book Review

आ नो भद्रा : क्रतवो यन्तु विश्वत : ।

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- Rig Veda 1-89-1

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DHARANA a bi-annual journal, published in January and July, every year,
by MP Birla Institute of Management :
Associate, Bharatiya Vidya Bhavan
43, Race Course Road
Bangalore 560 001, India

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Vol : 6, 2 (2012) ISSN 0974-0082

Editorial Board

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A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE
Vol:6, 2 (2012) 3-45 ISSN 0974-0082

Pain without Gain? : Land Assembly and Acquisition for Infrastructure Mega Projects : The Indian experience with the Bangalore International Airport

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Abstract

This comprehensive case study on Bangalore International Airport enumerates in a sequence, in stages and phases the role of people involved who finally make up a mega project. Episodes of people, evaluation of process, procedures and systems and the final call of polity are dilated with precision. The complexities of a mega project make impact on future generation. A recount of these will be utility oriented experience and learning.

Key Words & Phrases: Context, Brand, Bangalore, Evaluation, Corporates, Civil Society & Political Voices.

1. Introduction

1.1 Public Private Partnerships as a Policy Option

Public Private Partnerships (ppps) are attracting considerable attention in both scholarly and policy discourses. Politicians, policy makers, bankers, scholars, researchers the world over are talking about them. Industrial countries such as the United Kingdom, Australia, Canada and the Netherlands, have adopted ppp arrangements to provide infrastructure, education, health, water supply, waste management, and other public services. The growing demand of a vocal public for better infrastructure services, coupled with constrained government budgets, has made ppps an attractive public policy option. As Greve & Hodge state "ppps are now an increasingly relevant and popular public policy option throughout the world. They may even symbolize the new relationship between the citizen and the state" (Greve & Hodge, 2005).

In spite of ppps attracting widespread media attention, there is very little clarity in the public mind about what is a Public Private Partnership. There is certainly no consensus about what outcomes we can expect from a successful ppp, or how we can execute them successfully, not just in the popular or policy discourse but even in scholarly debates about the subject. Are ppps a passing fad, or will they evolve into a useful public policy tool? If ppps are here to stay, we need to learn how to make them work. Academic scholarship has not addressed this imperative, and praxis is still grappling with it.

1.2 Statement of Purpose

Hammersley states that all qualitative research should be "relevant to some legitimate public concern" (Hammersley, 1992). The purpose of my study is to examine two critical issues in the experience of Bangalore International Airport (hereinafter bial). These are (a) the decision relating to the location of the airport and (b) the controversy that broke out to retain the former HAL airport as a civilian airport even after opening of the BIA. Though divided in time, these interlinked episodes give us an insight into the kind of issues that can arise while implementing large infrastructure ppps in the Indian context. My approach helps to explicate the contemporary dilemmas that governments face in the changing economic globalized scenario today- balancing the traditional workings of political and bureaucratic practice and tested systems of public accountability to the new, at times conflicting and contradictory, demands of private foreign systems. My work involves three levels of analysis, the national context, the sub-national local context and the project level. Borrowing concepts from Public Policy, Economics, Organization Theory and Finance/Law, as well as a practical understanding of policy processes and political realities, I utilize an integrative framework and a case study design to highlight the interplay of forces, actors and arguments in megaprojects such as bial.

In line with my research purpose, my work aspires to address a dual audience of public policymaker and the interested academic. Indeed, given the public interest and larger impact of ppps, members of an intelligent citizenry are an equally appropriate audience. Locke & Golden-Biddle support this approach when they say: "In an applied discipline we essentially have two audiences for our work. Presumably, we would like not only academics but also practicing managers to read and comment on our work" (2007). More so as the world is not waiting, but going ahead with implementing ppps.

1.3 Defining the Boundaries

ppp is an umbrella term loosely used to describe a variety of associations between the public, private and non-governmental actors. The subject of my study is the classic infrastructure public private partnership, distinguished by a long-term, whole-of-lifecycle, contractual collaborative arrangement between a government entity and one or more private sector firms, whereby private parties finance, build and operate an infrastructure project or deliver public infrastructure-based services with shared decision-making, risks and responsibilities with the government entity (Grimsey & Lewis, 2004) (Boardman, Poschmann, & Vining, 2005).

1.4 Significance of the Study

My research is motivated by the objective of making a contribution to ppp literature by way of an integrative, developing country oriented, cross-disciplinary approach, blending theory and praxis, and incorporating policy and process factors. I also aspire to make an intelligent doable contribution to the designing and practical implementation of ppps by highlighting issues that are of relevance to the practitioner and the policymaker. Even as ppps emerge as a popular public policy option, the management and governance challenges confronting its implementation remain. ppps seem to have provided only limited opportunity for meaningful levels of transparency and public participation. Issues such as lack of transparency, insufficient capacity in the bureaucracy and polity and a poor institutional framework are challenges which the practitioner confronts, but neither policy nor scholarship pay attention to. This makes it imperative to streamline processes so that risks are managed and an enabling climate for successful ppps is created. As Mason states: "In the simplest terms the question is 'What is my research for?' In thinking about answering this question the researcher should consider not only familiar academic arguments about increasing or challenging intellectual and theoretical understanding, plugging gaps in knowledge, extending debate and so on, but also issues about the socio-political context of the research practice. Researchers need to ask questions about the socio-political context of research directly. By advocating that researchers think about these issues I am arguing that you should confront and engage with the politics of social research rather than assume it is possible to maintain a safe distance" (2002)

2. Mapping the Terrain: A Review of Literature

2.1 Categorizing PPP Literature

Scholarly literature on Public Private Partnerships can broadly be categorized into two groups: (a) conceptual pieces that deal with ppps as an economic, and/or organizational entity (b) contextual descriptive case studies of particular projects or policies. The evolution of ppp literature was influenced by three factors: first, ppps are still a nascent phenomenon in most countries, in particular developing economies; second, this is an area where "theory is yet to catch up with practice" (Allan, 2001); third, ppps have evoked interest in several disciplines, including economics, public policy, law, finance and organization theory, but with little cross-fertilization. We take a brief look at the history of ppp literature and major works, then examine key themes and conclude with a critique of its deficiencies.

The interest in ppps first manifested in Special Editions of academic journals such as *Accountability Quarterly* (May 2002), *Accounting, Auditing and Accountability Journal* ((2003: 16:3), *American Behavioral Scientist* (1999) and *Australian Accounting Review* (2004: 13: 2). A number of compiled volumes were published, and early edited editions include Osborne(2000), Perrot & Chatelus (2000) and Berg et al (2002) dealing with theoretical insights and empirical evidence from around the globe.

As understanding ppps became central to the challenges facing public policymaking, the number of studies on ppps grew. Rosenau's early volume (2000), adopted an approach linking different thematic perspectives to different sectors. It explored the inter-sectoral relationships between public and private organizations across several policy arenas. However, the downside of such splintered understanding is that individual clarity is offset by the lack of a generalizable comprehension of what works and what does not in a ppp context.

Grimsey & Lewis (2005) provided a comprehensive volume of studies related to the concept and practice of public private partnerships. Their introduction to the volume reviews existing literature in detail (2005, pp. xiii-xiv). They analyze the multiple and changing meanings of the ppp as an idea, its distinctive characteristics, and an analysis of the ppp from four perspectives: the changing market for public services, the private financing model, the organization of ppps and risk management. Other comprehensive volumes include Hodge & Greve (2005), whose edited volume furthers our understanding on theoretical underpinnings of ppps and aims to draw lessons from empirical studies. The volume throws considerable light on ppps, but, considering the variety of perspectives and understandings in just three hundred odd pages, it is the diffused light of a spectrum that illuminates their ppp, not the bright prismatic coherence of a single lens.

The Indian experience has received scholarly attention in Kamath's 2006 dissertation (Kamath, 2006) and Sharma's 2008 publication (Sharma, 2008), both studies of individual cases. The former is a detailed case study of a public-private partnering experience of the Bangalore Agenda Task Force. The latter is a practitioner's account of the Kutch Railway Corporation.

Finally, there is a wide world of public opinion out there. This is a literature which cannot be ignored by any researcher who concerns herself with an institution so entwined with public interest. The public perception on ppps, the notion as well as the doing of it, is expressed in a variety of publications: government documents, legislative and parliamentary debates, media in newspapers, periodicals, electronic media and blogs. Each describes the ppp as they see it, offering the interested reader one perspective of this multifaceted entity called the ppp. All and each of these have informed this paper.

2.2 Deficiencies in the Literature

Taken together, the literature gives us an intelligent and varied perspective on public private partnerships. However, as ppp literature developed separately along conceptual and empirical traditions, with little cross-fertilization between the two streams, research became less grounded and more speculative in consequence. The fit between theory and practice becomes more and more elusive as the literature continues to follow these independent trajectories. Research which marries the theoretical concept of ppps to the practice and process on the field is therefore essential.

Second, though ppps have evoked interest from several disciplines, each disciplinary tradition examines through its own lens and vocabulary, often resulting in a blinkered vision which ignores vital issues. A comprehensive analysis of ppps mandates a holistic and inclusive vision, operationalised in an integrative framework, subsuming disciplinary differences, what Lorraine etal call "a lack of boundaries" (Blaxter, Hughes, & Tight, 2002).

Third, the extant literature largely relates to developed economies. ppp implications for developing economies are critical, but literature on developing country experience is sparse. As they are still an emerging phenomenon in developing economies, there is much less theoretical and empirical research conducted on these institutions. There is, for instance, as yet no single comprehensive scholarly study on the Indian experience of the classical ppp arrangement in the infrastructure sector.

Fourth, the noise surrounding the concept of ppps has import for the study of practice. Since almost anything goes by the name of ppp, a study of a loose governance arrangement like the Bangalore Agenda Task Force in Bangalore, India (Kamath, 2006) considers itself as much a treatise on ppps as an examination of more conservative, classical models (Boardman, Poschmann, & Vining, 2005). While this versatility is part of the attraction of ppps for policymakers, its practitioner relevance would remain elusive unless backed by a clear understanding of the ppp as an organizational entity with a set of distinctive characteristics. Also, the inescapable sectoral and locational contextuality of the ppp is such that any prescriptions or descriptions would be incomplete without an in-depth study of local governance processes and practices. The process approach, which is a feature of public policy research, needs to be incorporated into the study of ppps.

3. Search Design and Methodology

3.1 Rationale for a Qualitative Paradigm

I propose to use a qualitative approach and case study design in this paper. According to Yin, "using case studies for research purposes remains one of the most challenging of social science endeavours" (2003). My choice is motivated by the following reasons:

- In the case of a public policy question the handling of the issue and the perceptions surrounding it are largely context bound, that is, the issue cannot be divorced from its context. The paper is India-centric, and the analytical strategy is centered on a dialectical movement from the case study to the broader policy context to more universal analytic generalizations.

- ppps are a nascent phenomenon and hence there is an exploratory quality to this work; the focus of the research is equally on outcomes (the "what" question) and processes (the "how" question).

- A qualitative approach is suitable when the issue is significant or crucial for organizations and/or theory; but "existing research either does not address the research question at all, or does so in a way that is inadequate or likely to be untrue" (Eisenhardt, 1989) (Creswell, 1994, pp. 4-10) (Miles & Huberman, 1994, pp. 1-2) (Yin, 2003) (Eisenhardt & Graebner, 2007, p 26). The particular niche I wish to fill, a study of empirical phenomenon in a developing economy context, is yet unexplored.

- I intend to use my knowledge of theory and integrate it with my experience of practice. The issues under study are of considerable public interest. In an applied discipline like public policy there are diverse audiences for my work. My intended audience includes scholars, practitioners, policy makers and even members of an interested public. Hence it is important that my work is *convincing* to my audience. "The findings from qualitative studies have a quality of "undeniability". Words, especially organized into incidents or stories, have a vivid concrete meaningful flavor that often proves far more convincing to a reader- researcher, a policymaker, a practitioner-than pages of summarized numbers" (Miles & Huberman, 1994, p. 1).

3.2 Choice of Case for Study

I have chosen the Bangalore International Airport for my study for the following reasons.

- The case is a *critical* case. bial was among the earliest ppps in the country, the first ppp in Karnataka and the first in the Civil Aviation sector; hence it served as a

model and forerunner for future ppps. The sense that this project is a pioneering one runs throughout in its history and in the testimonies of documents and respondents. It permits logical generalization and maximum application to other cases.

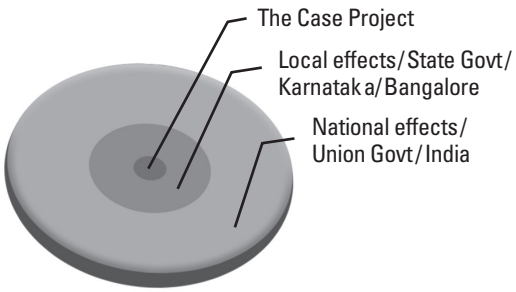
- BIAL is a *typical* case that displays the distinctive characteristics of an infrastructure ppp; it also exhibits many features that are common to transnational projects; the issues it throws up find reflections in literature across countries; "it highlights what is normal or average" (Miles & Huberman, 1994, p. 28).

- bial is a *politically significant* case. BIAL's genesis and implementation were politically conditioned, it draws attention to politically significant issues, it has had considerable impact on the political processes of the state and the country, and been impacted by them. It is therefore expected that the findings would be analytically generalizable across projects in India, and the world (Yin, 2003, pp. 39-41).

3.3 Analytic Strategy

The main unit of my study is the PPP project, that is, BIAL. However, in keeping with my belief of the importance of the context in determining public policy issues, the local context in which the policy process played out, as well as the national context that forms the larger background, will both be the subject of my study. "In fact, as Yin points out, cases may have sub-cases "embedded" within them" (Miles & Huberman, 1994, p. 26). This strategy of embeddedness also links my units of analysis the three main theatres in the bial saga, the SPV, viz. bial, the State Government of Karnataka, and the Union Government of India.

Fig 1 : Embedded Case Study



My primary data sources are archival records, governmental documents, site visits, media reports and interviews.

4. The Context

"Understanding the context, political, economic and cultural, in which the case study is embedded, is vital in a world where cultural barriers are becoming permeable" (Kamath, 2006). Beginning with changes in global discourse we move on to national and local factors pertinent to this megaproject, and finally take a brief look at the project itself.

4.1 The Background : The New Economy

Around the 1980's, winds of change swept over the way governments conducted their business. Nicknamed 'Thatcherism' and 'Reagonomics' after the political leaders who spearheaded it, the new wave was most powerfully felt in the uk and the USA, but left its mark on most countries of the world, including India. This New Public Management articulated a need to radically transform the way governments operate, bringing in not just the ethos of the private sector, but also actively involve the private sector in the business of governance. What was signal about npm was that it did not stop with debate and discussion, but entered the realm of political practice. Countries like the UK and New Zealand went the farthest, privatizing public sector organizations, downsizing bureaucracy, tackling not just public sector unions but also an influential body of economists who felt that under massive privatization, equity and social justice would suffer.

Except certain western economies with a tradition of privatism and a developed private sector, most economies, particularly developing ones, could not shift to a completely privatized economy. The political and social costs were too great in a scenario of electoral politics. So, rather than complete privatization, governments experimented with alternative mechanisms such as outsourcing or contracting to bring private sector efficiency without eliminating government's role as provider of public services. This contributed to an increasing role for private sector management and finance in areas traditionally the

domain of government, such as infrastructure and public services delivery.

4.2 The National Context : India

India, anxious both to retain its socialist heritage and yet not lose out on the gains of capitalism, adopted a gradualist approach, liberalized its economy in 1991, bringing the public sector down a notch or two from the 'commanding heights' of the economy. The ideology of the new economy found a fertile breeding ground in India because the slow growth of the economy and the sluggishness of the public delivery system was attributed to state failure; while the opening up and marketization of the economy was credited with more recent successes in attracting foreign investment and growth (Sinha, 2005). There was a shift from the prevalent anti-capitalist discourse into a perception of private sector as the engine of growth, and a belief that the injection of much needed private sector efficiency would improve public working. A growing focus on infrastructure provision to cater to corporate demands also characterized the new liberalized state. Literature observes that the internationalization of nations drives a development impetus that is outwardly oriented, extending beyond national boundaries, and attached to larger global economic linkages (Olds, 1999) (Jessop, 2003) (Kamath, 2006). This attempt to reach out to the outer, presumably better world, is manifest in policy and investment choices of societies and governments. In such a scenario, infrastructure mega-projects such as an international airport become an expression of such an aspiration.

4.3 The Sub-National Context : The State of Karnataka

While national policy set the parameters within which growth occurred, sub-national governments began taking advantage of those opportunities for growth (Ferguson, 1990) (Kamath, 2006). One fallout of liberalization was the concentration of foreign investment in a few states, and the resultant competition between them in attracting investments. This was assisted by the growing political importance of regional political parties as players on the national stage. Thus there was a move from a strongly centralized national state to one in which sub-national state governments play an increasingly autonomous and developmental role.

Through the 1980s and 1990s, the growing importance of sub-national governments in the political and developmental process led to the greater influence of sub-national leadership. Rudolph & Rudolph note that in the continuing drama of liberalization, State Chief Ministers play leading roles. "They are seen on front pages, covers of news magazines and television screens, making and breaking coalition governments, welcoming foreign statesmen and investors, dealing with natural disasters and domestic violence" (2001, p. 1541). The overall framework within which development took place grew out of the interaction and negotiation between key actors representing the central government, the sub-national government and regional élites.

Karnataka in early-2000 was symptomatic of this trend. The new Congress government that came to power in 1999 emphasized governance reform, attracting investment and marketization, with primary focus on the corporate sector. The advent of this change was heralded as "the death knell of status quoism and the onset of reform and change" (Deccan Herald, 2001). Post-liberalization, sub-national economic policy also saw a shift from balanced regional development and poverty alleviation to industrial facilitation and emphasis on a few global centers of the future (Kundu, 2000, p. 9) (Kamath, 2006). The attempt to 'sell' a city as a desirable investment destination became a legitimate public activity, resulting in the emergence of unique city identities.

4.4 The City : Brand Bangalore

A new idea of 'Brand Bangalore' began to make the rounds in the 1990s, nationally and internationally. The advantages of liberalization were availed by a largely IT based private sector in Bangalore, which took over the reins of growth, at least in the public imagination. Their outward orientation led to a spurt of software based industries with multinational collaboration. Infosys, Wipro and a host of fledgling enterprises propelled the transnational operations and

growing reputation of the city. The middle classes, who formed the bulk of the IT white-collar workforce, benchmarked Bangalore against cities in the west and were impatient of its lack of infrastructural amenities. So there was a real infrastructure deficit, and a strong perception of governance deficit. Consequently, the government found it imperative to establish its commitment to improving infrastructure and retaining Bangalore's premier position as the technology capital of India. The creation of a new urban landscape was characterized by certain flagship projects, which "are the material expression of a developmental logic that views megaprojects and place marketing as means for generating future growth and for waging a competitive struggle to attract investment capital" (Swyngedouw, 1989)(Swyngedouw *et al,* 2002) (Short *et al*, 1993) (Hall & Hubbard, 1996) (Kamath, 2006).

The launching of mega-projects and PPPS were thus the visible symbols of reform for a Chief Minister who preferred the sobriquet of CEO. A number of task forces marked the entry of non-state actors into the 'business' of governance. "In Bangalore, for instance, the infrastructure and funding focus has been on the construction of ring roads that surround the city, the development of a Bangalore-Mysore Infrastructure Corridor, and the construction of an International Airport." (Benjamin, 2000) (Kamath, 2006). "Public Private Participation was the running thread throughout the administration" (Additional Secretary to the Chief Minister, (Deccan Herald, 2001). One of the main planks on which the government was based, therefore, was the concept of ppps and this public-private interaction, the Chief Minister stated, was the key to his success (DeccanHerald, 2002).

4.5 The Sector : Civil Aviation

As Bangalore and its landscape were metamorphosising into modernity, changes were taking at the national level in the Civil Aviation sector.

• The Policy Scenario

For many years since its inception in 1911, the Indian aviation industry was plagued by inappropriate regulatory and operational procedures resulting in either excessive or no competition. The 1994 policy change paved the way for a more open and competitive market with several private players. The sector saw a significant increase in the numbers of domestic passengers. Growth in air travel was fuelled by India's rapid economic growth, rise in middle class incomes, increased business travel, low airfares offered by low cost carriers, the growth of the tourism industry in India, fleet expansion by airlines and service expansion by state owned carriers. This also signaled a shift from, the 'Maharaja syndrome' which perceived air travel as an elitist activity which only the rich and powerful could afford. Now aviation came to be viewed as an essential link for international travel and domestic connectivity. There was a gradual realization that aviation, by its very nature, is a critical part of the infrastructure of the country and has important ramifications as a stimulus for business activity and economic growth ((Deutsche Bank Research; Heymann; Just; Lowijk; Vath, 2007, p. 14) (Nilekani, 2008, p. 249).

• Airport Infrastructure

Beginning in the nineties, there was a phenomenal increase in the air traffic handled by both international and domestic airports. The growth in air traffic was due to the introduction of large capacity aircraft which promoted air travel for business, commerce and tourism. The phenomenal growth swamped the facilities available at the airports. Airport administrations such as the then IAAI and NAAI were gripped with feverish activity to modernize and expand the airports with new and large terminal buildings and hanger runways to cater to the growing traffic. In many cases the newly built airports and those which were modernized and renovated proved to be inadequate even before they were completed (S.Ramanathan, 6/1992, pp. 3-4).

Airport infrastructure was linked to development of India's international competitiveness and her ability to attract foreign investment (Deutsche Bank Research; Heymann; Just; Lowijk; Vath, 2007, p. 15). But it was unable to keep pace with the rapid increase in passenger traffic. Most airports faced severe traffic congestion and frequent delays. Until 2000, there were five major international airports-Mumbai, Kolkata, Delhi, Chennai

and Trivandrum. The Airport Infrastructure Policy of 1997 decided to set up Greenfield Airports in the country (141st report of the Department related Parliamentary Committee on Transport, Tourism and Culture on 'Functioning of Private Airports & related issues', 2008) (141st report of the Department related Parliamentary Standing Committee on Transport, Tourism and Culture on 'Modernization of Airports', 2008). The Greenfield Airport of Bangalore was announced in 2002, ahead of the AAI Amendment of 2003 which paved the way for the establishment of Greenfield Airports.

Placing civil aviation reform in the context of the economic reforms scenario, we may note that the liberalization and privatization program launched by the Congress party government under Prime Minister Narasimha Rao in 1991 continued under the BJP- led National Democratic Alliance government with Prime Minister A.B.Vajpayee. This was billed as the second wave of reforms and had a number of motivations. Partly they were follow-up actions, which the first set of reforms had rendered inevitable; and these too were pushed by multilateral agencies (Taraqqi, 2001). However, the politics of stealth (Jenkins, 2007) which characterized the early reform effort was no longer was no longer necessary. The mood of the nation, as voiced by its political representatives, was changing.

A perusal of the Reports of the Department-Related Parliamentary Standing Committee on Civil Aviation (141st report of the Department related Parliamentary Committee on Transport, Tourism and Culture on 'Functioning of Private Airports & related issues', 2008) (141st report of the Department related Parliamentary Standing Committee on Transport, Tourism and Culture on 'Modernization of Airports', 2008) (Lok Sabha, Parliament of india, 2008) displays certain recurrent concerns: the poor state of airports and airport infrastructure in the country, the inability of the Airports Authority of India to utilize budgetary funds, and an acquiescent acceptance of the private sector route for the promotion of the Greenfield airports in Bangalore and Hyderabad. This excerpt from the 90th Report is indicative of the prevalent mood: "Airports are the gateways to a nation. However, in our country, the state of airports, both domestic and international, leaves much to be desired. The Department-related Parliamentary Standing Committee on Transport, Tourism and Culture discussed the state of airports in the country and was of opinion that the situation at the airports in the country was a cause of concern. Air travel has registered tremendous growth due to various factors such as higher incomes, more corporate activity, low cost airlines, cheaper fares and absence of adequate rail and road transport infrastructure. At a time when the civil aviation sector was taking wings in the country, the airport infrastructure in the country had come under tremendous stress. The infrastructure available at the airports and the amenities inside the airports are grossly inadequate and are in urgent need of replacement or modernization" (Rajya Sabha, Parliament of India, 2005, p. 3). It was in this climate of conceding the inevitability of reform and the inclusion of infrastructure, partially aviation infrastructure, as part of that reform that the Bangalore Airport was conceived and executed.

5. The Project : BIAL

5.1 The BIAL Story

If there was ever with a project with a history, it is the Bangalore International Airport.

The idea of a new airport for Bangalore was mooted in 1989 by Dr.S.R. Valluri, former Director of the state owned National Aeronautical Laboratories, to meet the growing aviation needs of the city. The project was initially conceived on a Build-Own-Operate model, and a Memorandum of Understanding signed between the Tata group, one of India's largest industrial conglomerates and the principal promoter of the project, and the State government. Continuous delays led to the Tata consortium walking out of the project in 1998. The long and arduous journey toward the new airport was once again kick-started by the then Prime Minister A.B.Vajpayee in January 2002 and taken up by a Siemens-led consortium. Construction work was completed in early 2008, and the official launching was on 23 May 2008. From 1989 to 2008, the project has seen many changes in elected governments at the Government of India and Government of Karnataka.

The story of bial is not over. The project still draws bouquets and brickbats, and litigations relating to the

project are pending, this maiden effort at a Greenfield airport for Bangalore is truly rich in its political economy and public policy implications. In the ancient Indian language of Tamil there is a proverb that says: "The elephant alive is worth a 1000 gold coins, an elephant dead is also worth a 1000 gold coins". So also, this project is a repository of lessons, both in its achievements and its mistakes. For a researcher and policy maker, it offers an endlessly fascinating study.

5.2 The Location Controversy

BIAL had attracted its fair share of controversy in the course of its history, but none to match the outburst of public criticism and outrage that followed its launching. Spearheaded by the users located in the South of Bangalore employed in the IT sector who found the distance to Devanahalli daunting, the 'Save HAL' campaign' found enough lacunae in the new airport to justify keeping the old airport open. The polity soon took notice, and the matter was raised in the Legislative Assembly of Karnataka by the MLA of the Congress Party D.K.Shivakumar. This culminated in the appointment of the Joint House Committee under the Chairmanship of Hemachandra Sagar, MLA vide Bulletin No.29 dated 18.9.2008 (Karnataka Legislative Assembly Debates:Official Report:Part 1, 2008) (Minor Publication Part 2, 2008) (General Publication: Minor Publication Part-2, 2008).

Even as bial was nearing completion, its location was one of the primary issues of controversy.

- One of the earliest assessments came from the Indian Institute of Management Bangalore: "Geography, however, may be an important factor overlooked so far, and as the deadline to switch airports draw near, there is increasing consternation among sections of the public that the new airport … may be ill-suited to serve a portion of the existing demand" (CPP, IIMB, 2008).

- The issue snowballed as blogs and newspapers took it up: "I chose to look around, and chat up with the airport staff, and ask them their opinions. Their daily commute of about 80km was the biggest source of displeasure, despite the free transport provided by their employers" (Agarwal, 2008).

- "Road commuters will be the first to feel the heat. It doesn't make sense to travel for two hours to the airport to catch a 30-minute flight," says Federation of Karnataka Chambers of Commerce and Industry President R.C. Purohit (OneIndia News, Sunday, June 10, 2007).

- "It's killing. There's no other way to describe it. It took us nearly three hours through numerous congested traffic junctions and suffocating pollution to get from Electronic City to the upcoming international airport in Devanahalli, a distance of 68 km. It was only a little better, about two hours, for those of us who started from J P Nagar and Rajarajeshwari Nagar" (TNN, 2007).

Considering the intensity of public reaction to the location of the airport at Devanahalli, it becomes important to examine the rationale behind the location decision. In this paper we highlight two episodes of the BIAL saga. These two episodes are divided in time, but closely linked to each other. We first examine the process of decision making in 1989-92 that located the airport at Devanahalli. We then establish the forward linkage of this episode to the drama that unfolded when the airport was launched over fifteen years later in 2008. We connect these two disparate incidents and time and analyze then for the lessons they throw up for policy maker and decision taker.

5.3 The Genesis of the Bangalore Airport

The story of Bangalore International Airport (hereinafter BIA) began in the old Hindustan Aeronautics Laboratories (hereinafter HAL) airport, some forty kilometers away from the spot where BIA is now located in Devanahalli. After protracted negotiations, the Director General Civil Aviation obtained a small piece of land known as `civil enclave' in the HAL Airport for building a civil airport terminal in the 1960s. This building, which cost about Rs.60 lakhs, was designed and built for handling peak hour traffic of 300 passengers, arrivals and departures combined. By 1991, peak-hour traffic increased to 1800 passengers.

Bangalore meanwhile metamorphosed into one of the fastest growing cities in Asia. Population grew

by 38% between 1961 and 1971 and 76 % between 1971 and 1981, standing at three million in 1981. The establishment of large public sector undertakings engaged in the manufacture of aircraft, electronics, heavy machine tools, earth moving equipment and telephones in the 1950s and 1960s followed by massive investment in the private sector in a range of industrial and engineering products spurred the city's growth. The central location of Bangalore in the South, its temperate and salubrious climate, adequate availability of power in the 1960s and 1970s and its convenient links with other metropolitan cities and major state capitals contributed to the growth of industry, trade, commerce and tourism (S.Ramanathan, 6/1992, pp. 4-5).

The air traffic through Bangalore also recorded spectacular growth. In the decade 1980-90, the rate of growth more than doubled. The mix of industries and high growth rate of industry made Bangalore into India's largest domestic air-cargo airport. Even without adequate facilities, Bangalore attracted upto five international dedicated cargo carriers weekly. The air cargo increased from 4986 tons in 1978 to 15394 tons in 1988 to 12664 tons (Indian Airlines) in 1991; postal mail from 896 tons in 1978 to 1170 tons in 1988 to 1190 tons (Indian Airlines) in 1991; The Terminal Building handled a total number of 4500 passengers daily and 30 tons of air cargo. Among the airports in India, Bangalore ranked fifth in terms of number of scheduled aircraft movements. Studies conducted by the AAI also indicated that Bangalore attracts a significant number of international passengers that passed through the Indian International Gateways of Bombay, Delhi and Madras (S.Ramanathan, 6/1992, pp. 4-6) (TATA-Raytheon-Singapore Consortium, 6/1996, p. 2).

If the airport had been with the Civil Aviation department, it would have perhaps been possible to plan for an expansion and new terminals. However, as it was a Defence airport, there was no expansion, renovation or modernisation, leading to acute congestion. "People are jostling shoulder-to-shoulder and often the movement of baggage trollies *(sic)* causes leg injuries to passengers and visitors. Confusion is worse confounded by the large numbers of visitors who proceed to the viewing gallery on the mezzanine floor criss-crossing their way through passengers, baggage trollies *(sic)* and visitors. In fact, during peak hours, the confusion and chaos must be seen to be believed" (S.Ramanathan, 6/1992) (Mattoo, 1998, p. 2).

Choked by the increase in civilian aircraft traffic HAL's very purpose of carrying out military flying operations has been hit. With the airport operating more than double its capacity, routine sorties and testing prototypes of transport, civilian and military aircraft designed and developed by defense establishments became difficult. Since a timeframe could not be set for military flying activities, HAL was put to inconvenience as every two minutes; a civilian aircraft was either taking off or landing at the airport during peak hours. The HAL airfield, out of which all civil and commercial aviation operations were conducted, was unable to meet the growth in demand due to its limited land area, and physical proximity to the city. Besides, HAL, a defense production unit, was an aircraft manufacturer and the prototype manufacturing developer for the Light Combat Aircraft and Advanced Light Helicopter. As these projects become more active, HAL needed its airfield for flight testing. This was likely to disrupt civil air operations.

To ease the situation, the HAL and AAI initiated measures to enhance the airport's capabilities. Eight new parking bays were built in front of the international/domestic apron and western end of the aerodrome as part of a Rs.50 crore improvement project, taking the total number of bays to 27. The ATC was improved with the installation of state-of-the-art communication equipment, including Airport Surveillance Radar, Monopulse Secondary Surveillance Radar and Radar Data Processing System. MD, HAL appealed to commercial flight operators not to add any more flights as it would only further worsen the situation (UNI , 2006).

In the 1980s, HAL came to be considered an embarrassment by a newly resurgent Bangalore. An airport is the first visible component of a city, and from this viewpoint, the HAL airport was a problem. It was not an international airport, and did not provide the picture of a hi-tech city that Bangalore wanted to project. While HAL earned some revenue from civil

aviation activity (about 200 crore when new airport took over in 2008), it was unable to leverage the full potential of non-aeronautical revenue that airports largely rely on, as it lacked frills such as duty-free shops and malls that attract an international traveller. The airport was a constraint on private airlines that grew with liberalization of the aviation sector, and there were complaints that Indian Airlines, the state carrier, was allowed landing while private carriers were kept hovering in the sky. All sides suffered, and it was not a happy situation for anyone concerned. (Interview with Scientist, NAL) (Interview with former Wing Commander, HAL).

The idea of building a new airport to serve Bangalore thus had its roots in the increased demand for air travel to Bangalore and the restrictions that HAL placed on civil traffic out of its airfield.

5.4 A New Airport for Bangalore

The idea of a new airport for Bangalore was first mooted by Dr.S.R.Valluri, former Director of National Aerospace Laboratories, Bangalore, to meet the growing aviation needs of the city. He took up a study of an Airport Terminal Design for Bangalore Airport on behalf of NAL in early 1989, which was welcomed by the Ministry of Civil Aviation and NAA. In his memoirs "Events in Life", he recalls the historic moment that launched the BIAL saga: "Improving the air travel facilities in Bangalore was a long-felt need. Once, in the late '80s, Dr R Narasimha, my successor as the Director of NAL, and I were returning from Thiruvananthapuram after attending a meeting in ISRO. We noted how crowded the airport was and how badly it was designed. We noted that more often than not, Indian airports were obsolete even before they were opened for operations. There was no forward planning in anticipation of future requirements. I proposed to Narasimha that we should do something about it, and that I would be glad if NAL were to formally obtain the approval of the Secretary, Ministry of Civil Aviation to study the issue, and that I would be glad to take on the responsibility of studying the problem. The then Secretary, Mr. Ganesan, readily agreed" ((Valluri, 2006) (Interview). The study titled "A Case Study of an Airport Terminal Design for Bangalore Airport" was completed in November 1989 and unequivocally stated that Bangalore would require a new airport by year 2020. This study was submitted to the Government of India (S.Ramanathan, 6/1992, p. 7) (Mattoo, 1998, p. 2) (Sharma et al, 2008, p. 3)..

The first articulation of the aspiration that the new airport should be an international airport also came in the early 1990s.Concurrently with the submission of the Valluri report, S.Ramanathan a retired IAS officer, then Chairman of the Tourism Committee the Federation of Karnataka Chamber of Commerce and Industry (FKCCI) and former Chairman of the International Airport Authority, wrote to the Government of Karnataka and the then Union Civil Aviation Secretary A.V. Ganesan requesting immediate action for development of the Bangalore airport in two phases: a short-term phase modifications and alterations to cater to the growth till 1995 and the selection of a new site for a new airport to cater to long-term growth. Formal representations were sent to the Secretary from FKCCI, Travel Agents Association of India, Karnataka Hotel and Restaurants Federation and Confederation of Engineering Industry (Southern Region). Responding to the FKCCI's invitation, Ganesan visited Bangalore in 1990 and held discussions with Karnataka Government officials, the HAL Chairman and FKCCI and Industry Associations Following Ganesan's discussions, it became evident that Bangalore needed a new civil airport airport considering its importance and the great potential for growth of both domestic and international airtraffic and its developement as a regional sub-base in the South (S.Ramanathan, 6/1992, p. 10) (Mattoo, 1998) (Government of Karnataka, 7/12/1998).

It was at this juncture that the State government's role became important. The Government of Karnataka indicated that they desired to start international operations from Bangalore and approached the Union government for appropriate permissions. The Union Secretary called on the Chief Minister and Chief Secretary and was readily assured of 'fullest cooperation and support' (D.O.No. AV.20014/2/90-VB from A.V.Ganesan, Secretary,Civil Aviation, Govt. of India to Shri.Prabhakar Rao , Chief Secretary, Govt. of Karnataka, 1991).The Chief Minister S.Bangarappa stated in his Budget Speech 1992-93 as follows: "The

need for an International Airport at Bangalore to promote Industry, Trade and Commerce and also Tourism has been felt for a long time. The Government of India has constituted a committee to identify a suitable place for an International Airport. I appeal to the Government of India to take a decision in this regard very early and commence the construction of the project in the year 1992-93 itself and I assure through this house that the State Government will provide all necessary assistance and support for this venture" (1992-93, p. 77).

6. The Location Decision

6.1 The Valluri Report

The Valluri report of 1989, based on a study of air traffic growth in Bangalore and the plans of several international airports, recommended four alternatives to build a new domestic airport of adequate size with scope for future expansion and layout of access roads to and from the city.

- Shift the location and build a new airport.
- Expand/update the present terminal and simultaneously the apron on the air side.
- Build a new terminal on the other side of the runway.
- Renovate the present terminal extensively (S.Ramanathan, 6/1992) (Mattoo, 1998) (Valluri, 2006).

The National Airports Authority (NAA) did not favour construction of a new airport due to paucity of funds. The second alternative was also rejected as the land and airport belonged to the HAL. The third alternative was found infeasible as the land on the other side of the runway was a low-lying area prone to flooding and part of the land would have to be reclaimed by land filling. Hence, the NAA considered the fourth alternative of renovating and expanding the existing terminal building. It also initiated a proposal to acquire land adjacent to the airport in a phased manner. However, the required area of land sought was not available and only a small portion of 8 acres and 30 guntas was available. A large area of land had previously been vacant and available on the western boundary of the HAL airport and along the main airport road. If the land had been acquired 10-15 years earlier, it might have been possible to build a new terminal building with associated facilities. But as this did not happen, housing colonies, commercial buildings and a 100 acre golf course sprung up in the area adjacent to the airport. All this highlighted the need for perspective planning for airport construction (S.Ramanathan, 6/1992, p. 9) (Mattoo, 1998, pp. 2-3).

The State Government made a counterproposal offering land between Bangalore-Varthur-Sarjapur on the east of Bangalore Airport and Bellandur tank upto Varthur village. A note placed before the Karnataka Cabinet in 1996 states: "On examination of this proposal it was found that there were a number of villages in the area and built up houses. Besides the land was not contiguous with the airport boundaries. Hence this site was not considered suitable to a new terminal building. Prior to the constitution of the Site Selection Committee GOI had examined the possibilities of acquiring additional lands near the existing HAL airport for its expansion. However, having regard to the constraints of suitable lands being available contiguous to the existing airport and also the apprehensions of HAL that increased level of Civil Aviation operations through HAL airport was likely to pose problems for testing their own fighter aircraft and other types of planes, HAL was anxious that the GOI and the NAL should examine the possibility of selecting a new site for a civil airport" (Commerce and Industries department, 25/10/1996).

6.2 Revisiting the HAL Option

It was in these circumstances that A.V.Ganeshan held his consultative meeting in 1990. A fact that had hitherto been known only informally was confirmed during the Secretary's meeting with Chairman, HAL. HAL had been suggesting that increased civil operations at the HAL airport may pose problems for testing of fighter aircraft. HAL therefore was anxious that the Govt. of India and the NAA examine the possibility of selecting a new site for a civil airport. The Ministry of Defence also suggested shifting of civil aviation activity (S.Ramanathan, 6/1992, p. 13) (Mattoo, 1998, p. 3) (Government of Karnataka, 7/12/1998).

Another report emphasized that the "Government of Karnataka is extremely keen that a site for the new airport should be selected early". It appears from Dr. Valluri's account that HAL later changed its stance, and stated that civil operations need not been shifted,

but this revised view failed to prevail in the climate of opinion that had already grown in favour of a new airport. "The Chairman of HAL retired and another one took over. The new Chairman took the view that civil operations need not be shifted. At that time, HAL was apparently earning about Rs 15 crores (Rs150 million) per year as landing fees, certainly not a small sum. Incidentally, it was also found that the HAL airport would be able to handle the traffic for the next 25 years or so. But it became a matter of prestige to have a separate international airport, and the politicians had their way. But it was too late. The decision to shift the operations had been made" (Valluri, 2006).

The media took up the issue, and complaints on the HAL airports poor infrastructure were daily fodder for the press: "Chaos reigns supreme at Bangalore Airport" screamed one headline. With a half hour wait for security clearance, chaotic departure and arrival terminals, inadequate seating for passengers hit by delayed flights... Hal was an "Airport bursting at the seams" "a picture of chaos" (Kappan, Airport bursting at the seams, 2004) (Kappan, Chaos reigns supreme at Bangalore Airport, 2006).

CONFUSION: An unusual crowd was witnessed outside the departure lounge of the Bangalore airport on Sunday. Photo: K. Murali Kumar. Source: (Kappan, Chaos reigns supreme at Bangalore airport, 2006).

Thus, over 1989-91, we can trace a growing congruence of opinion regarding the construction of a new international airport for Bangalore. A proposal that had been initiated by a few like-minded persons in industry and NAL began to take on an air of urgency and inevitability. "It may be mentioned here that the construction of a new airport of international standard in Bangalore has been a long felt need of not only the Government but also the industry, trade and the general public. Notwithstanding the fact that HAL airport is being upgraded to some extent to meet the growing needs of civil aviation traffic till such time a new airport is constructed , it is need less to mention that HAL airport will not be in a position to meet the projected growth of civil aviation traffic on a long-term basis not only due to the needs of HAL airport for defence, testing and training purposes but also due to the fact that further expansion of HAL airport would be constrained due to non-availability of adequate contiguous lands for construction of a second runway (Commerce and Industries department, 25/10/1996, p. 7).

6.3 The Ramanathan Committee

Based on a detailed report by Ganesan, the Civil Aviation Ministry set up a committee in March 1991 under the chairmanship of S. Ramanathan, former Secretary to Government of India and Chairman of International Airport Authority of India "to examine alternative sites for construction of a modern and futuristic civil airport of international standards of international standards and make suitable recommendations"[1]. The committee, which comprised technical members from NAL, HAL, IAF IAAI, DGCA and Indian Airlines; State government Secretaries from PWD and Revenue Departments, and industry representatives from CIE (Southern Region), FKCCI, Travel Agents Association of India and Air Cargo

1. *The Committee for Recommending a Site for a New Airport at Bangalore. Popularly known as Ramanathan Committee. Set up by Order No: AV.200014/2/90-VB Ministry of Civil Aviation Government of India, New Delhi dated 14.03.1991((Ministry of Civil Aviation, Govt.of India, 1991). Members: S.Ramanathan, IAS Retd.(Chair) D. Valluri; Representatives of HAL; IAF; IA; AI; DGCA; IOC; Member Engineering IAAI; Secretaries to Govt of Karnataka in Revenue & PWD; Representatives of CIE, Southern Region, Bangalore; FKCCI; Travel Agents Association of India; Air Cargo Association of India; Member (Planning & Engineering), NAA (Member Secretary). Core group: Tenure:14/3/1991 to 26/6/1992. Six meetings (5:Bangalore; 1:New Delhi). I Special Core Group Meeting.*

Association of India, submitted its report to the Centre in June 1992. (Setting up of a Committee for examining alternative sites near Bangalore for the construction of a civilian airport of international standards, 1991) (S.Ramanathan, 6/1992) (Mattoo, 1998, p. 3) (Government of Karnataka, 7/12/1998) (Interview, Former Member Site Selection Committee) (Interview, Former Chairman Site selection Committee).

The Ramanathan Committee which was initially given a brief of six months, submitted its report in June 1992. In a period of fifteen months it conducted a detailed examination including spot inspection, basing its examination on technical considerations of airspace management, practical considerations of land availability, power, water and suitability of terrain. The contents of the report become especially important in view of latter day allegations in the media that the location decision was made casually and without much thought (D.O.letter from S.Ramanathan, IAS (Retd), Chairman, Committee for recommending a new site for Bangalore Airport to S.Kanungo, Secretary, Civil Aviation, Ministry of Civil Aviation, Govt.of India, 26/06/1992) (Ministry of Civil Aviation, Govt. of India, 1991) (S.Ramanathan, 6/1992) (Government of Karnataka, 7/12/1998).

6.4 Process of Site Selection

In the period between March 1991 to June 1992, the Committee held five sittings in Bangalore on 19th/20th April 1991, 19th December 1001, 19th February 1992, 15th June 1992. In addition, a meeting was convened on 4th July 1991 presided over by Dr.Valluri, in the absence of the Chairman who was abroad, and attended by members stationed in Delhi. A meeting of the Special Core Group was held on 24th March 1992 in Bangalore to study issues of Integrated Airspace Management (S.Ramanathan, 6/1992, p. 33) (Minutes of the Meeting of Special Core Group on evloving an Integrated Air Space Management and Report, 1992) (Valluri, 2006).

A detailed narrative in the report details the process followed by the Committee. Its first step was to lay out the norms for site selection. Broadly, the criteria invoked during deliberations included: the capacity to meet both domestic and international traffic, safety requirements, operation of B-747; constraints of airspace management due to the existence of three airports[2] in Bangalore, a runway length of 14500 ft suitable for Airbus -300 and occasional landing of B-747; adequate provision of land area for construction of a parallel runway, taxi-tracks and additional passenger terminals, adequate space for all infrastructures such as 4 to 6 lane Express Highways, rapid mass transportation systems for access to airports, residential colony for workforce, terminals for international and domestic cargo, provision of water supply for airport and colony, location of oil terminal, a site dimension capable of accommodating a strip 6kmx2.5km, site should meet traffic growth for next thirty years. A formal document of technical parameters was prepared by NAA and provided to the State Government (National Airports Authority, Undated).

The site selection exercise placed the State government centre-stage. The report indicates that it took considerable time for the State government to identify suitable sites, and it was only after the Committee gave the broad guidelines regarding the criteria to be followed for identifying sites were they able to get on to the work. In consultation with the Deputy Commissioners of the districts surrounding the Bangalore metropolitan area, the State government through its Revenue Commissioner suggested various sites in Bangalore Rural district. It also appears that all the sites were not suggested all at once, but at different points in time (Vijayapura and Devanahalli first; Malur, Yelahanka and Kengeri later), which too might have involved some revisiting of issues (S.Ramanathan, 6/1992, p. 30) (D.O.letter from S.Ramanathan,IAS (Retd) ,Chairman, Committee for recommending a new site for Bangalore Airport to S.Kanungo, Secretary, Civil Aviation, Ministry of Civil Aviation, Govt.of India ,26/06/1992) (Interview with former Assistant Commissioner, Devanahalli during the selection process).

Different site options in the North of Malur, Kengeri-I, Kengeri-II, Vijayapura, South of Devanahalli and

2. IAF Yelahanka, State government Airfield for Flying at Jakkur and HAL Aerodrome.

Yelahanka, and Kanminike Village, near Mysore Road, Bangalore South were proposed to the Committee, of which two-Vijayapura and Devanahalli- were shortlisted for inspection. While the Committee members conducted ground inspection of the proposed sites-"the entire team walked around these areas", the HAL member Capt. Ashok conducted aerial survey (Resume of First Meeting). The Committee also formed a Core Group of officials of the NAA (Resume of Second meeting) to examine the sites in detail after receipt of data from the State Government. The Core Group met on 03.07.1991 and prepared a detailed comparative statement. In pursuance of a suggestion from Dr.Valluri (resume of Preparatory Meeting in Delhi, p.37), who was apprehensive of the distance of Devanahalli from Bangalore, the Core Group of Director (Planning), Director (Operations) and Assistant Director (Planning), NAA visited Air headquarters on 25.10.1991 and examined the feasibility of Yelahanka aerodrome (Core Group of Site Selection Committe, 25.10.1991) (Special Land Acquisition Officer, Bangalore Sub-division, Bangalore, 1991) (Special Deputy Commissioner, Bangalore District, 1991) (S.Ramanathan, 6/1992, pp. 35, 37, 45-52).

In its early meetings, the Committee apparently once again revisited the expansion of HAL airport as an option. The non-technical members made out a case for retaining and expanding the HAL airport with additional buildings and parking. At that time, the advice of the Chief Test Pilot of was emphatic. The existing airport was being used by HAL primarily for test flying. HAL was also the only Air Force Test Centre of the Air Force at the time. There were also corporate planes, which were on unscheduled adhoc flying. Test flying included both prototype and production testing, of multiple types of aircraft including Fighters, Bombers, Trainer Aircraft and Helicopters. Test flying is an intense and continuous activity, involving high levels of skill and risk of failure and mishaps. In this scenario, with the possibility of engine failure, fire, low start up fuel, flight manoeuvres, and sudden emergency landings, a dedicated test-flying airfield was essential, always available to the test pilot was essential. In conditions of low-level civilian flying, some interface of test flying with airline flying could still be possible with slot allocation. But mixing intensive civilian operations with intensive test flying operations was asking for trouble, with implications for safety. This tipped the balance in favour of a new airport HAL (Interview with former Chief Test Pilot, HAL) (S.Ramanathan, 6/1992).

Once the decision for a new location was firmed up, the question was where to locate it. The Committee wanted an airport as close as possible from the city but separate from it, to avoid obvious problems like noise, pollution, traffic and safety. The Committee was constrained by the options provided by the state government; and the revenue authorities were in turn constrained by the availability of contiguous land that met the stringent terrain and operational requirements that an airport inherently entailed. Neither the state government nor the Committee had the freedom to pick and choose any piece of land anywhere surrounding Bangalore.

The HAL airport was oriented in an East-West based on wind direction. Air traffic management and safety precautions required that any new airport had to be located to the South or North. This eliminated sites such as the one on Mysore road. Looking South, Bangalore was not only overcrowded, but a sufficient distance from HAL would take the airport to Hosur. Hence, the choice was narrowed to sites to the North of Bangalore (S.Ramanathan, 6/1992) (Interview : former Director, NAL; Former Chief Test Pilot HAL, both members in Site Selection Committee, Former Chairman, Site Selection Committee).

6.5 The Evaluation Exercise

The final evaluation therefore relied on the following:

- The deliberations of the Committee
- The Spot Inspection of Committee members
- The Comparative Statement of Sites by the Core Group (Comparative Statement of Sites Inspected by Selection Committee, 1991)
- Aerial survey by Captain Ashoka
- The Core Group Spot inspection and Feasibility Report on Yelahanka Aerodrome Site (Core Group of Site Selection Committe, 25.10.1991)

- NAA's Proforma for selection of site (National Airports Authority, Undated)
- The details furnished by the State Government (Preliminary Report on Aerodrome Site: DEVANAHALLI) (Special Land Acquisition Officer, Bangalore Sub-division, Bangalore, 1991) (Special Deputy Commissioner, Bangalore District, 1991) (Tahsildar, Sidlaghatta Taluka, 1991) (Tahsildar, Sidlaghatta Taluk, Sidlaghatta, 1991)
- The Report on Cargo handled at Bangalore Air Cargo Complex (Mysore Sales International Limited)
- Perspective Plan prepared by Indian Airlines (Indian Airlines, 1991).

When the choice narrowed down to Devanahalli, the Committee also commissioned the Report of Integrated Airspace Management by a Special Core Group to study the specific problems arising out of the proximity of Defence Airports (Minutes of the Meeting of Special Core Group on evloving an Integrated Air Space Management and Report, 1992) (S.Ramanathan, 6/1992).

The evaluation of sites was based following parameters: physical conditions, type of terrain, surrounding obstructions; availability of utilities such as power and water, accessibility to ground transport, availability of land for future expansion, technical factors such as the presence of other airports in the vicinity.

North of Malur: This site was located 27 miles East, North east of the existing HAL Aerodrome. The terrain was mainly undulating. Adequate strip of land was not available. This site was not operationally suitable as adequate land was not available. The land was in close proximity to the final approach of Yelanhanka, Jakkur and the HAL aerodromes. The final approach was affected by hillocks surrounding the site. The site was therefore not recommended by the Committee.

Kengeri-I : This site was located 15 km south-west of HAL Aerodrome on Bangalore-Mysore road. The terrain was undulating and mainly rocky. Adequate land not available. The site was not operationally suitable. Therefore it was not recommended.

Kengeri-II : This site was located 22 km South West of HAL Aerodrome. The terrain at the site was mainly undulating. It was also rocky, adequate land is not available for a modern airport of international standards. Since the runway was on an east-west direction, the land for laying such a runway in this area is not possible due to the highly undulating nature of the terrain, which would involve considerable expenditure on cutting and filling. Further, the site was not operationally suitable due to the close proximity to the final approach of the HAL aerodrome. The site is not recommended.

Vijayapura : This site was situated 55 km North, North-East of HAL aerodrome. It was located on an elevated platform at the Southern part of Sidlaghata taluka in Kolar district. It is connected to National Highway at a distance of 22 km north and National highway -7 at a distance of 15 km east, which leads to Bangalore city. This site which had a dimension of 6 kms x 3 kms was a flat area with an altitude of 910 metres above sea level. The geographical extent of the above site works out to 3411 acres of which 1235 acres are Government land under the reserved forest category. The remaining extent of 2176 acres was private holdings. Adequate land was available. The surface soil was hard and compact laterite soil without any intrusions or outcrop. Though it was a reserved forest, there had been considerable illegal felling of trees and what remained in patches were trees of various kinds including Eucalyptus, Tamarind, Cashew and other shrubs (Interview with former Assistant Commissioner, Devanahalli). The overall gradient is gentle and a major portion is on a elevated platform. Except for one contour of 920 metres at the border of this strip, the entire area has a altitude of 900 metres. The area was almost flat land. The condition of the ground was good even after the rainfall as the land was on an elevated level. It has good drainage and there was no chance of water stagnation in the area. The hills in the vicinity did not pose any obstructions. The road links were good via Devanahalli and Hosakote. Adequate land was available for terminal buildings, runways, associated facilities for cargo and other engineering, maintenance bases. After examination, the Committee found that the site was operationally suitable except for firing practice carried out in the range by the Army. However, it was felt that

this may not pose a problem and it may be possible either to shift or impose suitable restrictions on the firing range in consultation with NAA for the safety of the aircraft. Having regard to these considerations, the committee initially found it to be suitable to be the site of an airport of international standards.

However, this initial assessment was not accepted by Dr.Valluri who chaired the preparatory meeting in New Delhi. He expressed his apprehension about the construction of the airport at a site 5 kilometers from Bangalore city. He expected that by the year 2000 itself, the load would be about 10000 passengers per day and the cost of fuel for ground transportation would amount to Rs.35 crores per year which a country like India can ill afford. He therefore suggested that the possibility of taking over Yelahanka from IAF after making a thorough study of the availability of land at the airfield may be explored by NAA in coordination with Air Headquarters. In his memoirs Dr.Valluri states: "The Karnataka government offered land about 75 km from the city centre. I could not visit the place. The other committee members approved it. Clearly, they did not do their homework or appreciate the problems air travellers would face if the airport were to be located so far away. The time for travel from city center to airport for travel to nearby cities like Chennai, would double; clearly not an acceptable solution" (Interview with former Director NAL & Member, Site Selection Committee) (Interview with former IAS officer & Chairman, Site Selection Committee (S.Ramanathan, 6/1992) (Valluri, 2006).

This perception was a farsighted one, considering the later criticism about Devanahalli, a good 20 km closer to the city than Vijayapura. Keeping in view the distance from Bangalore, accessibility by land, the commuting time needed for thousands of vehicles making round trips from the airport, Vijayapura which was located 55 kilometers from Bangalore City Centre was not suitable. Considering from these points of view the Committee was not in favour of selecting this site.

Yelahanka : With the rejection of Vijayapura, the Committee considered the Yelahanka airfield, which belonged to the Indian Air Force. This airfield was the main training base for Transport Wing of the Indian Air Force and initial training for pilots flying transport planes was given here. The infrastructure consisted of a runway suitable for transport aircraft and helicopters of the Air Force and some basic supporting infrastructural facilities. In pursuance of the decision taken in the New Delhi meeting, the members of the core Group visited Air Headquarters, New Delhi on 28.12.1991 to examine the grid map/ land map of the Yelahanka aerodrome. In the absence of the grid map, the land map available with IAF was examined. The prima facie examination indicated that the existing runway at Yelahanka can be extended after diverting the National highway linking Bangalore to Bellary and acquisition of the surrounding land. Since the AHQ had no idea of the land area around the aerodrome, it was decided that a site inspection had to be carried out before coming to any conclusion. After obtaining necessary permission the core group comprising the Director (Planning), Chief Engineer, and Assistant Director (Planning) of NAA inspected the Yelahanka aerodrome on 18.12.1991. It was observed that the extension runway by 900 feet is only possible at the Western end due to running of meter and broad gauge railway lines. As regards extension to the Eastern side, it was observed that only land area upto a distance of 600 ft was available with IAF and beyond this NH & is running North-South. The extension is possible only if the NH 7 was considerably diverted. Beside the area around the airport was low lying which needs to be filled up for raising the level of the existing aerodrome. It was also observed that there is no possibility of having a parallel runway in future and an aerodrome with only one runway has to be accepted. Besides, the Core Group noted that some assets in terms of land area, hangars, runway, parking apron and residential quarters belonging to the IAF were costly and based on current market prices, the compensation to be paid to IAF would be considerable. The Core group further observed that in the event of taking over Yelahanka aerodrome for development of a civil airport of international standards, Jakkur airfield should also be taken over for future integration with the main airport. In that case the development of parallel runway would be possible, supported by rapid transport system for commutation between Yelahanka and Jakkur airfields (Core Group of Site Selection Committe, 25.10.1991) (S.Ramanathan, 6/1992).

However, this option also came to nought. As Dr.Valluri describes it , I met the then Chief Secretary of the Government of Karnataka and asked him whether the government would be willing to give alternative land and compensation, if the Air Force would be willing to give the Yelahanka Training Command Air Force Base to be developed as the international airport. He said that if the Air Force would agree, he would arrange for them to get as much land as they wanted, anywhere in Karnataka, and full compensation for the facilities they would be leaving behind. Rough estimates indicated that the government would have to pay about Rs 500 crores (Rs 5 billion) as compensation to the Air Force. It was clear to me that sooner or later, the Air Force would have to shift the operations of the Training Command from Yelahanka, as Bangalore by then had already started expanding rapidly in that direction. With the assurance from the Chief Secretary, I called for a meeting of the committee in Delhi to examine this alternative. The approval was unanimous, with the Air Force representatives stating that while they agreed in principle, they had no authority to speak on behalf of the Air Force. The Air Force said, "We always take and never give". So ended the efforts to develop Yelahanka Training Command AFB as an international airport. I then once again approached the Chief Secretary and briefed him about the development and sought an alternative location closer to the city, as the one offered was too far. Land near Devanahalli was offered as an alternate site. It is about 35 km from the city centre" (Valluri, 2006)(Interview with fomer Director, NAL & Member, Site Selection Committee).

South of Devanahalli : Thus, the options narrowed down to Devanahalli. This site was 15km North, North East from Yelahanka Air Force Airfield on Highway-7. It was 5 km South of Devanahalli, which was the taluka HQ, commencing in the revenue limits of Yarataganahalli village as its Western boundary near the National Highway and stretching East-West. The distance from the Vidhana Soudha, the State Secretariat building in Bangalore was 29 km. The site mainly consisted of dry hard soil. A small part of it was reserved forest and the rest private land. The land was flat, fairly level and requires minimum grading for construction of runway and other pavements. The soil surface is hard and there is good drainage. However, the land was in a drought prone area and ground water sources were not good. The land was well connected by road and a narrow gauge railway line and near to Bangalore city. This land was found suitable for an airport of international standards. It had enough land for a terminal building, runways, associated facilities and for cargo, engineering and maintenance base. There was also room for expansion in view of the availability of land. The site was only 29 kms from the central line connected by the National Highway 7(Bangalore-Hyderabad highway) and also served by a narrow gauge rail line which almost ran parallel and adjacent to the National Highway at the point where the Western boundary of the proposed site ends. It was possible to provide the direct rail links to the Terminal building in the proposed site after discussions with the Ministry of Railways and the State Government. If this was done, the feeder services from the airport could be run connecting both the Bangalore Cantonment and the City Railway stations. This would eliminate to a great extent the need for commuting by cars and coaches to the airport, thus resulting in tremendous savings in fuel.

However, in spite of all these advantages, a major constraint in recommending this site which came to the notice of the Committee was the close proximity of both the HAL Airport as well as the Yelahanka Air force Airfield. Operationally, it was close to Yelahanka Air Force airfield from where transport aircraft of the IAF carried out a large number of training sorties. Besides both Yelahanka and HAL had their own traffic control. If an airport in very close proximity to Yelahanka and HAL had to be sited, it would be necessary to examine whether it was possible to have an integrated air space management for all the three airports including the proposed civil airport under the control of one agency equipped with the latest and modern navigational and landing aids.

Accordingly, the Chairman had formal talks with the AOC in C in Bangalore and the Vice Chief of Air Staff in Delhi to explore the feasibility of IAF accepting broadly the concept of an integrated airspace management. He also discussed this matter with the Executive Director of HAL. Fortunately, there was good understanding at

the top levels that considering the great advantages, which the site South of Devanahalli possessed, it should be possible to have an integrated airspace management. In pursuance of this understanding a Core Group consisting of the representatives of the training command of IAF at Yelahanka, the HAL aerodrome, DGCA, AHQ, Indian Airlines and NAA was constituted to examine the matter in depth and make suitable recommendations. This Core Group met in Bangalore on 24.3.1992. The Group examined the matter in great detail and the need for an integrated airspace under management under one agency was accepted with the pre-condition that the airport must be equipped with the latest air traffic management system. A preliminary model on air space management of the three aerodromes at Bangalore and also Jakkur aerodrome (used as a Flying Club) was prepared and adopted by all participants. The Committee mentioned that at the appropriate time when the detailed planning of the air space management is taken up, the air space requirements of HAL and IAF Yelahanka are kept in view. Therefore, in view of the suitability of the site South of Devanahalli from all angles including that of integrated air space management, the Committee recommends this site as the most suitable for the location of the new airport. "By that time, Mr Ramanathan returned, and we all went to see the place and concluded it would be a good alternative. Proximity to Yelahanka and the HAL airport would pose some air traffic control problems, but the committee felt that a common air traffic control for the three airports should be able to handle the problems" (Minutes of the Meeting of Special Core Group on evloving an Integrated Air Space Management and Report, 1992) (Core Group, 1991) (S.Ramanathan, 6/1992, pp. 30-2) (Valluri, 2006)(Interviews with Chairman & Members, Site Selection Committee & former Assistant Commissioner, Devanahalli).

The proposed site for Bangalore International Airport (BIA) was finally located at Devanahalli, situated 30 km due North from the centre of Bangalore city Vidhana Soudha and 4 km south of Devanahalli village. The site area (4276.3 acres notified) fell outside the municipal limits of Bangalore city. The Southern portion of the site 9 about 416.8 acres falls in Bangalore North Taluka, the balance is within Devanahalli taluka (S.Ramanathan, 6/1992) (TATA-Raytheon-Singapore Consortium, 6/1996, p. 14).

7. The HAL Airport: to close or not to close?

7.1 The Rumble Begins

As the construction progressed and the AOD was approaching, opinions came to be expressed through the media, seminars and debates that the HAL airport should not be closed for commercial operations. The

Area in vicinity of BIAL, Devanahalli. Photographed by author, 19.01.2010.

This is the story of the Location Decision, the selection and location of the new Bangalore Airport in Devanahalli. As we saw, this process took place between 1989-92, and was approved by the Government of India in 1994. Now let us fast forward to 2008, the new airport construction is almost complete, and the city and the airport readies for the inauguration after a twenty year wait.

Union Civil Aviation Ministry gazetted a notification on 16.5.2008 stating that the HAL Airport would be closed down on 22.5.2008 midnight simultaneously with the opening of the new international airport at Devanahalli (Staff Reporter, Thursday, May 22, 2008). This became the trigger for the "Save HAL" campaign.

The grounds the demand for continuance of the HAL airport were: poor connectivity to the new airport; insufficient capacity to cater to current and future demand; distance from the city; the recent renovation of the HAL airport would become wasteful and infructuous expenditure if it is closed, and so on. For the Government of India and Karnataka it posed a dilemma of drawing a fine balance between a number of different considerations, namely (a) contractual obligations to an important infrastructure project (b) the mobility needs of a section of the user population and (c) the need to maintain the economic vitality that made Bangalore an attractive choice in the new economy (CPP, IIMB, 2008). As the demand grew increasingly strident, a medley of different interest groups - politicians, corporate heads, parliamentarians, citizens' groups, and media - threw themselves in to the campaign in a telling demonstration of the bandwagon effect. Thus began the interplay of different actors with disparate backgrounds that led to the drama that began shortly before the Airport Opening Date and is being played out even today. In this section we look in greater detail at the actors and the arguments that coalesced into the demand for keeping HAL open as a second airport.

7.2 The Actors. . .

• Unions and Employees Associations

Substantial resistance came from the employees union of the Airports Authority of India. What began as a 'non-cooperation' drive became an indefinite nationwide strike of an estimated 18000 employees working at 135 airports across the country. Airport operations across the country came to a halt after talks between the Airport Authority Employees Joint Forum and Secretary, Civil Aviation failed and their demand to continue operations of the existing Bangalore and Hyderabad airports was rejected. Though the employees' union protested privatization of airports in general, it also focused specifically on the development of new airports at Hyderabad and Bangalore by private players, which would eventually result in the closure of existing ones run by AAI. One of the Union representatives stated; "Our agitation is also in protest over the ongoing privatization of airports by the AAI" (India Today, 2008). Though flight operations remained largely unaffected, AAI employees from fire-fighting, housekeeping, engineering and ground safety departments left their duties and shouted slogans pressing for implementation of their demands. Used coffee and tea cups, empty water bottles and waste paper could be seen littering airports and passengers complained of dirty toilets. Waste material remained uncleared at the international arrival terminal and domestic arrival and departure terminals with the maintenance workers participating in the agitation.

Taking a tough stand, the Union government invoked ESMA against AAI employees at Delhi airport and positioned 479 Air Force personnel at 21 airports across the country to deal with contingencies. The then Joint Secretary, Civil Aviation said: "Delhi government has invoked Essential Services Maintenance Act at the Indira Gandhi International airport here. It is already in operation. I hope the unions know about the large number of directives issued by Delhi High Court. I hope the unions remember these. We hope we will be able to control the situation and expect normal air services tomorrow. Government is also contemplating invoking a 1984 law which empowers officers of the Bureau of Civil Aviation Security to arrest those who sabotage functioning of fire services, power and water supply and endanger safety and security of the airport. This law can be imposed" (Interview with former Joint Secretary, Civil Aviation).

While talking tough, Government also reached out to the agitating employees, assuring them that the old airports in Hyderabad and Bangalore would be used for general aviation and they have "nothing to worry about their future". Civil Aviation Minister Praful Patel assured that "The existing airports are not being closed down. They will be used for general aviation apart from defence purposes and national emergencies. Keeping in mind the interests of all sections, we will

try to find a way out of the legal problems in the future, speak to the operators of the Greenfield airports" Urging the employees to see reason and withdraw their agitation in the interest of the nation and the travelling public, the Civil Aviation Minister said new airports have to be constructed in national interest. The employees' representatives, accompanied by CPI (M) and CITU leaders M K Pandhe, Tapan Sen and Dipankar Mukherjee, had an almost hour-long meeting with Civil Aviation Minister Praful Patel. After Patel's assurances that modernization of 35 non-metro airports would be undertaken with "full involvement" of the AAI and its employees the Forum leaders met separately and decided to withdraw their agitation. However, their effort continued through the legal route.

• Corporates

If the unions were the hard muscle, the corporate sector was the suave voice of the protest. Information Technology companies in the city represented by NASSCOM President Kiran Karnik, Infosys Vice President Mohan Das Pai, Chief Executive Officer Gopalkrishna, and Wipro CEO Vishwanathan, appealed to the Karnataka Chief Minister H D Kumaraswamy to retain the HAL Airport even after the opening of the Devanahalli International Airport. In a memorandum to the Chief Minister during a breakfast meeting, they felt that retaining the present airport would be appropriate instead of closing down of commercial operations. The Federation of Karnataka Chambers of Commerce and Industry President R C Purohit was quoted as saying the "Road commuters will be the first to feel the heat. It doesn't make sense to travel for two hours to the airport to catch a 30-minute flight" and that some flights should be retained at the HAL airport, at least till a rail link or a dedicated road is established between the City and Devanahalli (OneIndia News, Sunday, June 10, 2007) (UNI, 2007).

Unconfirmed reports also circulated that several of the top IT heads contacted the CEO, Siemens in Germany, through the good offices of CEO, BOSCH in a last ditch effort to persuade Siemens to agree to a contractual charge; an effort that did not succeed. (Interview with Infrastructure expert, FKCCI).

• Private Airlines

The media reported that leading private airline operators called upon the state and central governments to re-examine the decision to close the HAL Airport to commercial traffic once the Devanahalli airport became functional. Their contention was that not only many global cities have more than one airport; certain flights are best operated out of a facility closer to the city. Capt.Gopinath, Managing Director, Air Deccan, apparently representing the private airlines', confirmed that he was in talks with the government. "Bangalore is a global city, and all global cities have multiple airports. London has five. I met the Chief Secretary a few days ago, and he indicated he's open to the idea". Criticizing the government's decision to close HAL airport, he said the projection in air traffic made during the time the contract was signed did not hold water, as the air traffic had exceeded the projection; and it was a mistake to give a monopoly to BIAL. According to the clauses of the contract signed by the Government, no airport is allowed to come up within 150 kms radius, with the exception of airports at Mysore and Hassan which he dubbed anti-development. Arguing that multiple airports lead to competition among airports and, therefore, better services to customers he also said that for customers flying short regional routes, huge airports like Devanahalli would pose inconvenience on account of the time taken to get to it, the long queues, and stricter security. " It'll impede regional connectivity, and so we need another airport that is closer to the city and which will have lower airport charges" The suggestion was that HAL Airport could initially be one for regional flights, and later grow to accommodate more varied flights. Citing examples of London which had five airports and other European countries, he questioned the logic behind not allowing two airports to function in a city. "We should not lose one infrastructure to another".

This opinion was echoed by Warwick Brady, Chief Operating Officer, Air Deccan, who was quoted as saying that the airline is for retaining the existing HAL airport for short-haul flights. "With the skyrocketing demand for air travel, the Devanahalli airport operators will more than achieve the projected growth in passenger

traffic by 2010. So there is no reason for the HAL airport to be considered a competition,"

In a turnaround from HAL's earlier position that civilian traffic hampered its defence of test flight functions, C.G Krishnadas Nair, a former Chairman, HAL claimed: "HAL had never wanted to close its airport. But the then government decided to go by the demand of the consortium. BIAL was worried that HAL would compete with it and take away its business". HAL officials, however, maintained that the airport was not top priority in the company's scheme and that it's pursuing its own plans, including Maintenance, Repair and Overhauling (MRO) facilities with global players(Interviews: Infrastructure Expert, FKCCI; former Chairman HAL) .

• Parliamentary and Legislative Committees

At this juncture the Parliamentary Standing Committee on Transport, Tourism & Culture was requested to submit a report on Privatization and Modernization of Airport of India. The Committee visited Bangalore International Airport on 15.9.2008, and conducted wide ranging discussion with various stakeholders including representatives of Airport Authority Employees Union. Subsequently it submitted its 142nd report to the parliament titled "Functioning of Private Airports and Related Issues" which discussed exhaustively the demand for keeping the HAL Airport open. The report highlighted several issue:

The closure of the HAL Airport was not mentioned in the tender for Bangalore Greenfield Airport and making an offer of closure of HAL Airport, after Notice Inviting Tender appears to be a clear violation of the due process; granting permission start a Greenfield airport within a radium 150 K.M of the existing HAL Airport, without a passenger sharing formula prima-facie seems to be in violation of the Govt. policy on Airport infrastructure; the continuance of the Bangalore HAL Airport with the consent of the management of BIAL and Govt. of India shows that if the Govt. wants they can operationalize the old airport with notwithstanding the concession agreement; Sec.5A of Aircraft at 1934 under which HAL airport was notified to be closed talks of danger to the aircraft / Country which reason is totally irrelevant for the instant case; the NOC for setting of Bangalore Greenfield Airport by the Ministry of Defence made it amply clear that the operations at HAL Airport will continue even after BIAL becomes functional and the choice of Airport to be utilize should be left to the operators / commuters / general public; There are examples of more than one Airport coexisting in cities to cater to various types of passengers requirements. For all the above reasons the Committee recommended that the HAL Airport should be made functional: "The Committee notes some merit made by the representatives AAEU. It also feels that the closure of the Bangalore and Hyderabad appears to have been in haste. It is no doubt (sic) deprives the AAI the good amount of revenue that it needs took cross subsidized airport in remote areas. The Committee of the considered view the HAL Airport at Bangalore, Begumpet Airport at Hyderabad may be made operational for Domestic Civil Aviation (141st report of the Department related Parliamentary Committee on Transport, Tourism and Culture on 'Functioning of Private Airports & related issues', 2008).

At the level of the state government also, there was legislative intervention, though this came after the launch of the airport rather than before. The spate of public complaints that accompanied the launching made the polity sit up and take notice. The matter was taken up for discussion in the Karnataka Legislative Assembly and there was strong criticism from Legislative members particularly from the Congress party. The newly elected BJP Government appointed the "Joint House Committee to Examine the Construction and Issues to Bangalore International Airport" on 18.09.2008. The Committee met on several occasions and interacted with officers and officials of the Government, BIAL, industry representatives and the general public. The Joint House Committee report tabled on 21.12.2009 devotes a complete section to the closure of HAL airport. (Joint House Committee, Karnataka Legislative Assembly,Thirteenth Asssembly, 2009).

The Committee report reiterated several of the issues that had been reported in the media and other public fora. It pointed that the policy of the Centre in signing the CA with BIAL to close down the HAL airport is

inconsistent with its own policy in other sectors; the airport infrastructure policy in 1997 stated that no Greenfield airport would normally be allowed within an aerial distance of 150 km of an existing/functional airport; thus BIAL has been established in violation of its own policy by the Centre. Further, the notice inviting tender for establishing a new Greenfield airport in Bangalore did not contain any clause about closure of HAL airport, which is capable of handling an average of 360 movements (departures / arrivals) per day with a peak hour capacity of 30 movements (departures/ arrivals) per hour. Low-cost carriers and their users will be the hardest hit as the 'throughput charge', and the user development fee would exceed the price of air tickets on short-haul sectors. The closure of HAL airport negated the healthy competition and created private monopoly. Concluding that the closure of existing HAL airport caused loss to users, airlines, staff and the numerous people engaged in transport, catering and other services at the busy metropolitan airport, the JHC recommended that the existing airport be kept open (Joint House Committee, Karnataka Legislative Assembly,Thirteenth Asssembly, 2009).

• Political Voices

Political leaders, across party lines, joined the chorus. A number of political leaders and parliamentarians were cited in the press as supporting the move to keep HAL airport open:

- Sitaram Yechury of CPM, who headed the Parliamentary Standing Committee looking into the issue, reportedly wrote to Prime Minister Manmohan Singh demanding that the existing HAL airport be kept open for small aircraft operations, as was the case in major cities like Dallas, Houston and Newark. "Given the fact that in both Hyderabad and Bangalore, capacity has saturated there is no reason for the Centre to close existing airports. The government should renegotiate the deal with promoters of new airports. As the PIL on the closure of Hyderabad airport is coming up on April 4, the government should not rush to close this airport by March 15.''

- Former Chief Minister of Karnataka M Veerappa Moily: "The international airport was conceived during my tenure as CM and we had also planned the connectivity road to it. Unfortunately, successive governments under Deve Gowda cold-shouldered these plans. The Centre should negotiate with the promoters of the project for the sake of the people and impress upon them that at least for short haul flights, HAL airport requires to be kept open.''

- Former Chief Minister of Karnataka N Dharam Singh: "An international airport for international flights is fine. But for short distance flights, one cannot be travelling three hours to catch a 40 minute duration flight. My party will represent to the Centre highlighting the difficulties."

- D V Sadananda Gowda, MP and state BJP president: "There's no doubt that Bangalore needs an airport of international standard. The government should allow HAL airport to function for domestic sectors until a faster connectivity to International airport at Devanahalli is in place."

- BJP MP from Bangalore North (which includes Devanahalli), H T Sangliana: "HAL airport should be utilized for operating domestic flights and the government should initiate a dialogue with the BIAL on this. The Devanahalli airport can be utilized for international flights. Though costs more, an international passenger can afford it.

- The CPM central committee: "The closure of the existing Hyderabad and Bangalore airports will deal a mortal blow to the fortunes of the Airports Authority of India converting it into a loss-making enterprise" (Compiled from (TNN, 2008)).

• Civil Society

Ramesh Ramanathan, of Janaagraha, largely representing the voice of the residents of Bangalore South , wrote in a daily as follows: "So, a few weeks in advance, here's a greeting to Bangalore's air travelers: Welcome to the most under designed, under connected, woeful piece of infrastructure that is the face of new India to the world. Maybe we can harness a new source of renewable energy in India: "angry citizen energy". It's available in plenty, and being replenished every day by our governments." The first legal challenge to the

GOI notification in the High Court of Karnataka also came from a Bangalore resident Mr. Krishna Bhat on the grounds that the provisions invoked by the Civil Aviation Ministry for closing down the HAL Airport, that is, Section 5A of the Aircraft Act, 1934 and Rules 11 and 78 of the Aircraft Rules 1937, and clause 5.5 of the Concession Agreement dealt with the opening of a new airport and not its closure; sufficient notice had not been given to the parties before the notification was issued (Staff Reporter, Thursday, May 22, 2008).

• The Government

The stand of the Ministry of Civil Aviation and its agencies showed apparent shifts and variations through the months leading to the AOD. The issue was debated intensely at the three-day conference on civil aviation organized by the Centre for Asia Pacific Aviation as Minister Praful Patel triggered it stating that even though the governments have to honor the agreement, a way out should be explored on giving a second airport for the technology centre. Yet, amid indications that no civilian flights will be allowed at Bangalore's HAL airport, the Union government announced the new international airport will open by the end of May 2008 and operator's license will be issued in a few days. This emerged after a meeting convened by the Civil Aviation Ministry attended by officials of the BIAL and Karnataka government. Replying to a pointed question whether the existing airport would be closed down the Union Secretary Civil Aviation stated that : "I suppose that is how it is working out" the new airport will start " functioning by month-end" as BIAL was " not agreeable to keep the existing airport open" However, as the Supreme Court directed the Centre to consider a citizen group's demand to keep the existing airport operational the Secretary also stated that talks were on with various stakeholders, including the airlines now operating at the HAL airport, on several options as to how it can be kept operational for civilian air traffic (PTI, 2008).

The reported stand of the state government displayed variations. The BJP made a pre-election promise that if voted to power it would lobby to keep the HAL airport open. The Chief Minister cheered the 'Keep HAL Airport Brigade' by stating that his government was strongly in favour of retaining the HAL airport for short-haul flights. Stating that the he would like to go by the sentiments of the majority, and thus retain the HAL airport, he however clarified that "We don't want any investors to face loss. Many cities have two airports, and Bangalore should too" (DHNS, 2008).

The Information Technology minister said: "The state needs both airports. We're going to request the Central government to keep HAL airport open, at least till a second runway is built at BIA." At the CII's India Innovation Summit, the Minister said the government wants to retain HAL airport for short-haul flights. "Retention of HAL airport would be a great help for people flying to Chennai, Hyderabad and Thiruvananthapuram and back. We have several examples of cities where two or three airports are functioning. There is no bar for holding a dialogue, especially when it comes to infrastructure development issues" (TNN, 2008).

However, the Tourism Minister and Principal Secretary for Infrastructure Development dropped sufficient hints that HAL Airport would be closed once the International Airport at Devanahalli became operational. They asserted that as per the agreement the HAL Airport would have to be closed once the International Airport in Devanahalli is ready. "We know there is a demand for operating both airports; but we cannot breach the agreement. We have not yet received any communiqué from the Centre " (TNN, 2008).

• The BIAL Management

With the Union government taking the stand that contractual agreement cannot be abrogated unilaterally; "If it has to be worked out, then it has to be only with the active involvement of the airport management" it was left to BIAL to reiterate again and again that the contractual obligations bar a second airport in Bangalore. BIAL Chief Commercial Officer Stephen Widrig asserted that continuing the HAL airport was out of question and added such a step would not help anyone. "How can you have two airports that are miles away? Suppose a passenger wants to fly to Bangalore and has to take an international flight immediately, will it be possible if he lands at HAL airport? In any case, the concessionaire agreement expressly negates

the second airport. What the people and airlines need is one integrated airport with seamless connections" (OneIndia News, Sunday, June 10, 2007).

Outrightly rejecting the need for a second airport to the city, BIAL CEO Albert Brunner claimed that the new airport would be in a position to handle 2200 passengers during the peak hour and more than 10 million passengers in a year. ''Looking at the growth of the sector in Bangalore, we are planning for taking up expansion in two years after the Airport was thrown open'' Justifying the concession agreement he said that the new airport would be able to cater to the growing requirement. ''For the next 20 to 25 years, there will not be any requirement for a second airport'' he said adding that such a necessity could arise if the air traffic crossed 50 million a year (UNI, 2007).

7.3 . . . . and their Arguments

The arguments put forth by the advocates of the Save HAL campaign were as follows:

• Capacity Constraints

In May, the Karnataka High Court directed AAI and the Union government to assess the capacity of the new airport. A meeting was taken by Union Secretary, Civil Aviation on May 12, 2008 and as per para 7 of the meeting minutes, it was decided that AAI will undertake a study to assess the capacity of New Bangalore International Airport at Devanahalli. In pursuance of this decision, a team of AAI officers undertook the study from 16th June to 18th June 2008 at New Bangalore International Airport. The study was not released to the public and the details in it have not been corroborated by Bial, but portions were leaked to the press and gave a fresh twist to the controversy. The salient points made in the study were as follows:

- During 2007-08, Bangalore International Airport handled 10.12 million passengers (1.55 million International passengers and 8.57 million domestic passengers). The share of Bangalore International Airport in India's traffic is 21% and 9.90% respectively for International and domestic traffic. Bangalore International Airport is the 4th busiest airport of India and handles 8.66% of India's total air traffic. Bangalore Airport has recorded the compound annual growth rate of 33.4% and 29.0% for International domestic passenger traffic respectively during the last five years (2002-03 to 2007-08).
- Peak hour and Annual capacity vis-à-vis Traffic Demand in confirmation with IATA norms is given below:
- Peak hour dynamic capacities have been worked out as 1200 passengers respectively for international and domestic wing corresponding annual capacities of 1.82 million and 7.96 million passengers.
- Peak hour current demand has been worked out as 1020 and 2640 respectively for international and domestic wing with the corresponding demand of 1.55 million and 8.57 million passengers.
- International wing is expected to saturate during 2008-09 when wing has already saturated. Terminal building at New Bangalore Airport is integrated terminal and therefore with the saturation of one terminal the entire terminal area is saturated. However if we consider highest peak hour go upto 582 passengers for international and 1570 passengers

Capacity vis-a-vis Demand and the year of saturation of Terminal Building					
Area	Peak Hour Demand (In Numbers)				
	Capacity*	Demand (June' 08)	Capacity*	Demand (2007-08)	Year
1	2	3	4	5	6
International	1200	1020	1.82	1.55	
Domestic	2400	2640	7.96	8.57	
Total	3600	3660	9.78	10.12	

- Since the demand for international is less than the capacity and domestic is more than the capacity, the swing is effectively utilization operation only. It will help in optimum utilization of available gates are shifted towards international side.

- Swing gates may be relocated by shifting towards International optimum utilization of the existing space available in the Terminal.

- Immediate action is to be taken create an additional capacity to avoid the further congestion handle the projected growth.

- Peak hour runway capacity is 32 movements as against the current peak hour demand of 25 movements. With the anticipated annual growth rate of 25 runway is likely to saturate during the year 2010-11. Therefore immediate action is to be taken for the construction of second runway to handle additional 10 million passengers' traffic per annum as proposed above.

- Existing number of parking bays are 42 (C-Code) as against the peak hour demand of 41 bays (26 passengers aircraft + 5 freighter + 10 buffer contingency). Therefore the addition of 30 more bays is also recommended.

- There is an imbalance between import and export cargo area which needs adjustment i.e. import cargo is saturated whereas export cargo and domestic cargo have adequate capacity. It is therefore recommended that an additional import cargo capacity may be created immediately.

- In view of the saturation of passengers terminal, import cargo, apron and runway, it is recommended that, in meantime, the existing HAL Airport may be permitted to operate until the time of commissioning of proposed additional capacity at New Bangalore International Airport.

The study maintained that new airport has been built to handle 9.78 million passengers much less than the 11.4 million passengers claimed by Bial; and at least 10% less than the capacity of the old HAL airport. The AAI study also recommends that the old airport, run by Hindustan Aeronautics Ltd, or HAL, reopen until such time additional capacity is added at the new airport on Bangalore's outskirts. "In view of the saturation of passenger terminal, import cargo, apron and runway, it is recommended that, in meantime, the existing HAL airport may be permitted to operate until the time of commissioning of proposed additional capacity at the new Bangalore international airport". The Union ministry of civil aviation said the AAI committee had over-extended its mandate in its study. "They were asked to assess the demand and supply situation at the Bial airport and how to address it. They were not asked to make any recommendations. They have to involve Bial authorities for statistics." Later, the The Union civil aviation ministry has concluded after a fresh study that congestion is a problem at Bangalore's new airport only during peak traffic hours, which does not necessitate reopening the old city airport. The ministry had asked to reinforce arrangements to handle peak-hour traffic (Raghu & Shukla, 2008) (Shukla, 2008).

The official studies were no deterrent to the numerous bloggers who came up with their own estimates, replete with "gobbledygook of technical data about runways, ramps, airspace rights and peak hour movements". The following excerpt from Bangalore Aviation, a BlogSpot that tracked the entire HAL issue, is an example:

"Thanks to the economic boom in India, the liberalization of the aviation industry, and the efforts of the low cost carriers, who incidentally lead the global surge in aviation growth, Bangalore air traffic has exploded; to a growth level just not anticipated, let alone planned for. In the 36 month period that BIA was being constructed, traffic has grown 255% from 4.1 million passengers per annum (MPPA) to almost 10.5 MPPA. With all due respect to the capabilities of the BIAL consortium, I dare say, there is no infrastructure project in the world that can plan for, let alone handle this level of growth. From terminal to airplane stands to runway to airspace, an airport is a finely tuned integration of capacity points, and the old adage of a chain being as strong as its weakest link holds true. As all airports in India have shown us, the flexibility of human beings allows terminal capacity to exceed

100%. Also, the terminal design at BIA is modular, and I believe BIAL management claims, that it can be easily expanded. However, I must temper my belief, with the fact, that BIAL management has chosen not to expand the present terminal in 2007, despite seeing the explosive growth trends. What cannot be easily exceeded is apron, runway, and airspace capacity, for the cold hard rules of air safety dictate these operate at or below 100%, and the laws of physics determine long construction times. While BIA's terminal is a huge improvement over the AAI owned and operated terminal at HAL airport, BIA still has, only ONE runway, just like HAL airport. Under the safety rules of the DGCA, the runway can only handle 30 flights an hour (take-off or landing). It does not matter that the plane is a mega people moving Jumbo jet or a small commuter turbo-prop like an ATR or a cargo aircraft. Unlike vehicles on a road at rush hour, you cannot stop a plane in mid-air due to a traffic jam. Each flight has to be given a pre-determined flight slot. As per BIAL's own data, on its opening date, BIA's single runway, is already "fully booked" during the peak travel hours from 6AM - 10AM and from 6PM to 8PM. In fact the 6am-7am and 6pm-7pm hours are "over-booked", and we are still in the summer schedule which is a lean time for air travel all over India. Where will the additional demand that will come in the peak Winter season be accommodated? Future growth can only come by domestic flights during non peak hours and international flights later in the night. We use air travel for convenience, and I do not know many people willing to take a flight at non peak hours. BIAL has independently contracted Lufthansa Consulting (LHC) on two occasions to project air traffic in Bangalore before commencing construction. Thanks to their conservative projections, Bangalore has crossed BIAL's "Optimistic" figures for the year 2010, 3 years ahead in 2007 and the gap is only widening with each passing day. Many seasoned industry watchers believe the BIAL projections continue to be excessively conservative, and their projection of 21.4 million passengers by 2013 is unrealistically low. Using the real life example of India's best and largest airport, in terms of flight operations, Mumbai, the very best that BIA can achieve with its one runway is 15 million passengers"

By keeping HAL open in parallel, will allow BIA and Bangaloreans multiple benefits :

1. Extend the saturation date of BIA by another 4 years, possibly more
2. Shift smaller turbo-prop aircraft to HAL, thus opening the slots to more valuable larger jets
3. Improve productivity by cutting down commute times
4. Product differentiation by using HAL as a low cost low amenities airport.
5. Still gives BIA over 210% of its original traffic projections".

(Agarwal, The case for keeping HAL open in parallel with BIA, April 27, 2008).

• The Exclusivity Clause

When BIAL was conceived, a concession agreement was entered into with the Government of India, wherein the latter granted the exclusive right and privilege to BIAL to carry out the development, design, financing, construction , operation and management of the airport for a period of thirty years from opening date with an option to extend the concession for another 30 years. A number of other agreements were also in place to support the concession agreement. At the time of the concession agreement it was the policy of the Government of India that airports serving the large metropolitan areas shall have monopolistic rights of carriage; that is they were assured that no competing airports would be permitted to operate within a 150 km radius from them. In line with this, BIAL too was assured in the concession agreement that no new or existing airport will be permitted to operate as a domestic or international airport within 150 km. this meant that any new airport for a metropolitan area has to be considered in light of the existing one. But there were variations in the way this was implemented in different cities, Bangalore, Hyderabad, Pune, Mumbai, due to local considerations. Notwithstanding these, it was agreed in the Concession Agreement that when BIAL became operational, the old HAL airport would be denotified for commercial passenger traffic (CPP, IIMB, 2008).

When the matter was challenged before the High Court of Karnataka, the Attorney-General told the court that it was the Prime Minister who took the decision to close HAL airport for civilian and commercial operations. "It is wrong to say that HAL airport is closed. It is only closed for civilian and commercial operations. Since 1947, it was a civil enclave under the DGCA. The government has only withdrawn the permission granted earlier. The PM's decision was based on the report of the task force on infrastructure, wherein setting up of Greenfield airports was recommended. It was discussed that once the new international airports are set up; the civilian enclaves should be closed for civilian and commercial operations.

During the discussion organized by CPP, IIMB the then CEO of BIAL, pointed out that any breach of the concession agreement entered into with BIAL would make the government, both at the state and the centre, appear unreliable partners for future infrastructure projects, and affect the perception of India as an investment destination for the global community. At the same time, he also left open the possibility that BIAL may be satisfactorily indemnified for any losses it might face as a result of a decision to keep HAL open. Other panelists too, including the HAL representative, spoke of such a settlement. It was also suggested that BIAL and HAL could work out an arrangement between themselves regarding the operations of both airport in a mutually beneficial manner.

Senior aviation ministry officials, together with those from the Airports Authority of India and aviation regulator Directorate General of Civil Aviation discussed the matter with BIAL executives but no consensus was reached."BIAL is not agreeing at all to commercial operations at the HAL airport. They are not even allowing Haj operations the old airport" (Shukla, 2008) (CPP, IIMB, 2008) (TNN, Mar 19 2010).

• Access and Connectivity

As the deadline to switch airports drew near, there was increasing consternation among certain sections of the public that the new airport may be ill-suited to serve a portion of the existing demand. Geography, a factor overlooked hitherto, came to the forefront of discourse. During the last decade or so, Bangalore witnessed rapid development of its southern and south-eastern suburbs, whereas the new airport lay far to the north of the city. Mobility patterns for the city indicate high concentrations of employment related movement in the southern suburbs. Mysore also lay to the southwest, and there was development along Mysore road. As a result, a population, numbering over 2.5 million in the larger metropolitan region from south-west to south-east, including Hosur in Tamilnadu, faced the prospect of having to drive forty kilometers or more to reach the new airport, and sometimes through congested city areas, to reach Devanahalli. Given Bangalore traffic, it was estimated that travel from Majestic city centre to the new airport would take two hours; and an hour more from Bangalore South; including the three hour advance time for international travel, a resident would need six hours to catch an international flight, the same as going by road from Bangalore to Chennai!

Colourful press reports appeared about the travails of the passenger travelling from the south of the city. One of the colorful examples read as follows: "It's killing. There's no other way to describe it. It took us nearly three hours through numerous congested traffic junctions and suffocating pollution to get from Electronic City to the upcoming international airport in Devanahalli, a distance of 68 km. The Times of India undertook an exercise on November 5 to check out the exact nature of the travails one would have to go through to reach the airport. The distance and the poor accessibility to the airport has had everybody worried, and our exercise at evening peak hours proved it will probably be worse than what many imagined. By about the 25th kilometer from Electronic City, we were beginning to feel exhausted, and cab driver Paramesh was complaining about his legs paining from the constant clutching-braking. At times he would look and sound as if he regretted agreeing to make the trip. From our experience, here's what you need to be prepared for: if you are taking an international flight out of Bangalore which requires you be at the airport three hours prior to departure, then leave home at least five to six hours before the flight time. We say 'at least' because there's a good chance your cab will scrape or hit somebody in the bumper-to-bumper traffic, which might lead to

a hold-up. Take along plenty of water and snacks. If you have to stretch a little, take an AC cab. It may cost you about Rs 1,000 or more for a one-way trip to the airport, but it will probably be worth it. Finally, a plea to the state government and the Bangalore International Airport Ltd: Don't put Bangalore's citizens through this. We deserve better. For frequent travellers, it will be sheer nightmare. Find a quick solution" (TNN, 2007).

It was also reported that Mysore passengers "had to leave the city at least 10 hours prior to the departure of their international flights". Quoting estimates of trial runs by travel agencies, it was stated that the minimum time required to reach the airport at Devanahalli from Mysore was about six to seven hours during peak hours; taxi drivers and travel agencies operating in Mysore have an exact estimate of the duration required to reach HAL airport but not Devanahalli; and the traffic congestion beyond Kengeri increased travel time to ten hours (Krishna Kumar, 2008).

Various options to make access to the far-away new airport speedier had been considered, but the state government had been slow to implement such plans. The poor road connectivity to the upcoming Bangalore International Airport is again under fire and seems to be one of the biggest challenges before the new government. It now appeared that high speed access to the new airport was at least eighteen months away. Indeed, even the access through Bellary road to the north was only then being upgraded, with the deadline looming. A parallel rail option was also under consideration but this too was at least two years away, and there were reports that this plan might run into conflicts with some of the existing infrastructure plans of the National Highways Authority of India. High speed access, in any case, was a poor substitute for proximity. Lashing out at a "state government that has been asleep at the wheel", Ramesh Ramanathan wrote: "It's astonishing that we are talking about something as trivial as road connectivity at the 11th hour, four years after the concession agreement was signed, and eight years after the decision to locate the international airport at Devanahalli. A plea to Manmohan Singh and Praful Patel. When you come to Bangalore on 30 March to "inaugurate" the airport, don't parachute in like VIPs. Instead, travel like the average passenger, toiling from Rajajinagar through West of Chord Road, battling the trucks across Peenya, getting stuck at the Yeshwantapur railway crossing, stop-starting across the 26km highway stretch sliced by 23 junctions with tractors and bicyclists and pedestrians, before bouncing over a 4km dust-track to finally get to the spanking new airport. Wouldn't it more fitting if the inauguration were on 1 April?" (Ramanathan, 2008).

A delegation led by N Reguraj, Chairman, CII, Karnataka, called on Chief Minister B S Yeddyurappa and expressed their serious concern that if the issue was not resolved it would create enormous stress on all air. The delegation suggested a 'mission-mode approach' on two fronts which include upgrading the existing infrastructure like Rail Over Bridges, Grade Separators, road widening, resurfacing and also building new infrastructure facilities like Metro link and expressway in a time-bound manner'; the setting up of a joint committee, in which industry, urban planning experts and others be given a role in ensuring that these projects are taken up and implemented with urgency; and offered to work closely with various government departments to resolve issues on infrastructure and connectivity. The chief minister assured support of the government in implementing these projects (DHNS, 2007) (DHNS, 2008).

Progress in ground infrastructure to reach the airport gradually picked up as the public criticism mounted. The government conceived and kick started implementation of the following plans for easy transport to the airport. The announced plans were countered by critics who pointed out their flaws. It is not clear how many of the proposals ultimately came to fruition, but the connectivity issue was resolved over a period of time.

- A six-lane national highway from Hebbal flyover, with Road over Bridges across two level crossings and a trumpet-shaped interchange for unhindered flow into the airport. The then Infrastructure Secretary stated that "We have got the technical evaluation done for the trumpet interchange, which will cost about Rs.40 crore". The CM wrote to NHAI, asking them to take up the interchange. But nearly 60 acres had to be acquired for the trumpet interchange

along the national highway. KIADB officials said this process had not even begun, though the Secretary maintained that the final notification would be issued within a week. Mr. Brunner said that BIAL would be spending an additional Rs.117 crore to connect the National Highway with the city. Initially there would be two road over bridges, with the third one planned involved in a land litigation in the Karnataka High Court. It would depend on land acquisition for the same by the State government (UNI, 2007).

- A proposal to build a dedicated double line rail link to connecting the airport to the city on BOOT system was submitted to the Cabinet. The proposed train was to start from BRV grounds on MG Road and reach the destination in 23 minutes. The road map to this Rs 4,000 crore project was prepared by Delhi Metro Rail Corporation Limited and presented to Infrastructure Minister. The Minister said that DMRCL conducted a feasibility study, soil study and survey and the government is awaiting for detailed project report. A portion of the BRV grounds, presently with the police department, was handed over to Bangalore Metro Rail. A committee headed by Chief Secretary P B Mahishi will meet home department officials to get some land in the proposed place". The high speed elevated train would be different from Metro. Principal Secretary to Infrastructure said the cost ratio is still being worked out. "We have approached BIAL to share equity". BIAL CEO Albert Brunner told newspersons that the Board of BAIL was open to a joint venture with the Railways and state government. The government and railways had realized the need for a rail link between airport and the city which "has to be implemented expeditiously. BIAL's plan has envisaged a rail facility within the airport and its upto the State Government to decide on a dedicated rail link" ((Times of India, 2006), (UNI , 2006) (UNI, 2006) (OneIndia News, 2007) (OneIndia News, Sunday, June 10, 2007).

- Two alternative routes were mooted: A dedicated road from the outer ring road that would go directly to the airport and a rail link from The Cantonment station to deposit passengers straight the flight boarding area. In place of a new, dedicated road, upgrade a major district road via Hebbal and Hosakote by the public works department was proposed, and a feasibility report has been completed on the link and is still to be cleared by the Cabinet. To cater to international standards and also to avoid traffic problems, the state government has proposed to run a high-speed elevated train from MG Road to the under-construction airport in two years (Times of India, 2005).

- A decision to initiate an expressway from a point on Outer ring Road upto Devanahalli to tackle the traffic bottlenecks was taken by the Empowered Committee on Infrastructure meet. The expressway would act as a link road between the airport and the city. Chief Secretary B.K. Das said" The alignment for the expressway has been identified. It will run from Nagavara in Outer Ring Road straight upto Devanahalli. The expressway cuts through Peripheral ring Road as well. "The 30 km stretch will be an access-controlled road, with a width of 100 m. the 4-lane expressway will be implemented by BMRDA. Eighteen months ahead of the airport's scheduled opening, BMRDA began work on the expressway. R.K. Misra, member of empowered committee on Infrastructure said: "The project will require about 300 acres; it will take some land from the green belt as well as private land. The cost of land acquisition alone stands at Rs.300 crore. The entire project could escalate to much more. Because the project cuts through the Peripheral ring Road, the express can be linked on to the NH7. Apparently, plans are afoot to develop the area commercially and have malls and shopping centres so as to decongest roads into the city (Times of India, 2006). Bangalore Metropolitan Region Development Authority Commissioner that contrary to allegations made by the public, there had been no change in alignment in the proposed expressway between Outer Ring Road and Devanahalli. The confusion was due to differences between actual boundary marks and the existing land records. "The road alignment was done based on aerial surveys and other methods. When the proposed survey numbers are superimposed on the village maps, they don't tally because the existing land records haven't been updated" (DHNS, 2007).

- The two ROBs at Dodjala and near the ITC factory were half-done. The South Western railway, which has undertaken the construction, is said to have been hit by escalating steel prices. Kumar said "We are hoping that the ROBs will be ready in about 10 months."

Till these plans fructified, the government looked at the alternative introducing express and ordinary bus services between the airport and the various important points in the city. The BMTC rolled out Bangalore's first dedicated bus lane to exclusively ferry airport passenger deploying 40 A/C Volvo buses. "Forty Volvo buses with frequency of 10-15 minutes each will ply to Devanahalli. It would offer the commuter value for money, comfort and safety and reduce travel time" said Dastagir Sherieff, Chief Traffic Manager (Operations) BMTC. Lane marking began in January and trial runs began towards January-end and February. The plan is to ready the lane before the airport is inaugurated in March. The BMTC and transport department received the go-ahead to execute the project following the submission of a comprehensive report on the lane system by traffic expert M.N. Sreehari. The dedicated bus lane is meant to ensure quick travel time on brand-new low-fare Volvos and also to avoid breakdowns. "The world over, Volvos driving in bus lanes have a 0.001% breakdown rate and this will be the case here too. We have also recommended that new BMTC buses be used for the low-fare sector," Sreehari said. The plan was to cover the distance between Hebbal flyover and airport in 25 minutes. Initially, there were no provisions to install bus stops along the way, but owing to good passenger flow, bus stops were tentatively planned for every 2 km. The Hebbal BMTC depot doubled up as the departure hub for passengers coming in from the Outer Ring Road, Vijaynagar and Koramangala. Passengers from Bangalore East and South-East coul proceed to the airport without a detour on a direct road. The bus lane was marked by two yellow lines using thermoplastic paint, and the lane will be marked: 'For Buses Only'. The BMTC also arranged to have an in-house porter on every Volvo bus to assist passengers with their luggage. The police manned the lane for a while to ensure only buses drive on it and Barriers were put up at regular points along the lane. Later the BMTC extended the dedicated airport services to non-airport passengers as well. Non-flyers were allowed to travel up to Hebbal last point in both directions on the Suvarna and Vayu Vajra services. The Vayu Vajra service scored high on customer feedback but there were reports that the corporation is running the premium service on a loss due to low occupancy. BIAL117 (TNN, 2008) (TNN, 2007).

The BMTC also introduced chauffeur-driven limousine service with a dedicated helpline to pick-up and drop off air passengers. The Managing Director, BMTC said 40 high-end cars would be purchased to service passenger traffic to Devanahalli airport. "A branded service will be established with a helpline number that will co-ordinate the logistics. Travellers to the airport can dial the helpline number and a cab will be at their doorstep. The cab will drop off the passenger at the nearest Volvo airport service point from where he will be taken to the airport". "Fares for the limousine service will be decided by the BMTC in January. We hope to get the service running by the time the airport is functional in March 2008. Plans are afoot to have an arrangement with airline operators to transport travellers from Star hotels".

Finally, there was word of India's first helicopter service within the city. Deccan Aviation announced a chopper service from BIA to various points in the city. Initially scheduled to start operations on the same day as BIA it was later rescheduled to July 2008. A Bell 206 Jet Ranger, Deccan Skylimo, was deployed for operations from BIA to Electronic City, Whitefield and HAL. "Helicopter service to Palace Grounds will be added shortly," said a company release. Priced at Rs 5,800 for a one-way journey from BIA to Electronics City and Rs 4,800 from BIA to HAL, the service included a cab pick-up at the terminal building to ferry passengers to the heliport, located a kilometer away from the airport. The charter service will start at 6.30 am and the last drop to BIA will be at 6 pm daily, with regular frequency. Passengers availing of the service would be able to book tickets at designated ticketing counter at the airport, heliport and Deccan Aviation's head office at Jakkur aerodome (TNN, 2008).

- **Arival Airport?**

In Delhi, it appeared that the one-airport policy would be discarded as the area under the exclusivity clause

intruded into a second state, and the Government of Uttar Pradesh was planning a new airport in Greater Noida, only seventy kilometers from Indira Gandhi International Airport. In Bangalore too plans for commercial operations were on in Puttaparthi airport in Andhra Pradesh. BIAL argued that a new airport in Hosur would be precluded by the Concession Agreement, but judging by the example of the new proposed airport at Noda, it was likely that neighboring states that were not party to the agreement would not feel bound by it. In that case Tamilnadu or Andhra Pradesh could insist on their independent right to develop an airport within their borders without being constrained by a concession agreement between BIAL and Karnataka. To forestall that, it would be more efficient to retain the economic benefits linked to HAL airport and even to try to draw traffic from the growing twin city of Hosur, giving less room for the development of an airport outside the state (CPP, IIMB, 2008, p. 15).

• Dual Airports as an International Phenomenon

It was pointed out that more than 25 cities, including New York, Washington DC, Paris are served by two or more airports each carrying several million passengers a year. The average catchment area of such is typically 300-400 square kilometers each, roughly half the size of the current municipal area of Bangalore. Major metropolitan airports of the country, Delhi, Mumbai and Chennai all have firm plans for the establishment of new airports. Whatever the merits of an exclusion zone granted to BIAL, it appeared that other metros were able to demand and obtain exceptions to the single airport policy of the Civil Aviation Ministry. Therefore, if the 'one airport per metro' policy was applied only to Bangalore, and if the Centre itself abandoned the policy in its new aviation policy it would be advisable for Bangalore to be certain that it suffers no discrimination among metros on account of this policy. (CPP, IIMB, 2008, p. 16).

• Hub for Domestic, Low-cost, Short-haul Traffic

The CEO BIAL expressed the view that for Bangalore to develop a strong air traffic hub for South India, it was important that BIAL be allowed to function as the only airport in the city. Without this he argued, a single airport could not consolidate the feeder demand from nearby smaller cities and towns, and thereby grow naturally into a significant airline hub. This view was challenged by proponents of HAL who pointed out that Chennai was already an important gateway serving such a hub function for much of Tamilnadu and a portion of neighboring states. Similarly Hyderabad too was positioning itself to perform such a function for a catchment area around itself. Thus BIAL would face considerable competition from other airports in pursuing this objective. Also it was likely that other cities, especially those outside Karnataka, would demand their own airports, including international services. Moreover the chief purpose of Bangalore's airports should be to serve the travel demands of the population of this city, and not plan their operations with an eye on consolidating the travel needs of other places. The government should therefore determine whether BIAL should develop into a hub for travelers from nearby towns and cities and if so, how should the travel needs of those Bangalore itself be reconciled with the objective of developing a strong airline hub? It was also asked whether HAL airport could function as a hub for low-cost, short-haul flights only, and would this affect the establishment of BIAL as hub, or give travelers further reason to connect their onward flights through Bangalore. The decision would likely have impacts beyond Karnataka, and this was something the government should be alert to as well. The operation of an airport in southeast Bangalore had economic advantages and inevitably there would be interest in Tamilnadu or Andhra Pradesh to develop a Greenfield facility across the state at a location that would be accessible to a large group of existing industries and emerging new housing region (CPP, IIMB, 2008, pp. 14-15).

Prophesying that "fears are coming true", supporters of Save HAL claimed that BIAL would discourage travelers flying on short-haul routes -those that have a flight time between 30 minutes and an hour. "Those who are travelling before March 30, when the new airport opens, and plan to come back after March 30, are booking onward flight tickets but are wary about booking their return tickets. Passengers having to fly out of the city from the new airport are thinking twice if their

chosen destinations are on the short-haul sectors". The argument was that the distance and the expense made rail and road options more attractive to the visiting-relatives-and-friends segment of passengers who formed over 70% of short-haul destination flights. "If people find train and bus travel to be a smarter option, then airlines will have to discontinue certain short-haul routes or rationalize their frequency on some". Short-haul routes are unlikely to increase despite the new airport's capacity a 26% increase in domestic flights compared to what HAL airport currently handled (Dhamija, 2008).

• Economic Activities linked to an Airport

Inevitably, a range of businesses come up around any airport directly linked to the travel industry, but also to serve the secondary needs of establishments. It was argued that over the course of its operation in East Bangalore, HAL Airport has created a large eco-system in the tourism, travel, software, engineering, services and other industries that critically rely on the connectivity it provides to other cities and the rest of the world. The likely economic impact of disrupting this ecosystem was highlighted. A number of large firms have made huge investments in south and southeast Bangalore, and would not like their choice of Bangalore as an investment destination disrupted by the closure of HAL airport. The air traffic now originating from the southern suburbs would cease or diminish its use of air travel itself as a result of the increased distance to the new airport. Would such firms relocate some of their key offices within Bangalore metropolitan area itself, or prefer to locate significant operations in other cities? Economic disruption was also anticipated for the thousands of other businesses that indirectly relied on HAL airport traffic. Whether these too would find alternate sources of revenue, or move their operations, or face closure was a question.

• Monopoly Profiteering

One reason for the debate over HAL airport was that past estimates of demand for air travel in Bangalore proved to be severe under-estimates, as the city had grown dramatically. The early negotiations for the establishment of a new airport took place during a period of low growth in air travel; the concession agreement was finalized during a period of moderate growth, and the construction of the airport took place during a period of unprecedented growth. As a result, there was a significant mismatch between the projected travel demand on which basis BIAL was constructed, and the actual volumes of traffic witnessed in recent years. Soon after signing its contract BIAL commissioned Lufthansa Consulting in 2005 to undertake a revised traffic study, given Bangalore's explosive air traffic growth. LHC's most optimistic estimates projected 10.1 million passengers by 2010, but Bangalore already clocked over 10 million passengers in 2008. More realistically, BIAL estimated that passenger traffic would reach 11.3 million in 2015, but this mark was crossed by 2008. "This was new territory for Indian governments, as we witness the underestimation of a runaway economy". Given the growth in traffic volume, there was no question that BIAL would make out even better than the returns that it projected when it won the tender, even if HAL airport were kept open.

There were comments in the media from top airline executives based in Bangalore that the closure of HAL airport would amount to the establishment of BIAL as a private monopoly. Whereas the public monopoly HAL airport could ostensibly be defended as serving a greater good identified by governments, there could be no rationale for creating private monopolies. The UK Competition Commission's recommendations of creating healthy competition among airports and abolishing the monopoly for the benefit of travelling public in particular and entire aviation in general was quoted : "Competition is a dynamic and inherently uncertain process, and it is therefore difficult to anticipate precisely how competition between Edinburgh and Glasgow will benefit customers. Based on our assumptions, we would expect discounts on existing services at Edinburgh to increase to the level already present at Glasgow, generating a present value of benefits to customers of at least 40 million. In addition to that, we would expect further benefits from each of the two airports responding to competition from the other; from new services being launched at both airports; and in the longer term from capacity developments and service levels at both airports

being more closely aligned with customer interests". The specific case of competition between Glasgow Airport and Glasgow Prestwick Airports, situated at a distance of approx 41 kms was detailed "There is evidence to suggest that airlines compete with one another and the prices demonstrate that introducing rivalry between airports can have a real impact on market outcomes"."(Appendix-10.4; UK Competition Commission Report on BAA in (Joint House Committee, Karnataka Legislative Assembly,Thirteenth Asssembly, 2009). Industry executives also pointed out that BIAL itself had selected two providers for almost all its services in the interest of competition. As a private monopoly, BIAL might put airlines in a difficult position of having to accept the various charges levied by the airport operator, which were also described as much higher than elsewhere. There were news reports of airlines cutting back their plans for service to Bangalore in response to high fees demanded by BIAL and the perceived infeasibility of operations from the new airport. Passengers travelling to the new airport will not only travel longer but will have to fork out much larger airport fees.

• Requirement of Infrastructure

But in Bangalore, we are going to do something extraordinarily stupid. Even as we struggle to build much-needed infrastructure in the country, Bangalore will actually witness the first instance of shutting down existing infrastructure.

• Connectivity between Airports

Officials of BIAL and the Union Government pointed out that it was impractical for airlines to provide service into the same city at two different airports. Would airlines choose to forego service to one or the other? The global experience in answer to these questions was not uniform. In some cities with two or more airports such as Chicago, Dallas Fort Worth, Paris, London, some airlines provide service to only one of these airports. But there are also examples such as the Washington DC area where the same airlines provide service to more than one airport.

• Safety Considerations

BIAL submitted to the Karnataka High Court that the HAL Airport was perhaps, the only defence testing and research facility in the world accommodating civilian aircraft movement. Defending the closure of HAL Airport, BIAL said such an accommodation not only imperils the safety of passengers and defence pilots but also raises concerns of national security. The car parking facility which is very close to the HAL Airport, could have been used by terrorists. Moreover, several major accidents have occurred at the HAL Airport. Test flights of aircraft manufactured by HAL and National Aerospace Limited and Airborne Systems Testing Establishment (ASTE) and Defence Research and Development Organisation (DRDO) were carried out at the HAL Airport along with operations of commercial airlines. It said mixed traffic of military and commercial flights is not conducive to flight safety. The civil enclave is the only one in the country to share its air activities with that of a manufacturer of aircrafts and helicopters. The fuel complex of Indian Oil, which refuels aircraft, is situated adjacent to the car park and the fuel browsers have to pass through the parking lot, which is not only a security but environmental hazard too (Mar 11, 2010).

• The options explored

- Building public opinion. Based on its capabilities and pursuant to its interest in actively engaging policy questions in government, the CPP organized a half day seminar on 3/3/2008 to discuss questions pertinent to the looming closure of the HAL airport. The seminar's objective was to create a meaningful discourse between the stakeholders about an infrastructure project that could irrevocably affect the future of the city and the citizens of Bangalore and Karnataka. In addition, the CPP proposed to develop recommendations for the government on the choices available at the time. (CPP, IIMB, 2008, p. 4).
- A negotiated outcome. To explore these options, the government could engage in a consensus building exercise to determine whether a satisfactory middle ground between the various contending positions can be found. How viable this option was, and whether the various stakeholders remain open to a consensus building exercise to find a middle ground, was uncertain. The government could invite the participants to a second meeting, this time in a closed to the public format that would permit such an eventuality to be explored (CPP, IIMB, 2008).

- *A decision to reopen the HAL airport for commercial flight operations as recommended by the Joint Committee of the Karnataka Legislature would be an elaborate legal process and would involve all parties concerned, a top official of the State government said.* The House Committee in its report tabled in the Legislature on Monday recommended to the Government to reopen the HAL airport for short distance flights and regional flights. The official told Deccan Herald that the recommendation of the committee on the HAL airport was in line with the Parliamentary Standing Committee report on Transport, Tourism and Culture headed by Sitaram Yechury in 2008 and will have to involve the Centre and the State Governments and the airport promoter.

"The panel has only reflected the popular sentiment. While the Greenfield airport policy was supported by the State Government, the prerogative of reopening the HAL airport is in the domain of the Centre, provided the Defence Ministry that owns the HAL airport and the promoters/operator of the BIAL have no objection" the source said. However, for this to materialize, the State government has to accept the recommendations of the JHC, either in part or in toto. Then the State government has to write to the Prime Minister and the Minister for Civil Aviation for initiating fresh negotiations on the reopening of HAL airport. This, the source said, can move forward only if the operator of BIAL has no objection to any possible amendment in the Concession Agreement that has granted the rights and immunities to the commercial partner by the sovereign Government of India."The CA has clearly mentioned the closure of the HAL airport and not allowing any domestic (except for Mysore and Hassan) or international airport to be developed in an aerial distance of 150 kms of BIAL. So, all parties to the agreement have to renegotiate the CA," the sources added (Dhaneshkar, Dec 22 2009).

Litigation : Several individuals and citizen forums filed Public Interest Litigations in the High Court of Karnataka against the decision of closing Hal airport for commercial operations after opening of the new airport. The closure of the old airport was challenged in court by a citizens' group. Citizens groups and top companies in Bangalore lobbied for reopening the old airport complaining commute to the new airport takes up to two hours from the city and the Union government is encouraging a private monopoly by letting it be the only one open in the city (Raghu & Shukla, 2008) (Committee & Department, 2008).

The government may assess the risk of the policy being challenged successfully in the courts. The division bench of the High Court in its order dated 16/4/2008 did not deem fit to pass any interim order as requested by the petitioners and held that *"From and with effect from the date on which Airport Opening occurs GoI will issue and publish and appropriate notification stating that the Existing Airport is no longer open or available for commercial civil aviation operations (which shall, for these purposes, not include use for Airport activity at times of national emergency or (at anytime) by aircraft owned or operated by or for the Indian Air Force or other Armed Forces of India or for transportation of dignitaries by special government hired VIP aircraft or otherwise for their use or activities) and that it is no longer classified as a civil enclave under the AAI Act"* was an integral part of the Concession Agreement; the parties to the agreement accepted and acted upon this condition and the construction of the new airport has been completed. The High Court had also observed that from 2004 onwards it was known to the public that once the new international airport is opened, the HAL airport will be closed for commercial operations and that the distance of 35-40 kms cannot be said to be unusual or abnormal for an international airport in city like Bangalore. However, in the light of the recommendations of the Parliamentary Committee, the Court directed GoI, GoK and AAI to immediately consider the suggestion to renegotiate with BIAL and to explore the possibilities of minimizing, if not completely removing, the inconvenience and difficulties of people. With this directive, the High Court posted the petitions for final disposal in the second week of June 2008((Committee & Department, 2008) (CPP, IIMB, 2008, p. 16).

"BIAL had raised funds based on terms and conditions in the concessional agreement. We are not in favor

of restraining the respondent governments from honoring and giving effect to concessional agreement. But, keeping in mind the larger public interest and minimizing the hardship, the renegotiation may be held as far as the user development fee and also retaining of the HAL airport, the suggestions put forth by the committee", the division Bench observed in its 14-page interim order(. Not satisfied with the High Court order, the petitioners filed a SLP before the Supreme Court. The Supreme Court refused to interfere and dismissed the SLP. (Committee & Department, 2008) (TNN, Aug 12, 2009).

8. Analysis

The controversy that broke out and the public campaign to retain the HAL airport is symptomatic of the dilemmas that governments face in implementing ppps in the India context. The crux lies the balancing of the mandate contractual governance with the compulsions of popular politics. In most instances of Indian electoral politics, the general consensus is that the compulsions of populism override those of principle, law or even ethics. However, in the case of HAL, the governments of India and Karnataka chose to keep their contractual obligations above that of considerations of popularity. Despite mouthing sentiments in favour of keeping HAL airport open, they ultimately chose to take the legal rather than the political route towards resolving the issue. This is an unusual, at least in the light of popular perception about the polity of India.

The implementation of long gestation megaprojects with 25-30 year timelines requires a stability of policy structure and political and bureaucratic decisionmaking. Shifts of popular sentiment, on the other hand, need display no such restraint. This leads states to display inconsistencies in its stand, compounded when there is a change of the ruling political combination or party. In BIAL's case, there was a change from the Congress when construction began to successive coalition governments midway and finally the Bharatiya Janata Party when the airport was launched. Foreign investors are ill-equipped to handle policy shifts, particularly on critical issues such as exclusivity. The theme that any modification may affect future investment sentiment is reiterated gain and again in the discourse of BIAL.

As we have seen, the location was selected after a careful comparative evaluation. It was by no means a casual or easy choice. From all available evidence it does not appear that there has been any political interference at any stage at the point of site. On being questioned on this aspect, the interview respondents who was involved in the site selection emphatically stated that there was no political interest or interference at that point of time. Nor was there any competition between different locations for being chosen for the purpose. To that extent, the Committee was free to select an appropriate site, based on operational constraints only.

The question arises whether the Committee itself have been blind to the distance between the city and the Devanahalli site? It is clear that committee had to keep in mind several parameters, physical conditions, type of terrain, surrounding obstructions; availability of utilities such as power and water, accessibility to ground transport, availability of land for future expansion, technical factors such as the presence of other airports in the vicinity, so distance was only one item among the multiple factors to be considered.

Notwithstanding this, it is clear that the Committee, particularly Dr.Valluri, was alive to the distance factor, motivated as much by fuel savings than passenger convenience. That this issue was discussed extensively is evident from the detailed minuting particularly on this issue. On the discussion regarding Vijayapura, the proceedings state as follows: "Keeping in view the distance from Bangalore, accessibility by land, the commuting time needed for thousands of vehicles making round trips from the airport, Vijayapura which was located 55 kms from Bangalore City Centre was not suitable. It was estimated that a typical automobile which gives about 10 km per litre and may cost Rs.20.00 per litre in 2000 AD. The additional ground transportation cost per passenger the additional ground transportation cost per passenger will almost be about Rs.180 for a round trip beyond Yelanhanka (taken as a reference point for comparison) or about Rs.6.66 crores per thousand passengers daily per year. Assuming that about half the estimated passengers, 10000 per day, travelled by their own transportation, the fuel cost for ground transportation will be about Rs.30-35 crores per year. The ground transportation

cost would be about Rs.5-10 crores, a total of Rs.40-45 crores per year. The Committee felt that at a time when the nation is desperately trying to save fuel which at present costs about Rs.15000 per year in foreign exchange; fuel consumption for transportation is an important determining factor in the choice of airport location. Further, ground transportation time one way could be about 1.5 to 2 hours. This would be in addition to the time that will necessarily have to be spent at the airport due to delays in departure and arrival of planes. Thus, the total time unproductively spent in commuting or waiting in the airport will certainly affect adversely the time which passengers need to spend on their business and other professional/personal work. Considering from these points of view the Committee was not in favour of selecting this site". Again the minutes state: "In the meeting, Dr.SR Valluri expressed his apprehension for construction of the aerodrome at a site located at a distance of 55 km from the city. He expected that by the year 2000 itself, the load will be about 10000 passengers per day and the cost of fuel for ground transportation would amount to Rs.35 crores per year which a country like India can ill afford." These extracts make it clear that the Committee was very alive to the distance factor, and but for this alertness the new airport would have been located at Vijayapura, 75 km from Bangalore. In his memoirs he states: "The Karnataka government offered land about 75 km from the city centre. I could not visit the place. The other committee members approved it. Clearly, they did not do their homework or appreciate the problems air travellers would face if the airport were to be located so far away. The time for travel from city center to airport for travel to nearby cities like Chennai, would double; clearly not an acceptable solution. The Committee also made a genuine effort to secure the Yelahanka site from the Air Force, and it was only when this too failed that Devanahalli emerged as the final consensus after a process of elimination" (Valluri, 2006) (Interview with former Director, NAL & Member , Site Selection Committee).

From inception, industry associations were participants in the exercise, and completely privy to decisionmaking, again giving lie to later accusations of opaqueness and lack of transparency.

One development that the Committee could not have foreseen at the time was the tremendous growth of the IT sector in Bangalore and its concentration in the South of Bangalore city. As we saw in Chapter 4, this was the consequence of a series of policy and circumstantial factors. By the time BIA was constructed in 2008, the Golden Crescent of Whitefield, Hosur-Sarjapur and Koramangala had emerged as the main feeder to the airport, and it was this group that was most inconvenienced by the relocation to Devanahalli. As the IIMB report states: "During the last decade or so, Bangalore has witnessed rapid development of its southern and south-eastern suburbs, extending all the way upto Hosur in Tamilnadu, whereas the proposed new airport is far to the north of the city. Mobility patterns clearly indicate high concentrations of employment-related movement in the southern suburbs, and as newer establishments keep coming up in the area, this is likely to mount even further. And Karnataka's own second city, Mysore, is to the south-west, and there has been plenty of development along Mysore Road, which may accelerate once the infrastructure corridor project to that city is sorted out". But this was certainly not something that could be foreseen in 1992.

Aside from the public policy perspective, there is an interesting legal issue here. Non-contractibility, the incapacity of negotiating parties to completely anticipate and prepare for all contingencies, is a recurrent theme in PPP literature (Hart, 2003) (Besley & Ghatak, 2006) (Stewart-Smith, 1995) The exclusivity clause which became the focus of debate was in fact a demand that had been agreed upon much as early as the 1990s, much before the Siemens consortium entered the fray. It is obvious that the contingency of reworking the contract on such a critical point was not envisaged, leading both the Union and the state governments to lay the onus of alteration on BIAL management.

The power of an intelligent articulate section of society to rally around a demand was an important aspect of this episode. But the shifts of perspective and popular sentiment was manifest. The new airport for Bangalore was championed largely by the new IT economy and the middle-classes that formed the bulk of its workforce. For a period in BIAL's early history, The Chairman of Infosys,

which epitomized the new economy in Bangalore, held office as its Chairman. The need for a new airport is reiterated in popular middleclass discourse of the Bangalore South. But, when faced with the prospect of travelling 30 odd kilometers to the new airport, this group effected a complete turnaround, and began to criticize not just the distance, but almost every aspect of the airport's design and features. This group was also able to intelligently articulate their views through a variety of devices, chiefly newspapers and blogspots. The fickleness of public opinion was nowhere more in evidence.

Through the entire drama, the media had a field day. Dailies such as Times of India tracked the Save HAL campaign day after day. Headlines screamed: For several months this was a regular feature, until the improvement in connectivity, the familiarization of the new airport to passengers, and the litigating of the issue in the court removed it gradually from the forefront of public interest.

9. Conclusion

The ultimate fate of the HAL airport will be decided in the courts. Yet the Save HAL episode forms an important chapter in BIAL's history. For all the heat that it generated, the campaign was not successful in persuading either BIAL or governments to reopen HAL. This was for several reasons: the mandates of contractual governance proved greater than the compulsions of political popularity. Thus, even while mouthing sentiments such as: and exploring options, the governments ultimately joined the chorus rather than determining its direction. In itself, this was an important instance of political will in action, though not in vocabulary. Also, the campaign failed in its purpose also because the cause it propounded ultimately only a small section of Bangalore's population. The users of Bangalore South were only a small section of Bangalore's population, albeit prosperous and voiced. Most users who hailed from other parts of the city were either indifferent, or frankly relieved at escaping the obnoxious traffic of the Old Airport Road. This, rather than the firmness of governments or the clauses of the Concession Agreement, have proved decisive so far.

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DHĀRANA

A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE
Vol:6, 2 (2012) 46-53 ISSN 0974-0082

The Impact of Investment in Information Technology on the productivity of Power Generation Companies

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Abstract

The power sector is considered very critical for the economic development of the country. Because of this criticality, it is essential that the sector continuously achieves high degree of productivity and efficiency in its operations. Adoption of Information Technology is one of the key drivers to achieve productivity and efficiency improvements. Although there have been substantial investments in power generation capacity, the impact of the investment is not as expected. It is important to understand, before any such investments in IT are made, what types of Information Technology investments can lead to performance improvements and how to measure the effective usage of Information Technology. The main focus of the article is to understand the different kinds of investments and how to measure the investment in power sector.

Keywords: Information technology investments, Information Technology Business Performance, Power generation companies.

1. Introduction

Information Technology (IT) has a great potential to make the value chain of an enterprise competitive. As Porter(1996) has highlighted that the influence of information technology spreads across all the elements of the value chain of an enterprise. The primary impact of this influence has to do with the improvement of the efficiency of activities or the reconfiguration of the activities of a value chain. The improvement in the efficiency of the activities of a value chain leads to operational excellence and the reconfiguration of the activities of a value chain leads to strategic differentiation. Overall, since IT systems are used to make operational improvements as well as provide strategic differentiation, the impact of this on the performance of the enterprise is expected to be positive.

The study and assessment of the impact of information Technology on different aspects of business performance has been the area of focus for researchers for some time. The general trend of this research activity has been to look at the impact at the firm level as well as at the sectoral level. In some instances attempts have been made to study the impact on the economy as well. The conclusions of these researches are varying,

with some bringing out the positive impacts and some indicating not so positive impacts. The underlying causes sited for these differences too have been many.

The power sector of India has been largely under the direct control of government. Like most areas of government, the management techniques, approaches to measuring the performance etc. of this sector have been under scrutiny. The power sector is considered to be very critical for the economic development of the country. With liberalization spreading across many spheres of the Indian economy, the power sector has been under scrutiny due to its ability to hasten economic development.

Improvements in the power sector need to take place at multiple levels. As has been recognized widely, the most critical elements would be at the policy level. However it has been widely understood that although policy changes would drive management, investment and capacity enhancement of the power sector, it is equally important to encourage operational excellence of the power sector separately.

To understand the needs for bringing in operational excellence in the power sector, the first step would be to formulate the constituents of operational excellence. It has been widely understood that one of the drivers for operational excellence is the spread of Information Technology. So the second critical element of driving operational excellence would be to understand the penetration of Information Technology and its impact on performance.

Over the past decade, the use of information technology in the power sector has moved from mere electronic data processing covering only certain areas of the operations, to several areas of operations as well as to integration of business processes and production. It is now increasingly being adopted as an integrated / interfaced enterprise –wide system touching almost all operational areas and using information and communication technologies for real-time management of networks and delivery system

2. Information Technology (IT) in Power Sector

Like in all other businesses, the Information Technology investments in power sector vary from company to company. However, these investments can be categorized into three general areas. These general areas that require IT investment in the power sector are-

- Performance Improvement: Performance Improvement areas include reducing cost inefficiency across all the areas of operations and enhancing customer satisfaction
- Meeting management and regulatory requirement: IT can fulfill management and regulatory requirement areas in terms of effective Management Information System for decision making, accountability, service and the building of a strategic approach to regulatory management along with the collection and management of data.
- Servicing the changing industry structure: The changing industry structure in terms of unbundling and network management emphasis also requires the intensive use of IT.

The keys areas of improved productivity of power sector are optimizing business operations using IT, effective data acquisition & control processes, leveraging Customer Relationship Management for increasing debt recovery, narrowing the gap between the volume billed to the utility and that billed to the consumer, managing unbilled and ghost accounts, improving the effectiveness of meter reading. Productivity improvement also involves managing employee costs and staff deployment ratio in terms of fieldwork and office work.

In power generation sector, operations management, management reporting for financial performance and asset management have seen considerable IT intervention. The areas that need to be addressed for effective usage of IT are fuel and environmental management. In power transmission sector, IT has been used in management of the network operation, and for management & monitoring systems primarily in the load dispatch center. In distribution, the IT initiatives are mostly centered in billing, collection, theft control and customer care. These companies have also successfully used spot billing, call centers and MRI

billing. In power distribution companies, Information Technology has been used in customer relationship management and financial management. The areas that could use IT effectively are demand forecasting, facility management and load management.

The key issues in the use of IT in power generation companies relate to inadequate research on usage of IT systems, heavy focus on plant control systems, non-existent operational performance systems, poorly used control system data for performance analysis, low commercial orientation despite high data availability, and strategic focus.

There is a need for focus on comprehensive IT strategy to address performance improvement and cost effectiveness. Process improvement and change management for more effective use of IT in generation is also required. A clear IT strategy focused on achieving business performance through adoption of IT systems, formal project management and review process is required to be in place. Lack of preparedness and poor process system are common causes of failure. In addition, lack of focus on understanding the solutions available and learning from the success of companies in other sectors is also a reason for lack of adoption of IT systems in these companies. Because of these factors; full system use, future extension and technology innovations are restricted.

3. The investment options for IT Systems in Power Generation

Information Technology investment can be made in different ways. There are investments in Information Technology applications, software development, and IT infrastructure which is required to run the software/ applications effectively. Similarly the investment can be in core operational areas and in support functions. There are multiple options for each of these and there are Power Systems specific IT applications and solutions as well.

- The core functions - Some of the Systems for core operations in power Generation consist of the following functions: corporate planning, project planning, scheduling and execution, engineering, procurement and commissioning, corporate contracts and purchases, plant level procurements and materials, plant operations, plant maintenance, fuel management, finance accounts and costing, enterprise asset management, etc.

- Support activities/functions- Systems for support operations in power generation consists of the following functions: efficiency management, bank guarantee management system, consultancy and training, corporate communications, legal, secretarial and administration, employee retirement benefits and pensions, healthcare for employees, ash utilization, etc.

- The Information Technology infrastructure - The IT infrastructure required for effective operations of the IT systems and applications are networks environment, data center and disaster recovery centers, data Storage, high performance servers, client side hardware, security systems, systems management of network and servers, etc.

4. Literature Review

There are a number of factors which must be focused on for deciding the performance of the firm. Research has shown that firms which are more focused can expect greater benefits from IT investments.

One of the earliest evidenced researches on IT investments can be traced to the King and Schrems (1978). Their classification on IT performance mainly surrounds transactional benefits such as record keeping and calculating efficiencies. Bailey (1982) was among the first to shift this perspective towards operational quality rather than efficiency by developing a measure for IT related user satisfaction.

However, it was the work by Porter and Miller(1985) that first raised the awareness that IT could be used to leverage a firm's strategic and competitive presence. However, while financial and operational measures are important, they are not enough to address the effectiveness of IT investments. Hence, a comprehensive approach which measures financial, operational, maintenance, strategic and operational quality benefits from the IT investments must be examined.

As given in the previous research(Datta, 2003), the framework classifies benefits in terms of the dimensions given in the figure 1.

- Financial Performance: The Generally Accepted Accounting Practice (GAAP) based accounting and financial measures are designed to provide reliable quantifiable factors by which organizational performance can be measured. Examples of operational measures include return on investment (Brynjolfsson and Hitt ,1991)
- Operational Performance: Operational Benefits measures are marked by the ability to deliver significant cost advantage from the operational use of IT systems. Examples of operational processes include inventory turnover, capacity utilization (Barua et al. 1995)
- Operational Quality Performance: Operational quality processes refer to the reliability of business processes and dimensions which are revealed through first hand data collection. Examples of operation quality measures include reduced training time, improved information exchange, service quality etc (Laudon, 2007; Barua, 1995).
- Strategic performance: Strategic performance measures are used by executives to enhance the organization's objectives. Examples of strategic performance measures include decision making, Process Innovation, Value addition etc.(Laudon,2007)
- Maintenance Performance: Manufacturing facilities are becoming more information enabled. Maintenance benefits of information technology usage include management of maintenance inventory, understanding the cost of maintenance, planning of maintenance personnel etc. (Tukral,2008)

5. Hypotheses

Productivity of an organization is based on the appropriate usage of resources. Thus appropriately used IT can lead to improved productivity and business performance. The IT investments provide the means to enhance the operational, operational quality, strategic, financial and maintenance productivity of the organization. Thus, we proposed:

$H_1 1$: Use of IT has resulted in better productivity of the organization.

The productivity dimensions which have a statistical relationship are included in five hypotheses.

$H_1 1.1$: Use of IT has resulted in better operational productivity.

$H_1 1.2$: IT usage has improved operational quality productivity.

$H_1 1.3$: IT usage has changed strategic productivity.

$H_1 1.4$: IT usage has resulted in better financial productivity.

$H_1 1.5$ IT usage has enabled better maintenance productivity.

6. Research Methodology

The methodology developed for the research study based on the survey of literature consisted of the development of a questionnaire and data collection formats and an analysis to assess the relationship between Information Technology investments and business performance.

The organization chosen for the study was selected based on the following considerations: diversity of operations in terms of power generation- it operates hydro, coal, oil , diesel based thermal and wind power stations; large scale operations in terms of installed capacity; distributed organization with operations in multiple locations; maturity in terms of adoption of information technology.

The key activities carried out to address the research objectives were:

- Identification and assessment of the IT investments made in different operational areas .
- Formulation of hypothesis based on the literature survey on the impact of IT systems on the performance of the utility.
- Assessment of the performance of the utility using the user perspective framework
- Formulation of key research findings and recommendations for further actions.

This research study intends to find answers to these questions in a systematic fashion by developing frameworks as indicated in the figure 1, gathering data, analyzing them and formulating the conclusions based on data and research findings.

- Development and administration of questionnaire to get feedback/perception on the impact of IT on business performance.

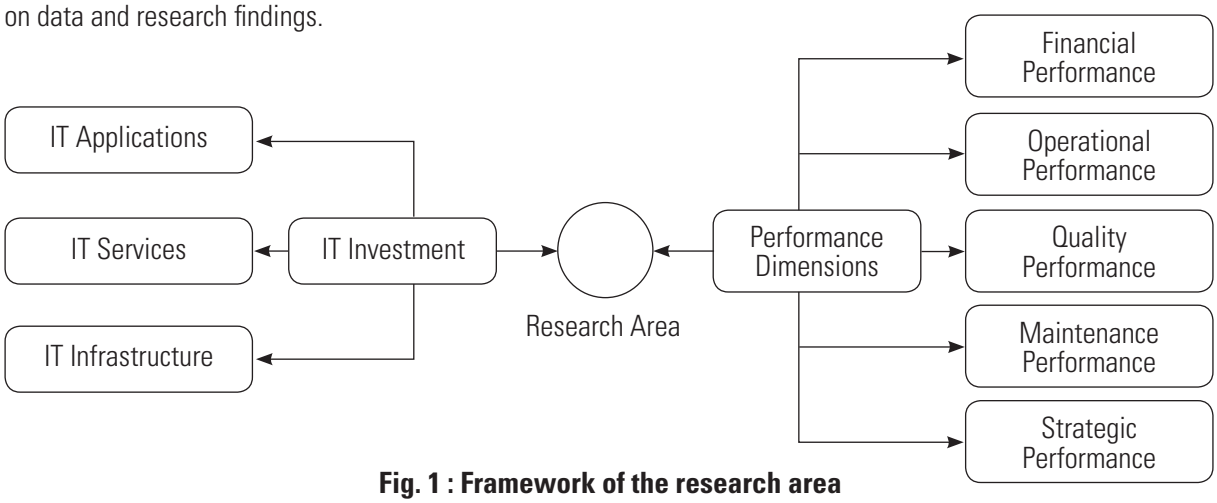

Fig. 1 : Framework of the research area
Source : Author

The methodology used to assess business performance consisted of

- Identification of the functional areas using IT systems
- Formulation of a questionnaire based on the research hypothesis – both open ended and closed ended questionnaire
- Pilot test of the questionnaire in select locations and with select respondents to assess the relevance and practicability of the questionnaire, and refinement of the questionnaire based on the feedback.
- Analysis of the results of questionnaire and the results of the feedback to build a correlation between the impact of IT and business performance of power generation utility.

For the research framework, chi square value was found to be relevant, since it indicated the absolute fit of the model to data.

7. Analysis and Results

In order to test the reliability of the overall instrument, Cronbach's coefficient was computed using data on the productivity dimensions. The reliability coefficients are shown in Table 1.

Table 1: Reliability statistics for study variables(134)

Group Name	Mean	Variance	Standard deviation	Cronbach's alpha
Operational Productivity	29.096	16.86	4.11	0.773
Maintenance Productivity	33.462	45.99	6.78	0.863
Financial Productivity	47.99	46.96	6.85	0.874
Operational quality Productivity	28.710	20.82	4.56	0.790
Strategic Productivity	25.050	16.52	4.06	0.846

All of the five multi-scale constructs used have coefficients of 0.7 and higher- indicating all the constructs have good reliability.

- To measure the operational productivity, the variables used are better visibility, marginal procurement, vendor management, marginal cost of production, total cost of ownership and inventory turnover.
- Operational quality measures include – adding value to existing customer relationship, improved work environment, adding value to existing supplier, improved information exchange, secured information exchange, reduced training time and improved service quality.
- Strategic productivity variables are management planning, decision making, value addition, organizational flexibility, organizational capability, identify/ tap geographical areas.
- Financial productivity is measured by analyzing cash flow, accounting transaction error reconciliation, preparation of financial statements, understanding of operational costs, management of working capital, understanding of working account payable, management of account receivable.
- To measure the maintenance productivity, the variables used are- Preventive maintenance of Plants/Machinery, Management of maintenance inventory, Improved the uptime of plants/machinery, understanding the costs of maintenance, safety of maintenance operations, Planning of maintenance personnel, Better planning and scheduling of maintenance of plants/machinery and managing operational and maintenance expenses.

8. Major Findings of the Research

All hypotheses in the theoretical model were statistically significant. The claim that operational, financial, strategic, operational quality and maintenance productivity were positively affected by information technology adoption was found to be significantly supported. The relationship between maintenance productivity and IT usage deserves special attention. Furthermore this and operational productivity experienced a greater impact due to the IT usage.

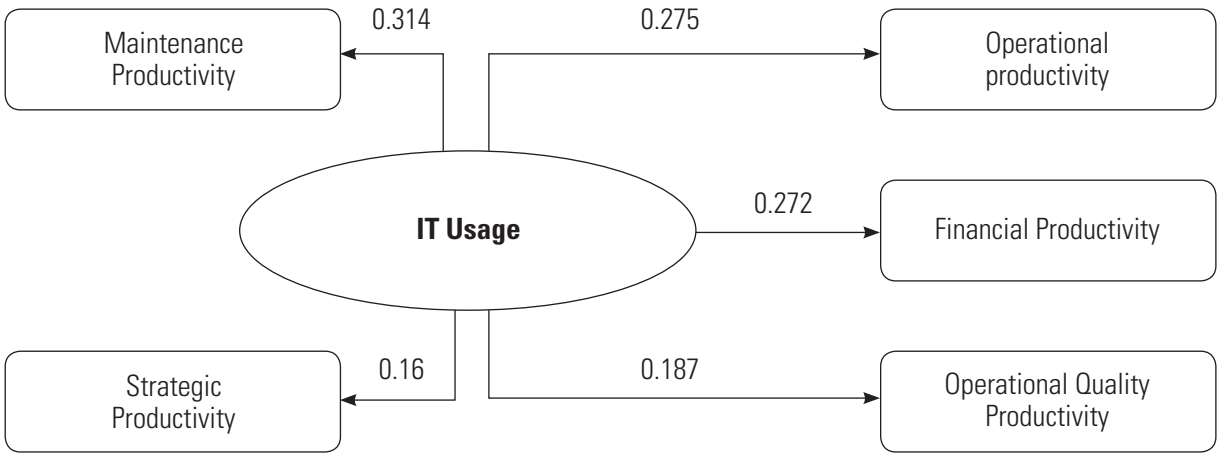

Fig. 2 : IT usage and productivity
Correlation is significant at the 0.05 level (1-tailed)
Source:Author

Based on the figure. 2, it can be inferred that power generation utility has reaped business benefits in terms of performance by the impact of information technology usage.

Consequents of productivity dimensions are given below:

- **Financial Productivity :** Financial system packages have helped the organization in reconciliation of accounting transaction, faster preparation of half yearly and yearly financial statements, Understanding of operational costs, understanding of working account payable and better management of account receivable.
- **Strategic Productivity :** IT applications have increased the value addition for the organization, organizational capability for process innovation and increased the organizational flexibility.
- **Operational Productivity :** IT Systems have enabled better visibility of inventory, Better management of material procurement, better vendor management and vendor performance rating and reduced marginal cost of production.
- **Operational Quality Productivity :** IT applications have resulted in efficient human deployment, greater communicative capability and better training using presentation packages.
- **Maintenance Productivity :** The use of IT has resulted in preventive maintenance of plants/ machinery, improved management of breakdown of plants, improved management of maintenance of inventory and improved the uptime of plants/ machinery.

9. Recommendations of the study

Based on the analysis of results, understanding the capability of the IT systems, the needs of the Power Sector and global practices; the following recommendations were drawn by the researcher.

- **Integration of business processes** - The results from the research data indicate that integration of processes provides greater benefits. While automation is perceived to be the key objective of deploying any IT system, the integration of business processes through IT is considered to be the next cycle of investment.
- **Expansion of coverage:** While integration of business processes and the IT systems facilitate centralization of data and information, expansion of coverage has the potential to bring more users and geographical locations of the organization into the IT fold. When IT systems are expanded to cover more users and geographical locations, business value is derived through user control of data, Elimination of multiple sources of data entry, increase in the accuracy and reliability of the data.
- **Analytical Enhancement :** Other than process automation and business process integration, the key objective of building any information technology system within a commercial organization is to facilitate informed decision making. While expansion and integration increase the possibilities of data analysis, the building of analytical capabilities itself should be one of the key drivers of IT investments.
- **Policy for standardization :** as the footprint of the Information Technology systems increases within an organization and the number of users of the IT systems increases, it is critical to formulate standard policies for IT systems, such as – development, deployment and usage.
- **ERP Adoption :** Integration can be attempted wherever the current architecture of IT systems enable integration, but an alternate procedure that could be adopted by the utility would be the evaluation of the possibilities for deploying integrated systems like ERPs.

9.1 Limitations of the research

The following are the limitations of the Research:

- When developing the framework, several important external factors influencing the IT investments such as policy changes in the government, initiatives by external stakeholders were identified, these factors were not considered.
- The weights agreed on for measures of IT business-value may change when the IT adoption changes.
- Even though IT investments happen from the

inception of the utility, the data on business performance over select period has been taken for analysis to find out the trends over a period of time.

10. Conclusion

In this paper, an attempt has been made to establish the need for effective mechanisms make the different kinds of Information Technology related investments in the Power sector. It has been observed from the literature that power utilities have made major gains in terms of productivity through the use of information technology investments. To achieve overall efficiency in the sector, it is very important that the Power generation sector also adopts IT effectively, especially in the field of energy generation management. Based on the research findings and assessment of different frameworks used by many researchers, a framework to measure the performance of power generation companies and their relationship to IT investments has been established. The results so obtained by deploying the framework have the potential to become a tool for the strategic planning of IT investments.

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DHĀRANA

A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE
Vol:6, 2 (2012) 54-61 ISSN 0974-0082

Analysis of HR practices in the IT Sector
(With special reference to Bangalore City)

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Abstract

The world of Human Resources is changing quickly. Human Resource Development is increasingly driven by customer demands, technology, intense competition and employees needs. This means that organizations which fail to measure effectively the qualitative areas of their business and human resources will lose a competitive edge. HR today is a key contributor towards solving organizational issues and achieving relevant business outcomes. The market scenario after the recession has lead to radical changes in the IT industry. From time to time there is a need for the researchers to pause and reflect on the status of the HR practices. Best HR practices will help the organization in bringing about radical improvement rather than incremental ones. The current study is an attempt to study and analyse the HR practices in the IT sector. The study identified two sets of main variables, the traditional HR practices and the modern HR practices. Further each main variable had sub variables under them which were used for analysing the HR practices. A focussed study was conducted to identify the best HR practices prevailing in the IT sector. Hence this paper has made an attempt to highlight the areas of HRM which need to be focussed for a better organizational climate.

Keywords: *HR Practices, IT organizations*

Introduction

The Information Technology (IT) sector in India holds the distinction of advancing the country into the new-age economy. The growth momentum attained by the overall economy since the late 1990s to a great extent can be owed to the IT sector, well supported by a liberalised policy regime with reduction in telecommunication cost and import duties on hardware and software. Perceptible is the transformation since liberalisation – India today is the world leader in information technology and business outsourcing. Correspondingly, the industry's contribution to India's GDP has grown significantly over a period of time. The sector has been growing at an annual rate of 28% per annum since 2001. Indian IT companies have globally established their superiority in terms of cost advantage, availability of skilled manpower and the quality of services. They have been enhancing their global service delivery capabilities through a combination of organic and inorganic growth

initiatives. The strong demand for electronic hardware and software in India has been fuelled by a variety of drivers including the high growth rate of the economy, emergence of a vast domestic market catering to the new generation of young consumers, a thriving middleclass populace with increasing disposable incomes and a relatively low-cost work force having advanced technical skills. The Indian IT sector has also built a strong reputation for its high standards of software development ability, service quality and information security in the foreign market- which has been acknowledged globally and has helped enhance buyer confidence. The industry continues its drive to set global benchmarks in quality and information security through a combination of provider and industry-level initiatives and strengthening the overall frameworks, creating greater awareness and facilitating wider adoption of standards and best practices.

The number of people employed in this sector has been consistently growing over the period of time. According the NASSCOM, the total number of employees in 2001 were about 430,114 and in 2009 the number has increased to 1,996,000. With such a huge number of employees working, it is essential for the right kind of HR practices to be in place. There many big software companies both at the local and the global level doing extremely well. They are constantly in the need of the right kind of people with the right kind of skill. Due to this there is a constant job hopping among the employees thus leading to a high rate of attrition. With people moving out, the intellectual capital of the organization reduces. There is need to harness this knowledge which is available within the organization. Proper HR practices will aid the IT sector in this process. Each organization does have a set of HR practices, but each of them needs to understand what is best for their employees and their organization. With benchmarking the HR practices across various IT organizations, it will help them to compare their practices with that of the others'. It will also further assist them in adopting the best practices in the current work environment and thus retaining the best talent by utilizing the results of the above study.

Thus from the above it can be ascertained that since the IT industry is growing geometrically, the number of people working in the sector are also on the rise. The IT organizations are predominantly responsible for bringing in many innovative HR practices. Each organization has umpteen numbers of practices which are sometimes not known if they are best or not. An elaborative attempt has not been made in the IT sector to study the HR practices. In India, the IT software and services industry has grown rapidly over the last decade. In 2005, it comprised about 650,000 employees and the prediction for the next five years, was that this number is expected to triple, to over 2 million persons (Karnik, 2005).

Review of literature

HR practices can be defined as any practice that involves enhancing competencies, commitment and culture. The practice can be seen or understood to take a form of a process, an activity, a norm, a rule, an accepted or expected habit or even a policy. Superior HR practices do indeed make a difference with respect to the employee performance and thus improve the overall business effectiveness. Good HR practices are those that contribute to one or more of the three C's: Competencies, Commitment and Culture. They need to be identified and implemented cost-effectively, reviewing and revising them from time to time to enhance their effectiveness and appropriateness (Rao, 1999). HR practices include: Manpower planning, recruitment and selection, orientation, training and development, performance appraisal, career planning, fringe benefits, reward and recognition, safety, health and environment policy, welfare benefits both within the statutory borders and beyond, suggestions scheme, promotion and transfers and exit policy. The effect of conditions like low wages, reduced leave, long work duration and cold work environment made the job unpleasant as observed by Sharan (1980). It is essential to improve all the above given conditions to enhance the satisfaction level. Bhushan (1968) also supported them by stating that high wages are responsible for higher job satisfaction. Fringe benefits and growth dimensions also have a positive correlation with job satisfaction. Higher pay, more freedom and job security along with less dominance and control will create job satisfaction. Chen (1995) examined the

difference in organizational climate and HR practices between American and Chinese companies in Taiwan and found that the climate in American companies is more open than in Chinese companies. There are also significant differences in job satisfaction and fairness issues. There is no significant difference in leadership styles and motivational forces. Alina and Rob (2008) investigate the relationship between Human Resource Management (HRM) practices and workers' overall job satisfaction and their satisfaction with pay. They found that several HRM practices raise workers' overall job satisfaction and their satisfaction with pay. However, these effects are only significant for nonunion members. Satisfaction with pay is higher where performance-related pay and seniority-based reward systems are in place. A pay structure which is perceived to be asymmetrical usually reduces the non union members' overall job satisfaction as well as satisfaction with respect to pay. Although HRM practices can raise workers' job satisfaction, if internal equity widens, then non union members may experience reduced job satisfaction.

IT organizations deal with issues mainly pertaining to highly educated employees (Baruch & Rosenstein, 1992). The IT industry faces numerous challenges of managing their human resources. While referring to the work force in the information technology organizations, Ferratt et al (2005) observed that human capital in the information technology organizations is to be as a strategic resource and its effective management represents an organizational capability.

Lester etal,(2002) has identified thirty two areas in the field of HRM relevant to the IT sector. Few of them are:

- Opportunities for Promotion and advancement,
- Trust and respect,
- Open and honest communication,
- Fair treatment,
- Challenges and interesting work,
- Competitive salary and so on.

Objectives of the study

- ✓ To study the HR practices across the cross section of IT organizations.
- ✓ To indicate the overall effectiveness of these practices.
- ✓ To identify the best HR practices and suggest strategies for continuos improvements.

Limitations to the study

This study aims to analyse the HR practices only in the IT sector. It can be further continued as a longitudinal study by comparing the HR practices across various. The study can yield unique results which can be further utilised for benchmarking projects. Moreover this study has considered the organizations situated only in Bangalore City.

Research methodology
Results and findings study

The variables identified for the purpose are as follows:

Traditional practices: Recruitment and Selection Training and development Compensation and fringe benefits Performance appraisal Work environment and Job satisfaction

Modern Practices: Employee wellness Career progression and retention Employee engagement Knowledge management Entertainment at workplace Talent Management

A detailed questionnaire was prepared with two parts. Part I covered the demographical details such as age, gender, no. of years of experience and so on. Part II covered various statements with respect to the variables. Each variable had statements which were assessed on a five point scale ranging from strongly agree to strongly disagree. Each variable had minimum of 6 items to maximum of 14 items under each. The reliability test for the questionnaire was done before going in for further tests. The questionnaire was administered to 218 employees of various IT companies. It also included people from different levels and different designations. Convenience sampling technique and snow ball sampling technique was used for the present study.

The results of the reliability test are shown in Table 1. Cronbach alpha is the coefficient of reliability.

It is commonly used as a measure of the internal consistency or reliability of a test score for a sample of respondents. Cronbach alpha will generally increase as the inter-correlations among test items increase, and is thus known as a consistency estimate of reliability of test scores.

In general a value of 0.7 is acceptable. (George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon).

Cronbach's alpha	Internal consistency
$\alpha \geq .9$	Excellent
$.9 > \alpha \geq .8$	Good
$.8 > \alpha \geq .7$	Acceptable
$.7 > \alpha \geq .6$	Questionable
$.6 > \alpha \geq .5$	Poor
$.5 > \alpha$	Unacceptable

According to the table given above Cronbach value of 0.7 is acceptable. The scores which are within the limits of the acceptable range are used for further statistical applications.

From Table-1 it can be seen that the alpha value for all the variables the alpha value is in the accepted range, but for the variable PA. In spite of the same it is considered for further study as it is one of the important components in HR. The analyses of all the eleven variables are discussed subsequently.

All the above variables are statistically reliable except the PA, which is Performance appraisal. The value of alpha 0.64 is marginally less than the accepted value of 0.70. Hence for further studies, this variable is also considered as performance appraisal is one of the important practices with respect to HR.

The table-2 shows the combined mean values and other descriptive statistics for all the variables. From the above table it is evident that the combined mean of the variables PA and CFBM is less than 3.5. All the other variables have a mean value of more than 3.5. This indicates that most of the employees are quite happy with the practices related to Recruitment and Selection, Training and Development, Work environment, Entertainment at workplace, Employee Engagement and Wellness, Knowledge management and Talent management. The mean values of other variables are in between 3.96 to 3.5. The higher mean value of a variable indicates fairly good HR practice, where as the lower values indicate that there is need to relook into them. For instance, the mean value of 3.96 for WEJS indicates that the employees seem to have a

Table 1: Table showing the Cronbach alpha values for all the variables

Sl. No.	Variables	No. of items	Cronbach Alpha Value
1	Recruitment & Selection (RAS)	13	0.76
2	Training & Development (TAD)	14	0.82
3	Compensation & fringe benefits (CFR)	8	0.88
4	Performance Appraisal (PA)	7	0.64*
5	Work environment and job satisfaction (WEJS)	11	0.90
6	Employee wellness (EW)	11	0.79
7	Career progression and retention (CPR)	9	0.75
8	Employee engagement (EE)	8	0.77
9	Knowledge management (KM)	7	0.84
10	Entertainment at workplace (EW)	10	0.77
11	Talent management (TM)	8	0.80

Table 2 : Table showing descriptive statistics for all the variables

	RASM	TADM	PAM	CFBM	WEJSM	EWM	CPRM	EEM	KMM	EAWM	TMM
N	218	218	218	218	218	218	218	218	218	218	218
Mean	3.84	3.75	3.45	3.41	3.95	3.73	3.69	3.84	3.97	3.50	3.82
Median	3.84	3.78	3.42	3.25	4.00	3.72	3.66	3.75	4.00	3.50	3.75
Mode	3.69	3.64	3.43	4.25	4.91	3.64	3.56	3.75	4.00	3.70	3.75
Std. Deviation	.45	.53	.44	.73	.66	.54	.42	.58	.53	.65	.64
Variance	.205	.278	.193	.528	.442	.297	.179	.338	.278	.419	.406
Skewness	-.311	-.267	-.366	.126	-.170	.059	-.336	.462	.255	.163	-.738
Std. Error of Skewness	.165	.165	.165	.165	.165	.166	.165	.165	.165	.165	.165
Kurtosis	-.557	.115	-.117	-.950	-.800	-.170	1.169	.209	.039	-.434	.694
Std. Error of Kurtosis	.328	.328	.328	.328	.328	.331	.328	.328	.328	.328	.328
Range	2.00	2.86	2.14	2.88	2.64	2.36	2.22	2.50	2.14	2.70	3.00

good work environment which leads to job satisfaction. This is a good indication as a good work environment is essential for any organization as it enhances efficiency and effectiveness. Similarly, the mean value of 3.66 for career progression and retention implies that policies with respect this practice must be enhanced further. Though the attrition rate has stabilized in the sector after the recession, still with a huge demand for the IT employees and growth multiplying this sector, the progression and retention strategies need to be strengthened. The combined mean value of CFBM and PAM are 3.41 and 3.45 respectively. The mode and the mean value for PAM is clustered around 3.4 which indicates that the deviation in response is very less. Whereas in case of compensation and fringe benefits, the mean value is 3.41 and the mode is 4.25. This indicates that there is a higher degree of deviation in the responses. This implies that there is a need to standardise the compensation practices across organizations.

The standard deviations with respect to other practices are much lesser indicating lesser dispersion in the responses.

Skewness measures the extent to which the values are scattered in the distribution. Skewness may be positive or negative. A distribution is said to be positively skewed when mean>median>mode and similarly a distribution is said to be negatively skewed when mean<median<mode. If the difference between mean and the median is very high it is inferred that the skewness is high and the values are more scattered on the distribution. In the above table we can seen that the difference between mean and median is not very high in most of the cases and hence the amount of asymmetry is not very high. The values are not very highly scattered along the distribution. As the value of skewness is between +1 and -1, it can be used for psychometric purposes. Kurtosis is peakedness of the distribution curve. The negative value of Kurtosis indicates that the curve is more flat and similarly a positive value of kurtosis indicates that the curve is more peaked. If the value is tending more towards zero, it indicates that the curve is more y

Hypothesis 1 : There is a significant difference in the mean opinion between gender and career progression and retention among IT employees.

Table 3 : The results of the t test conducted between gender and the variable CPR

		t	df	Sig. (2-tailed)
CPR	Equal variances assumed	1.195	216	.234
	Equal variances not assumed	1.549	190	.123

Results: One tailed't' test for the above hypothesis was done at 95% significance level. The't' value of 0.117 for the hypothesis statement is not statistically significant. Hence the hypothesis statement is rejected.

Discussions: The level of confidence is set at 95% and hence the level of significance would be 0.05. Since the p value of 0.234 is greater than the significance value, 0.05 the hypothesis is rejected. Hence from the above analysis, it can be inferred that there is no gender discrimination when it comes to career progression or retention of an employee. This can also be understood by the mean values which are given in the group statistics. All employees irrespective of the gender are considered equally. This implies that an employee who has right skills and attitude can progress in the organization. This is healthy sign and indicates a good HR practice followed in the IT organizations. The above point can also be further strengthened by various schemes which they provide for women during their maternity period. Work from home options, flexitime, facilities within the campus to take care of small children and so on. Promotional opportunities are provided equally to both male and female employees thus giving no scope for bias and prejudice.

Hypothesis 2 : There is no significant variance between experience and growth of an employee in the organization (Table 4).

Results: The hypothesis is tested with the help of ANOVA technique. The hypothesis is accepted at 99% significance level.

Discussions: The hypothesis is tested 99% significance level and from the above table it can be seen that the F value is lesser than 0.05 and hence the hypothesis is accepted. This infers that there is variation in the experience and growth of the employees. This implies that higher experience does not necessarily lead to higher growth or improvement in career. It suggests that experience may not be the key factor for career progression, but there could be other factors such as skill, expertise, commitment and so on which may play an important role in career growth. It also signifies that the independent variable is not causing a significant variation in the dependent variable. Hence experience of the employee is independent of growth in the organization.

Hypothesis 3 : There is a significant difference between gender and employee engagement.

Table 5 : Results from the't' test conducted between gender and the variable EE

		t	df	Sig. (2-tailed)
EE	Equal variances assumed	4.758	216	.000
	Equal variances not assumed	6.041	201.563	.000

Results: One tailed 't' test was conducted for the above hypothesis at 99% significance. From the results obtained the above hypothesis is accepted.

Discussions: The above table gives the't' test between the gender and the variable Employee Engagement (EE). The test is conducted at 99% significance level and t value of 0.000 is highly significant. This implies that the women employees are more engaged than their male counterparts. They are more enthusiastic about their work and are fully involved in their work. Women express themselves cognitively and emotionally at workplace. An engaged employee will perform at high levels and works with passion. Hence from the above analysis it can be inferred that women tend to be more involved with respect to their job.

Findings and conclusion

The above study it indicates that there are a variety of innovative HR practices by the IT companies. The

Table 4 : Results from ANOVA between Experience and the variable CPR

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.588	3	2.529	17.295	0.000
Within Groups	31.296	215	0.146		
Total	38.884	218			

combined mean values of all the practices considered for the above study indicates a fairly good practice among the organizations. Compensation has a lower mean value when compared to other variables. It is more on the neutral plane thus not assisting any statistical implication. The reason for this could be the recession. Though most of the organizations are out of the recession, salaries were not hiked for a long period. Few of the perks extended to the employees were also withdrawn for sometime. This may be an important reason for the opinion of the employees with respect to Compensation and fringe benefits.

The mean value for Performance appraisal is slightly low. This indicates that there is a need to have more clarity on the appraisal system. Moreover the organizations must ensure that they have a potential appraisal system which is blend with the regular appraisal system. Potential appraisal helps the organization in succession planning and identifying employees to occupy senior positions. It also assists in deploying workforce in optimal teams in the right time, at the right place and with the right skills. It is important to create a workforce who understands the objectives, strategy and their contribution in executing a company's vision.

Equal employment opportunity Act is fully adhered to in the IT industry. According to this act, there should be no discrimination with respect to age, race, sex, religion etc of the employees. Employees in the organization grow irrespective of their gender. Career progression can be seen both among men and women. It is only the skill and expertise that is taken in to account and not the gender of the individual. This is an indicator of a good practice in the IT sector. This would motivate the women employees to be more productive.

It is by and large felt that with experience or more number of service in the organization, an individual moves up the ladder. This may not necessarily be true in the IT sector. This implies that there is scope for merit than seniority unlike the practice adopted in the Government sector. This may be lead to meritorious employees moving up the ladder, but the organization need to ensure growth for experienced employees. They can ensure this through proper training and development programmes provided the organization.

An "engaged employee" is one who is fully involved in, and enthusiastic about, his or her work, and thus will act in a way that furthers their organization's interests. It is a positive attitude held by the employees towards the organization and its values. The study here indicates that women are more engaged when compared to the male employees. Employee engagement is critical to the organization as it seeks to retain employees. As organizations globalise and become more dependent on technology in a virtual working environment, there is a greater need to connect and engage with employees to provide them with an organizational 'identity.'

Analysing the HR practices time and again is the key to develop clearly defined measures of competency and performance in human resource. Organizations need to match HR policies and practices with long-term business strategies required to compete in the global market place. It is critical to generate employee commitment and retention over the long-term. HR practices which are incremental and collaborative and provide the opportunity to employees to make decisions affecting their work and to share in the rewards of their creative efforts.

The distinct but generally a people-intensive business like software calls not only for different metrics but also for different management practices. Even a slight change in the employee productivity in software companies have a significant impact on shareholder returns. It goes without saying that managing people is a key task for any company. But in a people business, this task becomes central to success because employees represent both the main cost and a key driver of value creation. The people factor has been very important for the growth of the Indian software services industry, because the industry works on the human resources (HR) augmentation mode (Upadhya & Vasavi, 2006). Human Resource is life and blood of software companies as competent talent are the source for competitive advantage in these industries. The dynamic nature of the software industry due to the innovative methods of work culture like virtual office and virtual migration shows the need for different HR practices to this fastest growing industry

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DHĀRANA

A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE
Vol:6, 2 (2012) 62-71 ISSN 0974-0082

Competency Based Corporate e-Learning Systems – An Appraisal

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Abstract

Corporate e-Learning initiatives are often being implemented with too little consideration for organizational issues; potential benefits of e-Learning as a tool for creating organizational competencies are usually not realized to a full extent. Thus the focus of the present paper is on integrating Corporate e-Learning and Competency for the organizational environment. The paper widely discusses on important aspects and benefits of linking these two important concepts for utilizing human capital to the maximum possible extent. The paper puts forth fifteen different sub themes which contribute greater extent for the success of corporate on technological platform.

Keywords: Competency, Corporate e-learning, Competency based corporate e-Learning (CbceL), Key Performance Indicators (KPI), Personal Learning Plan (PLP), Employee Assessment (EA), Value Added Courses (VAC), Just-in-time (JIT), Soft Skills Training(SST), Individual Learning Styles (ILS), Value Chain Analysis (VCA).

Introduction

The business world always looks for new methods for winning customers and impressing markets. The World Wide Web has always been of advantage and support to the corporate world by delivering information technology. Continuous advancements in technology have transformed the workplace into a variety of platforms. The changing demand and requirements have been a greater challenge for corporate to cope up and cater to the expectation of its clients.

In order to address these gaps the organizations have started training its employees in different courses and methods. The training costs were over shooting budgets; this was the time when many businesses looked at IT based e-learning to train employees. Training is one of the key components of employee development and retention practices. E-learning is being implemented in many corporations for training which also saves cost and helps in getting the latest from numerous sources around the world.

The e-learning applications have made significant difference in the work environment, activities and experience of employees. E-learning and competency development have overcome the problems of traditional training by using innovative methods.

Competency is an important nerve center for organizational functions to link to the overall performance. It aligns strategies with priorities of the organization. Corporate e-learning systems can become more successful only if and when it becomes a self-initiated program by each individual at his workplace. Today's organizations are incorporating such a competency based approaches in order to be more successful to utilize the human capability at its maximum capacity. When these tools are used, it provides an opportunity for employees to document and demonstrate their target achievements at the work place.

Meaning and Definitions

E-learning

E-learning, is an abbreviation of electronic learning and refers to any material delivered or presented via computer technology for the purpose. It encompasses all kinds of information, pictures, graphs, diagrams, and any other form delivered through the electronic medium. The main objective is to address the learning needs of individuals, groups, disciplines and subjects to find the best possible method to enhance their understanding. Through e-technology instant updating, retrieval, distribution, and delivery of required information is possible at a faster pace. Web-based learning, virtual interactions of team /groups are possible with e-learning.

Derek Stockley (2003) defines it as delivery of a learning, training or education program by electronic means. E-learning involves the use of a computer or electronic device (e.g. a mobile phone) in some way to provide training and educational or learning material.

Competency

Competency is defined as ability based on behavior, tends to be referred to as a competency by Ganesh Shermon. Competencies are differentiated to different levels; behaviors form the basics to make a framework. This phenomenon is a deep understanding of a characteristics required to perform in a superior way. It is a most important success factor for achieving organization's objectives.

Competencies represent the knowledge and skills required for performing and supporting the business processes. They represent the basis for creating value in an organization. Competence factors are observable and measurable.

The term "competency" refers to a combination of skills, attributes and behaviors that are directly related to successful performance on the job.

Corporate e-Learning

Any information, data and text material delivered via computer (internet & intranet) that supports an individual's job perspective and creates value addition to improve performance is defined as Corporate e-learning.

Corporate e-learning is both formal as well as informal. Most of the e-learning in organizations happens informally. E-learning is not individual learning alone it is also addressing learning service to large groups. Corporate e-learning is just not about the content but it addresses on bringing learning people together in one particular platform.

Corporate e-learning train's people in various fields as required. This means it takes care of challenges faced by companies by delivering the right kind of knowledge at the right time. The utilization of latest communication tools by delivering skills, knowledge and train employees is more apt tone called as corporate e-learning. The corporate has knowledge resource in the form of individual knowledge, group knowledge which comprises of both tacit and explicit knowledge. E-learning helps in capturing this knowledge and frames it for using and reusing them. By and large most organizations believe in this statement called "knowledge is power".

Competency based corporate e-Learning (CbceL)

Competency refers to a cluster of skills and abilities needed by a person in order to act effectively in a given situation. Competencies cannot be taught in a single day. They are required to be developed over a period due to changes in the job roles and responsibilities. However, conducting such competency based training

cannot happen effectively through traditional methods of training due to various factors like time constraints, cost constraints etc. In such situations, a well-organized competency based corporate e-learning system would provide immense support to the employees and the organizations.

Competency based corporate e-learning system is a human resource tool, which enables the corporate enterprise to map employee/team performance gap analysis and to appropriately address through learner centric e-learning courses and develop employees for the betterment of business results at a reduced cost across geographical locations.

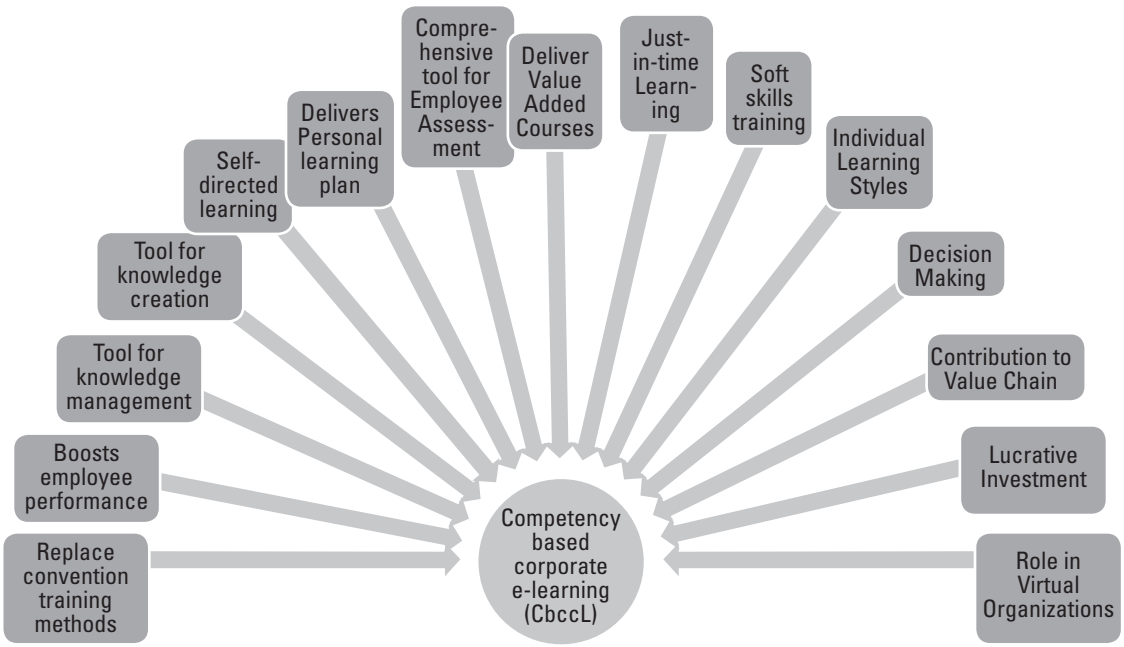
The concept of CbceL is discussed elaborately under fifteen subheadings. They are

- CbceL -replaces conventional training methods
- CbceL -boosting employee performance
- CbceL- a tool for Knowledge Management
- CbceL- a tool for Knowledge Creation
- CbceL -makes employees Self-directed Learners
- CbceL – delivers Personal Learning Plan (PLP)
- CbceL – comprehensive tool for Employee Assessment (EA)
- CbceL - a medium to deliver Value Added Courses (VAC)
- CbceL can be Just-in-time (JIT)
- CbceL in Soft Skills Training(SST)
- CbceL accommodates Individual Learning Styles (ILS)
- CbceL in Corporate Decision-Making(CDM)
- CbceL in Virtual Organizations
- CbceL in Value Chain Analysis (VCA)
- CbceL a Lucrative Investment

CbceL Model

CbceL -replaces Conventional Training Methods

The problems in the traditional approach of training were many starting form logistical issues, trainer's knowledge, update of information, inducting into the job process to employee, employee's work load, responsibility, profiles, competency development etc. There was a great need to establish a method and mode by which all these issues are covered and employees



Source : Author

became more competent to help organizations which are turbulent and vibrant.

CbceL is where technology and learning combine to participate, interact, deliver and develop competencies of individuals. Corporate CbceL can be understood as delivering learning materials through information technology where individual learning, competency development and achievement of organizational goals are addressed.

However, few models used during initial phases of technology learning are those educational institutions who initiated the process of Learning Management Systems (LMS) and Sharable Content Object Reference Model (SCORM) during the eighties and nineties.

Major advantages of corporate e-learning(Edward T Chen 2008) aligning workforce with company strategy, global IT, ability to reach anywhere any time, internal and external education, lifelong learning, self-paced etc., Some organizations have their own specific reasons for choosing e-learning but the most important factor is their various researches mention must be made about the alignment of e-learning with business strategies along with the capacity to train entire workforce by customized curriculum based on the need requirements. With the increased awareness about the need for competency based training, CbceL becomes a boon in the current fast paced economy. Nowadays, companies using technology enhanced learning use CDs, DVD, internet, intranet to save cost and time for quick transfer of learning materials and contents to the employees organization wide.

CbceL -Boosting employee Performance

In today's situation employees operate under pressure in corporations where there is constant change in the requirement of working practices. Also, the employees are under constant pressure to develop their inherent competency. The progress made by IT is considered as a means for learning and development. In fact, e-learning brings about a new approach to learning by adopting self-development, learn at work, self-paced learning etc., by creating value addition. CbceL, in particular, aids not only in the transfer of learning materials but also in the development of an employee as whole.

For CbceL to be more effective, organizations need to take care of a few measures like aligning individual and organizational goals, focussing on work and learning, so as to forge ahead towards competency development, learning being part of performance management and reward etc. To give a clearer picture, the above mentioned points may be construed as the broader guidelines and to be more specific key performance indicators (KPI) so as to make the system more successful.

According to (Wang, M., Ran, W., Liao, J., & Yang, S. J. H. (2010)) KPI for each job position must be accepted, understood well by the employees and their managers. The building of a KPI framework requires integration of various strategies at different positional levels in the organization. The KPI at the position level consists of three components: KPI item, rating criterion, and KPI value. KPI items are a set of performance indicators specified for a job position.

CbceL- a tool for Knowledge Management

Knowledge becomes an asset when it is shared and value-based. These days companies worry is minimised on training because of network technology and e-learning. The volume of business is large and the speed at which they have to produce new products, services etc. The employees need to gain knowledge about a product changes at a very fast pace. Hence, the competency of employees has to be upgraded at the same pace. CbceL is the only logical solution to address these problems. If properly utilized, both tacit knowledge and explicit knowledge can be exploited. CbceL as knowledge repository will deliver continuously the information needed.

Sometimes e-learning needs to get out of company fourwalls in order to educate partners, customers suppliers etc. In return to that, news about market from them can be delivered through chat rooms, discussionboards; surveys etc. so e-learning value chain becomes prime important area for knowledge distribution. According to Rosemary H wild, Kenneth A Griggs and Tanya downing 2002 e-learning value chain has these steps. 1. Organizational readiness with appropriate infrastructure, knowledge editor,

organizational culture, employee attitude, knowledge needs, computer usage and technology needs.

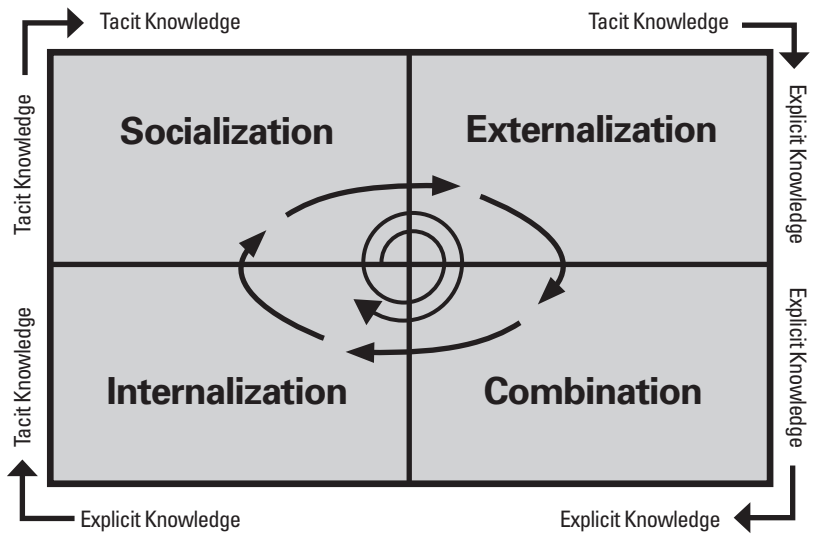
Step 2: Designing the appropriate content for e-learning by using tacit knowledge like deep knowledge, insights and expertise and explicit knowledge by factual knowledge, how to gain knowledge and incremental knowledge. Step 3: Designing the appropriate presentation for e-learning through engaging learners, developing cognitive skills, using learner's previous experience, using actual problems, encouraging cooperation among employees. Step 4: Implementation consideration using ready network, content application and software tools and learning map. Finally organizations need of commitment to e-learning by strengthening knowledge management activities for successful results.

CbceL- a tool for Knowledge Creation

In practice, in many organizations employees join as groups keep posting, blogs and archives as a part of shared expertise in the media, then pose some questions and discuss on topics relating to tools which forms a part of study materials as identified by the groups. The required content is made a part of e-learning course materials and made available to help employees enrich their knowledge.

Competencies stress on application of learning. A high quality CbceL will help employees in the application of skills and knowledge to new situations and demonstrate mastery and knowledge. There is a strong belief that through socialization there is a possibility of interactive discussion that may result in wise thinking and learning. This may be the reason why corporates to encourage online discussion boards, wikis, white papers and columns as part of their daily activity. Employees keep posting their views and opinions and discuss on issues faced by them. This in turn gives rise to many activities. One sample model of knowledge creation is mentioned below.

Explicit knowledge is factual, how to do it, codified and easily communicable. Tacit knowledge is personal knowledge based on experience and it is very hard to explain. Capturing tacit knowledge is very difficult, but e-learning makes it possible to pass on the direct experience by sharing blogs, archives in a written format. Employees understand and try to internalize these concepts, which become a part of sharing and creating knowledge. Many companies the world over are making an effort to capture the tacit knowledge through the aforesaid means. One main advantage of intranet system is that; once something is posted online the data/ information is captured and stored in the server it becomes easy for retrieval.



Spiral of Knowledge Creation
by Nonaka & Takeuchi (1995)

CbceL -makes employees Self-directed Learners

Competencies are the most effective mantra for today's business environment because the skill sets standards to be linked to the firm's strategy or if they are asked to follow the same curriculum, it may be waste of time and loss to employee engagement. It becomes very much vital to provide the employees with personalized, self-directed learning that shall result in empowering employees to self-assess against the skills defined by the company as necessary to efficiently perform their respective role.

In self-directed learning, the learners become empowered and they are responsible for decisions associated with the learning plan. It involves various activities and resources like study groups, electronic dialogues, and need not happen in isolation. Open learning programs and creative thinking and innovative courses also become a part of self-directed learning. Other important areas are associated with self-directed learning as this is predominantly applicable to employees in corporate sector who are behaviorally tamed to self-esteem, curiosity, desire to achieve, and satisfaction of accomplishment.

CbceL empowers learners and makes them accountable. It is very much effective, because it focuses mainly on skill sets needed to support the corporate strategy instead of generic competencies alone. An online competency management mapping system can enable employees form personalized development plans and align with courses taken and courses yet to be completed.

CbceL – delivers Personal Learning Plan (PLP)

Corporate employees in order to get professionally trained, get enrolled in technology adopted integrated teaching- learning programs. The HR/ learning department develops a competency based on a learning framework which acts as a road map for developing employees which includes course outlines, support materials, effectiveness and assessment methods. Some of the courses also offer self-review tools also.

CbceL based personal learning program is a collection of training resources focuses on particular learning needs of individual employees. It is a catalogue with personal learning space. It is linked to the performance of employees. The employees in some organizations are also given choices to change and modify the program according to their requirements. A total comprehensive package with a feedback system is provided for development of individuals with these kinds of program.

CbceL – comprehensive tool for Employee Assessment (EA)

Assessment softwares are part of virtual learning program of any organization. E-assessment is normally different for each of the course content. Some of the options available for module builders are multiple choice questions (MCQs) loaded with answers and it automatically gives the overall results. Fill in the blank spaces is another option available for when answering by the learners a voice based command instructions that tells whether the answers are correct and incorrect. Tick the correct answers is another way of assessing case studies or article or any other published material, at the end of answering the total number of correct answers are published in a score sheet which pops up on the screen.

Mathematical problem solving is another way of assessment; for this particular type of assessment, a test answer sheet is available for doing calculating if any particular step or any incorrect entry made it does not move to the next step.

The mistake is highlighted in the different colour and a voice message is also available for announcement. For all these, mock demonstration with video and audio is available for e-learners. It prepares them for undertaking any course. There are many more types of assessment are available but these are most commonly used.

The softwares are installed in such a way that the scores are updated in the personal account of the employee's performance management system. Some organizations have linked employee performance support system (EPSS) with CbceL. Therefore it becomes part of overall employee assessment. Some organizations do use game based assessment or any other innovative way of assessment to ensure quality and effectiveness

and usefulness. To conclude on e-assessments it is a means of potentially powerful scoring, reporting and real-time feedback mechanisms for organizations in today's environment. Organizations do use authentic assessment, alternative assessment, performance assessment, dynamic assessment, portfolio systems, constructed response and higher-order assessment also based on the required situations.

CbceL - a medium to deliver Value Added Courses (VAC)

In order to meet the demands of customers, corporates strive hard to develop new concepts and creations for future requirements to stay successful in the market. In CbceL value added courses become embedded as part of the program itself. For some employees, it may be soft skills particularly useful in imparting certain courses that really add value to an employee in terms of his personal growth. Certain courses like communication skills, selling skills etc., may also be imparted to the employees through CbceL without resorting to time consuming conventional methods. Moreover in CbceL system, an employee has the liberty of learning in his own pace without his work getting affected.

Value added courses for CbceL ranges from soft skills to advanced courses depending on the employee's competency requirements. Some organizations do float career growth plan linked to CbceL makes employees more talented and confident. Similar arrangement in corporates offer online university affiliated courses in order to deliver opportunity for additional qualifications. In today's scenario corporate virtual university is more commonly noticed which provides lot of value added courses for the corporate community.

CbceL can be Just-in-time (JIT)

Just-in-time, originally a production strategy, is a strategy that strives to improve a business return on investment by reducing in-process inventory and associated carrying costs. Very recently the same concept has been applied in the field of teaching and learning called as Just-in-time Teaching Just-in-time Learning.

Just-in-time Teaching (JiTT) is a teaching and learning strategy based on the interaction between web-based study assignments and an active learner classroom. Students respond electronically to carefully constructed web-based assignments which are due shortly before class, and the instructor reads the student submissions "just-in-time" to adjust the classroom lesson to suit the student's needs.

On the other hand, Just-in-time Learning systems deliver training to the employees as and when needed. In the beginning, employees were using interactive CD-ROMs to access information whenever they required. JiTT is more applicable in the field of education.

In a rapidly changing business world, information can quickly become obsolete. In traditional methods of training, an employee is taken away from his workplace and forced to undergo hours of training. Since there is a time gap, when confronted with difficulties in the job, an employee faces immense pressure to solve them all on his own. Moreover, development of personal competencies was also difficult.

The future of e-learning looks upon corporate world's requirement also delivers learning on demand (LOD). For organizations that require training immediately for employees who are widely spread across the globe e-learning LOD is the most applicable and sought after program. This also increases productivity, saves time and cost and has the ability to meet the critical emergent needs of corporates.

Through CbceL, various technology-based, self-guided tutorials and web-based assignments are delivered to the employees who can use the information to solve the problems, perform specific tasks or quickly update their skills.

The organization can save on both travel and education costs. The employees would prefer this approach as they can train at their own place, wherever and whenever they like. The employees can access the materials "just-in-time" to solve their problems and develop personal competencies.

Through this, CbceL also ensures savings by increasing productivity and efficiency. Online training cuts time by letting employees take in only those pieces of information that they need from the convenience of their desks.

CbceL in Soft Skills Training

Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects. Unlike hard skills, which are about a person's skill and the ability to perform a certain task or specific activity, soft skills are interpersonal and are broadly applicable.

Soft skills include personality traits such as- optimism, commonsense, responsibility, sense of humor etc. and abilities that can be practiced like empathy, teamwork, leadership, communication, negotiation etc.

CbceL can be extremely useful in imparting soft skills to the employees. By using CbceL, the organization can provide various modules on each soft skill like communication skills, negotiation etc. Through CbceL, the organization can provide different situations; create a virtual environment where the employees can practice their soft skills. Since it is all virtually done, the organization would not lose out on business and lose customers.

Soft skills training imparted through CbceL leads to cost and time savings for the organization. It even leads to increased productivity and efficiency among the employees. The employees can undergo the training on a repetitive basis to develop their inherent competencies. Moreover, it would not affect the work schedule of the employees.

CbceL accommodates Individual Learning Styles (ILS)

Learning style describes the way an individual prefers to learn. Stewart and Fecetti (1992) define learning styles as "educational conditions under which a student is most likely to learn." It refers to the learning process. There are distinct patterns through which learning takes place. Under traditional methods, the focus is usually on how to "make" students learn better in a particular setting rather than creating a setting that is comfortable to all kinds of learners.

On the other hand, e-learning provides a platform that accommodates the three distinct learning styles- auditory learners, visual learners and kinesthetic learners. It even can accommodate learning styles as presented by Kolb Learning Style Inventory, namely:

Accommodators: For individuals who rely on intuition rather than logic, CbceL can deliver situation based case lets.

Divergers: Individuals who perform better in idea generation that is brainstorming, incomplete problems and situation based queries and tasks on e-platforms, are very good at giving solutions to puzzles, cross words, decision trees.

Converger: Are individuals who use learning to solve their problems by finding the best practical solutions. They are individuals who are good in application based activity like synchronous courses like debates; discussions problems based learning and virtual aptitudes.

Assimilators: Individuals who require clear explanation over practical opportunity prefer reading, exploring and analysis.This type of employees prefer white papers, publications, web quests, research analysis etc.

Traditional methods cannot accommodate as many participants with different learning styles, preferences and needs. CbceL can accommodate the maximum number of participants with maximum range of learning styles, preferences and needs. However it allows the employees to develop their competencies in a manner that is suitable to their capacity.

It also allows the organization to cover all the employees at a lower cost than it is possible with traditional methods. This captures and benefits today's employee needs and motivates them to take the courses online.

CbceL in Corporate Decision-Making

A decision is the best choice made from various available alternatives. Decision- making process is one by which manager respond to opportunities by analyzing options and making decisions about goals and courses of action.

CbceL acts as a guide for decision making for both the management and the employees. CbceL provides the database of each employee along with his progress

level, scales of measurement and his competency level. This data can be used to know where exactly an employee stands and how various important decisions like job enrichment, job enlargement, promotions, etc. can be made. Moreover, comparisons between the employees and their competencies can also be made from the data.

Even employees can track their own progress and take decisions with respect to the areas where they can improve upon their competencies. Through CbceL many employees can learn new methods in decision making, techniques of decisions making in groups, making decisions tree analysis, rapid decision making and how to avoid pitfalls in decision making. Some special e-modules can also be part of decision making courses.

CbceL in Virtual Organizations

Virtual organization or network organization is a new form of organization in which people are connected through a network and where both horizontal and vertical boundaries are removed to a large extent. Thus it becomes a boundary-less organization. It is also known as modular organization and digital organization.

In virtual organizations, the network of individuals is made possible through Information and Communication Technology (ICT) which is flexible and dynamic to meet the challenges posed by the market.

Virtual organizations consist of individuals working from physically dispersed workplaces. Since the employees are not tied to a particular workplace, the whole training and learning process through traditional methods becomes incompatible. Such situations warrant e-learning systems enabling individuals to develop their knowledge, skills and abilities. CbceL, in particular, would be of immense help both the organization and employees. The organization can use CbceL to train the required competencies in the employees. The employees can use the modules in CbceL to improve their competencies and performance, irrespective of the place where they work from.

CbceL in Value Chain Analysis (VCA)

Value Chain Analysis describes the activities that take place in a business and relates them to an analysis of the competitive strength of the business. It also identifies primary activities, secondary activities and links them to competitive advantage. This concentrates on application of VCA for online learners in corporate.

CbceL is an ongoing training process. Hence it forms a part of supporting activities. The traditional methods of training do not always guarantee a link with learning-performance. On the other hand, CbceL covers the gap between learning and performance. Ultimately, it contributes towards achievement of organizational goals. The traditional methods of training incur lots of traveling and education costs, whereas CbceL can deliver the training to employees wherever they are working (any time anywhere) and thus result in cost savings. CbceL, thus, contributes towards cost advantage which leads to gaining of competitive advantage by the organization.

Achieving competitive advantage is the very purpose of Value Chain. Hence if CbceL is administered by an organization, the organization can gain competitive advantage over its competitors.

CbceL a Lucrative Investment

As e-learning is becoming increasingly important, organizations are forced to make this strategic decision for investment on e-learning programs. All organizations deliberate on the points of view of due diligence for any kind of investment that applies to e-learning also. The benefits of e-learning and importance created the value for e-learning. This decade being virtual with World Wide Web, most of the business transactions happen electronically. The corporate people looked into this as a training means which gave liberty to employees as anytime, anywhere at your own pace, at your style. CbceL is just an extended version of e-learning which sorts out many issues, corporate's need to look in the angle as e-learning a lucrative investment.

The important key to remember is the investment on CbceL is a strategic tool and not as a weapon. Most organizations look at return on investment (ROI) for e-learning, but it is not available in a day or fortnight. It is considered to be part of intangibles; it can only be viewed in performance and productivity of employees over the years.

Conclusion

CbceL is a conglomerate of competence and e-learning for today's business environment. This paper reflects a picture of almost all the important facets of corporate requirements for up skilling employees and contribute towards achievement of organizational goals and objectives as well as develop themselves to be a part of talent supply chain. This is a unique approach which supports continuous learning and development in the organization. However, more research needs to be undertaken to give a holistic picture from the practical point of view.

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DHĀRANA

A JOURNAL OF M P BIRLA INSTITUTE OF MANAGEMENT, ASSOCIATE BHARATIYA VIDYA BHAVAN, BANGALORE
Vol:6, 2 (2012) 72-86 ISSN 0974-0082

Indian Fruit processing Industry: Import and Export Analysis

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Abstract

India ranks second in the world (production of 45.91 mmt), next only to China (production of 72 mmt), when it comes to fruit production. India contributes 9.54% of the total fruit production of the world. In spite of the India's strong hold on the production of fruits it is alarming to know that India processes just 2% of the total fruit production with an alarming loss of around 35%. Only 20% of the production of processed fruits is being exported. India's share of global exports of fresh fruits and processed fruit products is quite meager when we compare the same with other major fruit producers of the world, i.e., China, Brazil, USA, Italy, Spain, Mexico, Iran, Philippines, Turkey and Thailand (in the same order).

The imports and exports analysis of this particular industry in India has been made using secondary data that was available. This data is then analyzed to know the per cent contribution of each fruit and each processed fruit product towards total imports and exports and CGR of the imports and exports of the same. The effort was made to know the causes for the particular pattern of imports and exports along with recommendations on policy front to elevate Indian fruit processing industry to international standards.

A coordinated, integrated and strategic effort of all the stake holders, i.e., fruit growers, fruit processors, channel members, nodal bodies (Governmental and Non Governmental), and end users is must to turnaround this industry. Fruit Processing Industry of India has to undergo a radical shift to address all the constraints and reap the enormous advantages/benefits/ profits which this sector is to offer and be the world's largest fruit processing factory. Problems / constraints have to be studied in wholesome, integrated and strategic manner rather than adopting piecemeal approach.

Keywords: Fruit processing industry, India, Import and Export Analysis, Fruits, Processed Fruit Products

Introduction

From the table-1 (displayed on the next page) it becomes evident that India, an emerging economy, is predominantly a agriculture based economy where-in 18.60% of the GDP comes from agriculture sector and which employs 60% of labour force. Of the total arable land of 1703000 sq kms, 100000 sq kms is covered by

permanent crops and 22.80% of the total land area is covered by forests. India is one of those few countries that enjoy tropical and temperate climatic conditions, which is quite ideal for fruit cultivation. Almost all varieties of fruits are being grown in India. This is the reason India ranks second in the world (45.91 mmt), next only to China (72 mmt), when it comes to fruit production. India contributes 9.54% of the total fruit production of the world.

In spite of the India's strong hold on the production of fruits it is alarming to know that India processes just 2% of the total fruit production with an alarming loss of around 35%. Indian Fruit Processing Industry seems to be in its infancy stage and growing at a very slow pace. In year 1998-99 there exist over 4000 Fruit Processing units in India with an aggregate capacity of 1.2 million metric tons which was less than 4% of total fruit production. This industry is growing at around 20% every year and is dominated by large no of smaller units (cottage scale / home scale / small scale) having small capacities ranging from 20 tons to 250 tons per year. Only 20% of the production of processed fruits is being exported. India's share of exports of fresh fruits and processed fruit products is quite meager when we compare the same with other major fruit producers of the world, i.e., China, Brazil, USA, Italy, Spain, Mexico, Iran, Philippines, Turkey and Thailand.

The Indian fruit processing sector is undoubtedly a potential sector and has a tremendous scope for unparalleled growth prospectus in the coming days. The Government of India has taken a lot of initiatives and policy decisions for commercializing agriculture with specific importance on high tech horticulture and developing the fruit processing sector to its full capacity. The fruit processing sector is rapidly being transformed into a high volume profit making industry. A distinct shift is seen among the consumers for processed, prepared and packed fruit products not only in the so called developed countries but also in the developing countries like India. This has catalyzed the research work in this area leading to publishing of numerous research articles and papers. Hence there is a strong need for a detailed Import and Export analysis of fruits and processed fruit products by Indian fruit processing industry (Table-1).

Literature review

The review of literature in the field of fruit processing industry of India has revealed several contemporary issues of importance. They include issues related to growth in the production of fruits, growth with respect to processing of fruits, international trade pattern, present availability and future requirement of infrastructure, emergence of wide product range, adoption of emerging new technologies by the firms, management practices followed by both cultivators and processors, and strategies and policies pursued by all the stake holders involved for the overall growth of this industry.

NFI Archive Report (2003), reported that the fruits and vegetables that are grown only on 6-7 percent of gross cropped area have contributed more than 18.8 percent of the gross value of agricultural output and 52% export earnings out of total agricultural produce. They further opined that during the last few years considerable emphasis has been given to this sector. Accordingly, areas under fruit production has increased by 172 percent from 1961-1993, productivity per hectare was nearly doubled leading to an increase in production to the tune of 320 percent. The average labor requirement for fruit production is 860 man-days per hectare per annum as against 143 man-days for cereals crops. Crops like grapes, bananas, and pineapple generates much larger employment roughly from 1000 to 2500 man-days per hectare per annum, the researcher added.

Vinodchari (2003), reported that India is among the world's major producer of food, producing over 600 million tons of food products every year. The researcher further explained that the food processing industry ranks fifth in size in the country representing **6.3% of GDP,** accounts for **13% of the country's export and involves 6% of total industrial investment** in the country.

MOFPI (Ministry of Food Processing Industries) Report, (1999), reported that India is the largest producer of fruits (41.5 mmt) and second largest producer of vegetables (67.28 mmt) in the world. The country tops in production of banana, mango, potato, tomato, onion, green peas and coconut. **Only 2% of the fruits/vegetables**

TABLE-1	
India: Key recent Economic, Agronomic, Demographic and Agriculture related indicators	
Key recent parameters	**India**
Total area in sq km	3287590
Total land area in sq km	2973190
Total area covered by water in sq km	314400
Climate	Tropical in South to temperate in North
Total arable land in sq km (2008)	1703000
Total arable land under permanent crops in sq km	100000
Total non arable land in sq km	1270190
total irrigated land in sq km	558080
Total forest area (%)	22.80%
Total forest cover in sq km	677010
Total population (2008) in million	1110
population growth rate	1.70%
Urban population (%) (2008)	84.70%
GNI (PPP) (2008) in USD billion	2726
GDP (Official exchange rate) (2008)in USD billion	911.8
GDP per capita (2008) in USD	821
GNI Per Capita (PPP) (2008) in USD	2726
GDP real growth rate (2008)	9.20%
% of GDP from agriculture sector (2005)	18.60%
% of GDP from industry sector (2005)	27.60%
% of GDP from services sector(2005)	53.80%
Country status	Under developing
Total labor force (2005)	496.4 million
% of labor force in agriculture	60%
% of labor force in industry sector	17%
% of labor force in service sector	23%
Unemployment rate	8.90%
Population below poverty line (2008)	29%
Total exports f.o.b.(2005)in USD billion	99.45
Total imports f.o.b.(2005) in USD billion	138.09
Net exports f.o.b.(2005) in USD billion	-38.64
Total Investment (gross fixed) (2005)	28.1% GDP
Industrial production growth rate (2005)	7.90%
Forex reserves and gold	USD 136 billion
Official exchange rate(2005)	Rs.44.1011 per USD
No. of airports	341
Internet users	60.0 million
Constitution of the Government	Federal Republic
History	Was Portuguese Colony & got independence in 1822
Natural Resources	Coal, Iron Ore, Manganese, Mica, Bauxite, NG, Limestone, Diamond, Petroleum, Arable Land

Source: The little green and red book series of World Bank and FAO statistical year book series of UN publications (2008)

produced are being processed at present. The installed capacity of fruits and vegetables processing industries has increased to 21 lakh tons in 1999 with 4589 fruit/ vegetables processing units. Exports during 1998-99 were worth Rs. 678 crores.

TIFAC Report (2003), the task force on Agro food processing of TIFAC on the sub group on fruits and vegetables, has given the technology status and future vision for India. The report states that the total production of fruits in the world is around 370 mmt. India ranks first in the world with an annual output of 32mmt. TIFAC study has focused on 12 selected vegetables which accounts for about 65% of the total production in India. It is estimated that around 20-25% of the total vegetables is lost due to poor post harvesting practices. Further while discussing about the future trends, the report highlighted that fruits and vegetables would continue to be harvested manually in the future. While small land holdings and non availability of good quality planting material have been the major issues of concern, it is expected that quality of planting material would improve in the long run due to right selection, hybridization, proper breeding and adoption of tissue culture.

US Commercial Services Report (2000), reported that the Indian food processing industry is a high priority sector and is poised for excellent growth in the next century. The government of India has adopted a major policy decision for commercializing agriculture and packaging sectors. Agricultural production and food processing together accounts 30% of India's GDP and employs more than 70% of its work force.

G.K.Kaul (1997), in his report on status of fruits and vegetables in India stated that the annual growth, both in area and production of horticultural crops has gained considerable momentum following planned diversification in Indian agriculture, encouraged by the Government from the eighth five year plan onwards. Further he highlighted that several fruit crops have proved to be most remunerative for replacing subsistence farming in the rain fed, dry land, hilly, arid and coastal agro systems.

Surinder Sud (1998), in his article on India's revolutionary progress in food production opined that the interest shown by the domestic corporate sector and transnational corporations in setting up food processing units indicate that India would soon emerge as an important player in the international processed foods market. The Government already has approved about 343 proposals for 100% Export Oriented Food Processing Units and joint ventures since the beginning of the economic reforms, i.e. in the early 1990's. These would involve an investment to the tune of Rs.43040 Million including foreign direct Investment worth Rs.7880 Million.

MOFPI report (2001), It's report on summary on fruits and vegetable processing documented in the report of Ministry of Food Processing Industries (MOFPI) highlights the following facts;

- India is the second largest producer of vegetables and third largest producer of fruits.
- Thirty percent of the fruits and vegetables get wasted due to lack of proper processing and packaging facilities.
- Only two to three percent of the total produce is being processed in India.
- Total cultivation area under fruit and vegetables is around 12.0 million hectares and accounts for 7% of the total cultivation area.
- Main fruits produced in India are Mango, Banana, citrus, Guava and apple. These fruits account for 75 to 80 percent of total fruit production.

K.P.Prabhakaran Nair (2006), expressed that Indian agriculture is being undermined because of the unreformed policies in the agriculture sector that continue to encourage monoculture such as wheat and rice in Punjab and sugarcane in Maharashtra, where the cultivation has lead to exploitation of ground water causing long term environmental degradation. The extensive input subsidies which are not conducive to efficient agro practices may cause greater harm in the future. Indian agricultural extension network is comparatively inefficient when compared with the other countries like China and Brazil.

Manish Jain (2002), in his article explained that India accounts for 10% of the total world production of fruits and ranks second after China. It leads the world in the production of mango, banana, sapota and acid lime and has recorded highest productivity in grapes. Area under fruit has increased from 2.87 million hectares during 1991-92 to 3.729 million hectares during 1998-99 recording an increase of 29.93%. Similarly production increased from 28.63 mmt (million metric tonnes) to 44.02 mmt recording an increase of 53.83%. During the same period, productivity of fruits increased by 18.4%. Further he listed five largest fruit producing states of the country viz. Maharashtra (17.08%), Karnataka (12.37%), Andhra Pradesh (10.42%), Bihar (8.82%) and Uttar Pradesh (8.20%).

Researcher also noted the trend that out of the horticultural crops produced in the country, approximately 60% is consumed by the local population or marketed in the nearby market yards and only about 40% of the produce is channeled through the regulated markets for the consumption of urban population in the cities. Export markets account for less than 5% of the total production except in some commodities like cashew, spices, onion, etc. He noted further that the bare minimum infrastructural facilities are lacking even in the regulated markets. The horticulture produce suffer significant post harvest losses due to lack of adequate post harvest and marketing infrastructure viz. Processing units, packaging and grading facilities, cold storage facility, refrigerated transport vehicles/ containers, storage and phytosanitary facilities, etc.

Researcher strongly recommends for an integrated development of horticulture industry in order to meet not only the requirements/ demand of the domestic market but also to exploit the export potential to maximum extent. Emphasis on quality production needs to be strengthened together with sound post harvest management of the highly perishable horticultural commodities.

Gouri Sundaram (2000), in a study on processed tropical fruits indicated that India is the second largest producer of fruits and vegetables in the world with an annual production of 94 mmt (million metric tones). It has the distinction of producing almost all tropical and exotic fruits and vegetables because of varied climatic conditions. Due to the short life span of these crops, as much as **30 – 35% of the fruits and vegetables perish at various stages viz. harvesting, storage, grading, transport, packaging and distribution. Only 2% of these crops are processed in to value added products.** Hence there is strong need for maximum commercial utilization of fruits and vegetables and to adopt innovative production and marketing practices to the requirements of the world market and also to cater to domestic demand which over the past few years has been increasing because of various socio economic factors.

MOFPI Report, (1998), in their documentation on fruit processing submitted to Ministry of Food Processing Industry, highlighted that fruit and vegetable processing industry in India is highly decentralized. A large number of units are in home scale sector, cottage scale sector and small scale sector having installed capacity of 50 tons to 250 tons a year, where as a smaller number of large scale Indian and multinational companies have larger installed capacities in the range of 05 to 30 tons per hour. Due to effective liberalization policies and withdrawal of excise duty on fruit and vegetable products there has been significant rise in the growth rate of production of this industry.

Mckinsey and CII study report, (2001), in their article reported that, according to a joint study conducted by Mc Kinsey and Confederation of Indian Industry (CII), a staggering fifty percent of production of fruits and vegetables in India are lost due to wastage and value destruction. In monetary terms, the loss was estimated at over Rs.23000.00 crores a year.

Deepak Shah and Narayan Murthy (1998), studied marketing pattern of horticultural crops in Maharashtra. The grape orchardists marketed their produce either through forwarding agents in whole sale markets or through commission agents or directly to the Wholesaler. The per box (4Kg) total marketing cost was estimated to be the highest when the produce was sold through forwarding agents in the whole sale markets compared to the produce sold through other marketing channels.

Chaudhary et al. (1987), reported that the total number of fruit and vegetable processing units in India were around 1300 with an installed capacity of 3 lakh MT (Metric Ton). Capacity utilization was increased from 25 - 30% in 1970 to 40% in 1982. Factors like high cost of packaging material, high incidence of import duty and lack of research efforts for modernization of packaging and other techniques were found to be affecting the industry's production and exports.

Karwasra *et al.* (1997), reported that **post harvest losses in fruits and vegetables in India is worth about Rs.4000 crores annually.** In general physical terms, post harvest losses in these commodities vary from **9 to 40%.** Any reduction in these losses through proper post harvest management will generate additional quantity to meet internal and external requirements even at existing level of production.

Research Methodology

Macro level study about the fruit processing industry of India (Imports and Exports) is made using secondary data that was available. This data is then analyzed to know the pattern of imports and exports of fruits and processed fruit products by Indian fruit processing industry.

The research objectives of this exploratory study are;

1. To analyze the imports and exports of fruits and processed fruit products by the FPI (Fruit Processing Industry) of India over the past years and discuss.
2. To make recommendations for the healthy growth of the fruit processing industry of India based on the research findings.

Sources of secondary data collection include; FAO commodity year books, International trade statistics from www.trademap.com, FAO Production year books, FAO statistical year books, the little green and red data book series of WB (World Bank), etc. Relevant research papers and articles published in various journals of both nations, news papers, magazines, etc. have all been explored to get the required information. Nevertheless, official websites of UNCTAD, itc, DGFT, WB, FAO, etc., have been explored deeply to get hands on the required information. Tabulation techniques are used for collecting secondary information.

Various statistical, mathematical and computational tools and techniques including Average per cent increase or decrease analysis, Average per cent contribution analysis, CGR (Compound Growth Rate) analysis, etc. using MS-EXCEL (2007 version) are being used to analyze the secondary information.

Research findings and discussion

It becomes clear from the table and graph shown above that mango accounts for nearly 27% (both value wise and quantity wise) of total fresh fruits exports from India. Orange and grapes together account for nearly 31% (38% value wise) of total Indian exports of fresh fruits. So it can be concluded that mango, orange, grape, apple and pomegranate are the key fruits as far as exports of fresh fruits are considered. India exports nearly 240000 Metric Tonnes (MT) of fresh fruits out of 45911000 MT produced, which is just 0.52% of total production.

Instead of exporting fresh fruits, if India can process these fresh fruits in to value added processed fruit products and export these value added processed fruit products, she can definitely bring down the total post harvest loss within international limits, i.e. around 20%, from the current level of 35-40%. Moreover there is lot of risk involved in exporting fresh fruits due to stringent quality norms.

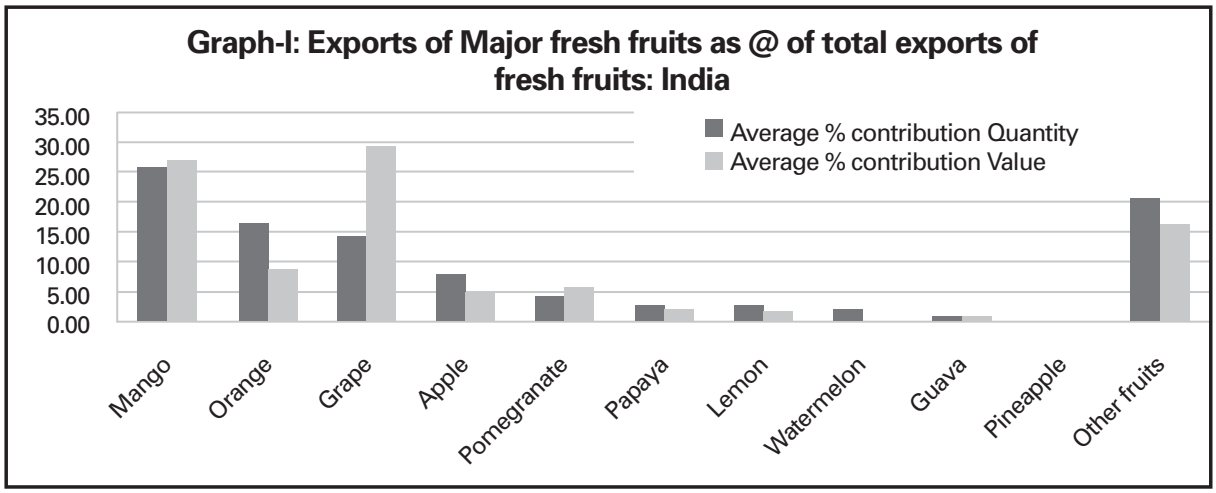
It is evident from the graph and table shown above that export of Grape has grown beyond expectations. Whereas growth in the exports of; pineapple, papaya, guava, lemon and pomegranate is also phenomenal. In general the exports of fresh fruits have grown significantly. India enjoys the advantage of having right blend of natural resources for growing almost all varieties of fruits. So India should freeze this opportunity and thrive in this sector.

India has to focus on exporting processed fruit products than fresh fruits as it will bring along the following benefits which India is badly in need of;

- Higher value addition and hence higher earnings of FOREX

Table I : Average % contribution of exports of major fresh fruits

Fruit	Average % contribution (Qty)	Average % contribution (value)
Mango	26.24	27.29
Orange	16.56	8.95
Grape	14.55	29.70
Apple	7.99	5.08
Pomegranate	4.65	5.85
Papaya	2.78	2.18
Lemon	2.72	1.85
Watermelon	2.16	0.83
Guava	1.05	1.06
Pineapple	0.62	0.48
Other fruits	20.68	16.73
Total	100.00	100.00



Source: Export Import Data Bank from the official website of DGFT (2008)

- Bringing down the post harvest loss to reasonable levels
- Generating employment and other economic benefits

From the table and graph shown above, it becomes evident that fruit pulp accounts for highest percentage (56%) of exports of processed fruit products. Pickles and chutneys together account for nearly 12% of total exports. The other processed fruit products, collectively, account for the rest.

Fruit Pulp Manufacturing Industry has received a lot of attention in India because of ever increasing export demand for Indian fruit pulp in the international markets. This particular industry is dominated by few big players, whereas Pickles and Chutney Manufacturing Industry is dominated by MSEs (Medium and Small Enterprises).

From the graph and table shown above, it becomes clear that exports of prepared and preserved fruits are growing at a very high rate. Even the fruits sliced and

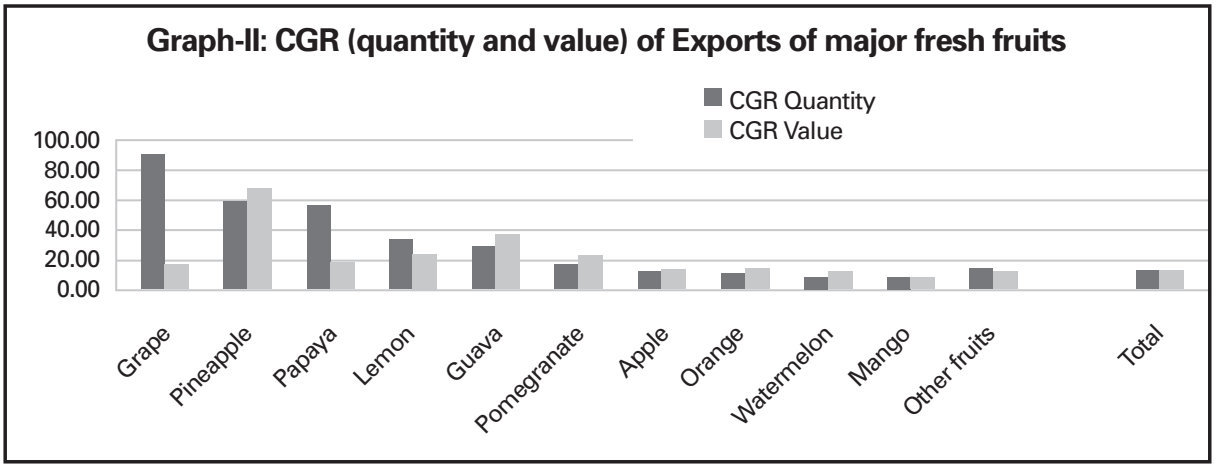
Table II : CGR of exports of major Fruits

Fruit	CGR Quantity	CGR Value
Grape	84.30	15.80
Pineapple	55.66	63.41
Papaya	52.34	16.77
Lemon	31.49	22.44
Guava	26.86	35.13
Pomegranate	15.65	22.09
Apple	11.93	12.47
Orange	10.72	13.87
Watermelon	8.80	11.20
Mango	8.03	8.29
Other fruits	12.63	11.87
Total	**12.50**	**13.09**

Dates account for nearly 73% of total imports of fresh fruits. Apples fall in the second place with a contribution of 21%. This is primarily because of the fact that Dates are produced by a very few countries like; Iran and Afghanistan, only. The other fruits, collectively, account for the rest 6%.

It is a good sign that India is more or less self reliant when it comes to fruit production. India can grow almost all varieties of fruits due to favorable climatic conditions and her vast bio diversity. This is a unique advantage for India.

From the table and graph shown above, it is clear that imports of majority of the fresh fruits are growing at a very high rate, even though their percentage contribution is significantly less.



Source: Export Import Data Bank from the official website of DGFT (2008)

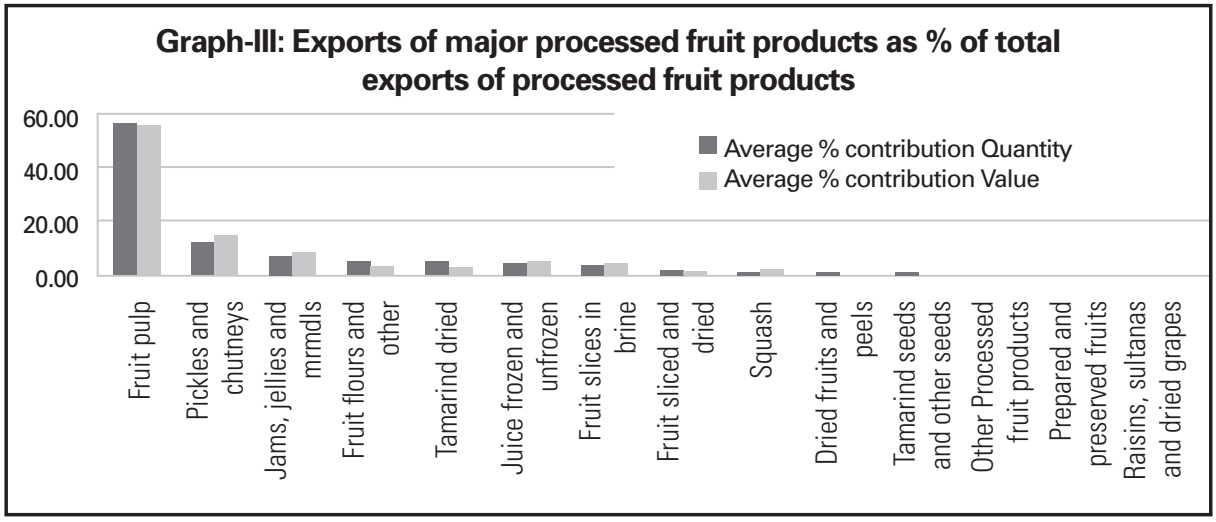
dried, squash, juice, and jams – jellies were growing at a phenomenal rate (20-40%). whereas pulp, dried fruits and peels, and raisins were growing at a high rate (10-15%). In total, the export of processed fruit products, except tamarind seeds is growing at a significant rate. This in fact is a very healthy sign for India and signals a greater export demand for processed fruit products. Indian Fruit Processing Industry should grab this opportunity and exploit the same before any other country like China does.

This is primarily due to the fact that disposable income of the Indian middle class population has increased significantly in the recent years and hence the standard of living of this segment has improved a lot. This segment has become more health conscious and spending generously on fruits. More so ever this segment is growing at a very high rate.

Dried dates account for nearly 88% of total imports of processed fruit products. Juices, pulp and raisins of selected fruits fall in the second place with a collective

Table III : Average contribution of Exports of Major processed fruit products

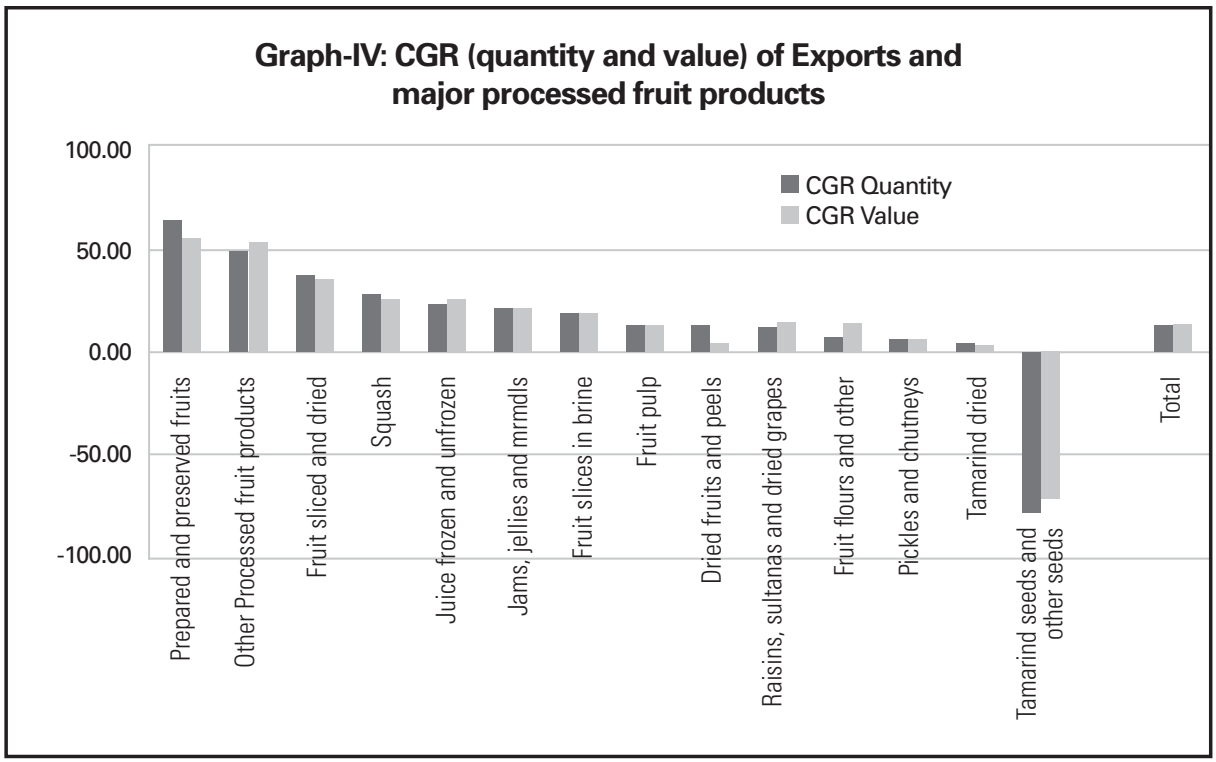
Major processed fruit products	Average % contribution Quantity	Average % contribution Value
Fruit pulp	56.72	56.07
Pickles and chutneys	12.19	14.92
Jams, jellies and Marmdls	6.96	8.45
Fruit flours and other	5.05	2.96
Tamarind dried	4.95	3.29
Juice frozen and unfrozen	4.24	4.94
Fruit slices in brine	3.67	4.04
Fruit sliced and dried	1.60	1.09
Squash	1.36	1.91
Dried fruits and peels	1.33	0.54
Tamarind seeds and other seeds	1.00	0.46
Other Processed fruit products	0.41	0.57
Prepared and preserved fruits	0.38	0.48
Raisins, sultanas and dried grapes	0.14	0.28
Total	**100.00**	**100.00**



Source: Export Import Data Bank from the official website of DGFT (2008)

Table IV : CGR of Exports of Major processed fruit products

Major processed fruit products	CGR Quantity	CGR Value
Prepared and preserved fruits	64.78	54.99
Other Processed fruit products	50.54	53.21
Fruit sliced and dried	37.45	35.50
Squash	28.12	25.77
Juice frozen and unfrozen	23.37	25.79
Jams, jellies and Marmdls	21.46	21.75
Fruit slices in brine	18.60	18.68
Fruit pulp	13.10	13.10
Dried fruits and peels	12.74	4.34
Raisins , sultanas and dried grapes	12.31	14.30
Fruit flours and other	6.73	13.83
Pickles and chutneys	6.53	6.33
Tamarind dried	4.10	3.82
Tamarind seeds and other seeds	-78.54	-71.52
Total	**12.87**	**13.70**



Source: Export Import Data Bank from the official website of DGFT (2008)

Table V : Average % contribution of Imports of Major fresh fruits

Major fresh fruits	% Contribution - Quantity
Dates	72.85
Apples	20.99
Pears and Quenches	2.53
Watermelons and melons	0.81
Oranges	0.73
Grapes	0.70
Pomegranates	0.43
kiwi fruits	0.29
Plums and sloes	0.12
Apricots	0.06
Berries fresh	0.04
Mangoes	0.02
Peaches and nectarines	0.02
Cherries fresh	0.01
Avocados	0.01
Lemons	0.01
Others	0.38
Total	**100.00**

contribution of 10%. The other processed fruit products, collectively, account for the remaining 2%.

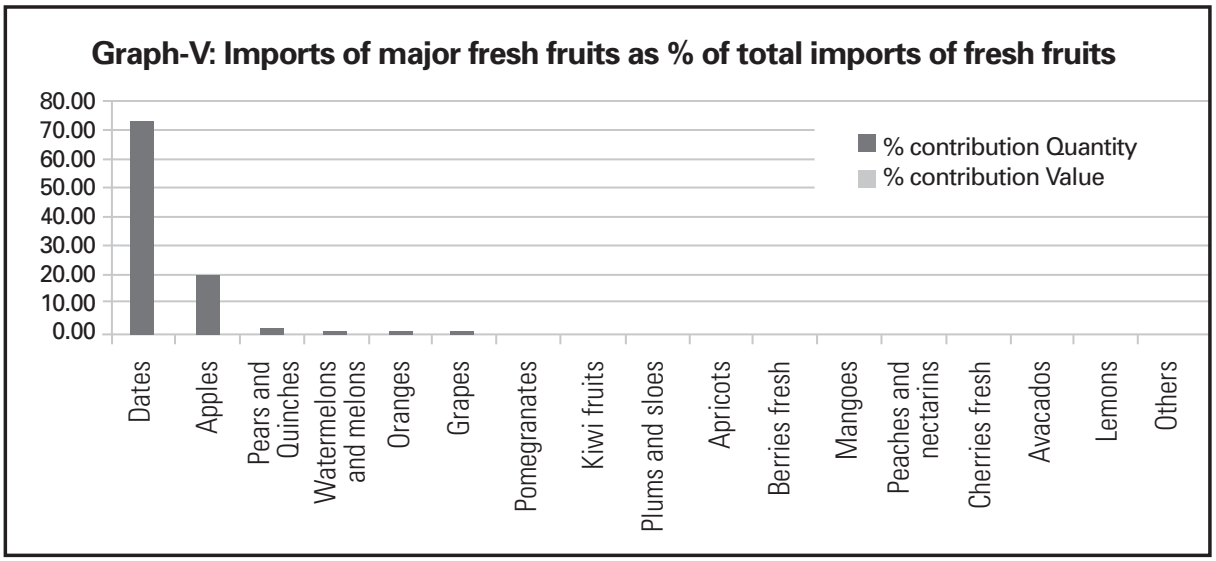
It is a good sign that India is more or less self reliant when it comes to processed fruit products production also. As India can grow almost all varieties of fruits, it can produce wide range of processed fruit products also. India need not have to depend on imports, except few processed fruit products like dried dates.

From the table and graph shown above, it is clear that imports of majority of the processed fruit products are growing at a very high rate, especially fruit pulp, even though their percentage contribution is significantly less.

Middle and upper middle class population, which is growing at a significant rate, want to consume fruits and processed fruit products 365 days a year. Earlier the consumption of fruits and processed fruit products was restricted to seasons only. This implies that the domestic demand for processed fruit products is also increasing. So Indian fruit processors should try and meet the needs of this upcoming buoyant market, comprising of around 500 million people.

Recommendations

1. Instead of exporting fresh fruits India should focus on exporting value added processed fruit products



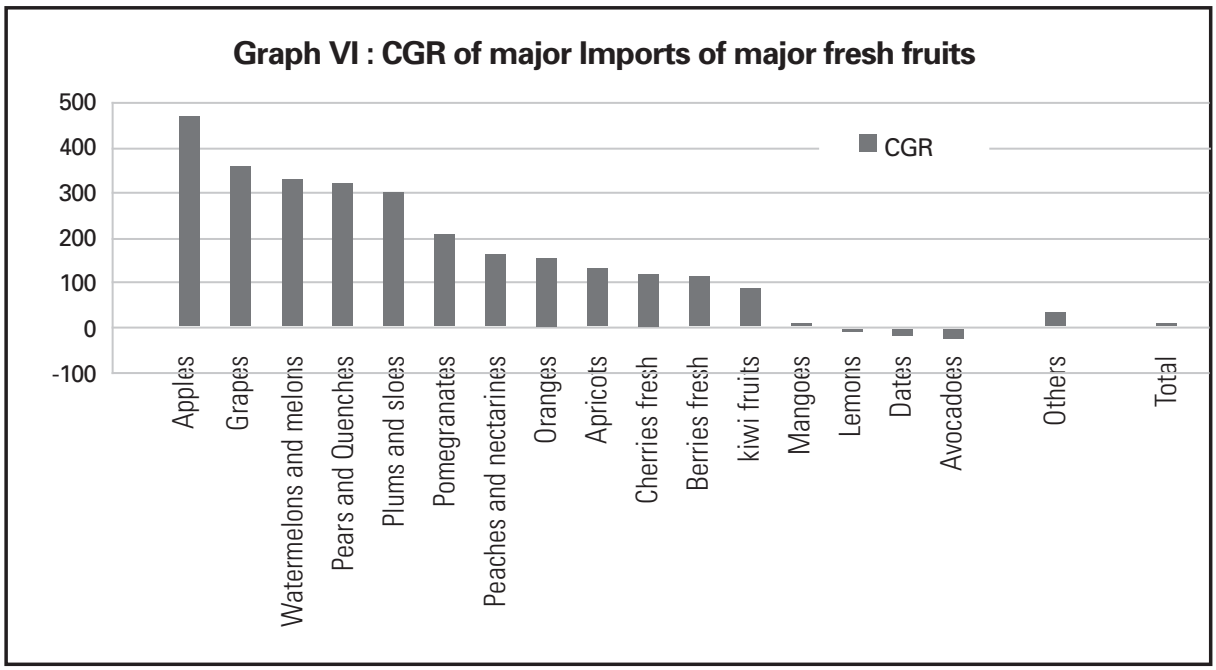
Source: Export Import Data Bank from the official website of DGFT (2008)

Table VI : CGR of Imports of Major fresh fruits

Major fresh fruits	CGR - Quantity
Apples	473.85
Grapes	361.54
Watermelons and melons	330.97
Pears and Quenches	322.81
Plums and sloes	306.10
Pomegranates	209.88
Peaches and nectarines	164.94
Oranges	159.04
Apricots	131.87
Cherries fresh	122.09
Berries fresh	112.69
kiwi fruits	88.57
Mangoes	5.89
Lemons	-3.02
Dates	-16.59
Avocadoes	-24.69
Others	36.12
Total	**3.49**

so that post harvest loss can be brought down significantly from the current level of 35-40% to 20% (international standard). Moreover as revealed by the high CGR (13.70%) there appears to be good demand for processed fruit products in the international markets. This will not only improves the profitability of the fruit growers and processors but also strengthen the economy in terms of generating higher employment and higher FOREX earnings. Indian fruit processing industry should exploit this great opportunity and lead the world market.

2. As far as imports of fruits is concerned, it is clear from the above discussions that India is self reliant to a great extent and imports dates and apples only as we can't grow them at a larger scale because of climatic constraints. Whereas imports of processed fruit products is on the rise because of rapid explosion of middle class population and the sharp increase in the disposable income of this segment. Moreover people at large are becoming health conscious and are switching to rich nutritious food from traditional food grains. This further implies that the domestic demand for processed fruit products



Source: Export Import Data Bank from the official website of DGFT (2008)

Table VII : Average % contribution of Imports of Major Processed fruit products

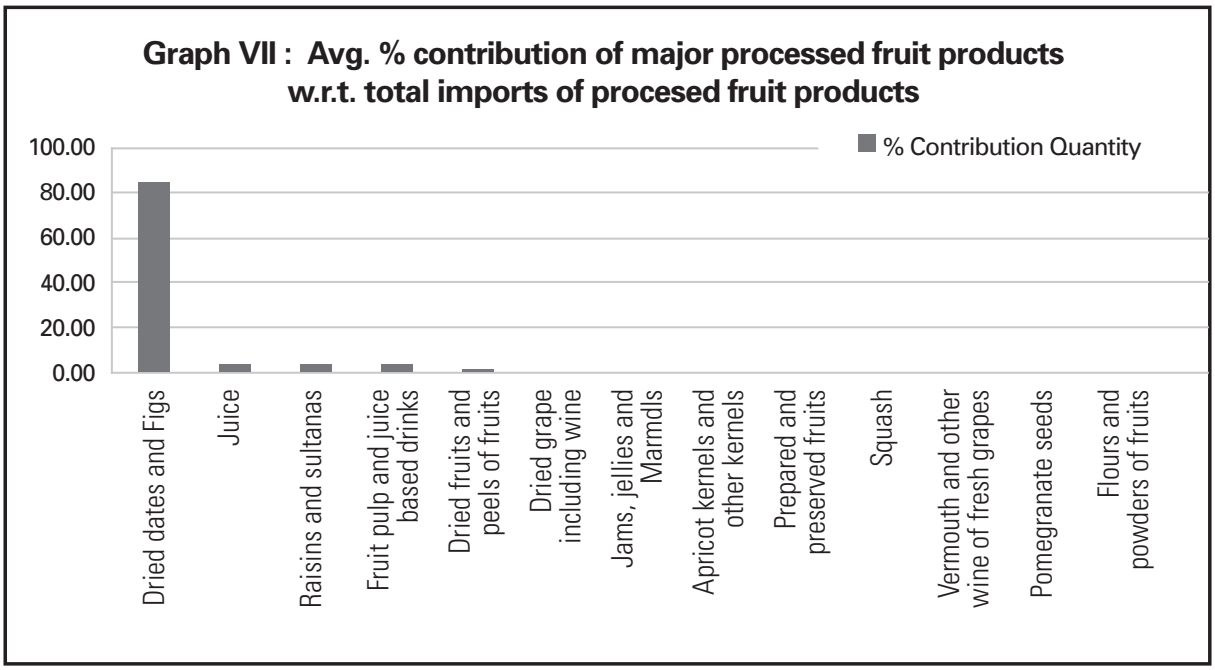
Major processed fruit products	% contribution - Quantity
Dried dates and figs	88.37
Juice	3.40
Raisins and sultanas	3.26
Fruit pulp and juice based drinks	3.07
Dried fruits and peels of fruits	1.11
Dried grape including wine	0.24
Jams, jellies and Marmdls.	0.22
Apricot kernels and other kernels	0.15
Prepared and preserved fruits	0.10
Squash	0.05
Vermouth and other wine of fresh grapes	0.01
Pomegranate seeds	0.01
Flours and powders of fruits	0.01
Total	**100.00**

is increasing and Indian fruit processors should now focus on meeting the needs of this upcoming buoyant segment.

3. A coordinated, integrated and strategic effort of all the stake holders, i.e., fruit growers, fruit processors, channel members, nodal bodies (Governmental and Non Governmental), and end users is must to turnaround this industry. Fruit Processing Industry of India has to address all the constraints/problems/ hurdles and reap the enormous advantages/ benefits/ profits which this sector is to offer and be the world's largest fruit processing factory. Problems / constraints have to be studied in wholesome, integrated and strategic manner rather than adopting piecemeal approach.

Conclusion

India being the largest producer of fruits in the world, there is a tremendous scope for exports of fruits and processed fruit products. Indian fruit processing industry should seize this opportunity and make India a largest fruit processing factory of the world.



Source: Export Import Data Bank from the official website of DGFT (2008)

Table VIII : CGR of Imports of Major Processed fruit products

Major processed fruit products	CGR - Quantity
Fruit pulp and juice based drinks	537.51
Flours and powders of fruits	156.46
Prepared and preserved fruits	89.53
Apricot kernels and other kernels	87.51
Squash	70.36
Jams, jellies and Marmdls.	51.89
Juice	37.46
Dried fruits and peels of fruits	32.55
Dried grape including wine	15.24
Raisins and sultanas	14.83
Dried dates and figs	2.81
Vermouth and other wine of fresh grape	-18.6
Pomegranate seeds	-63.78
Total	**5.01**

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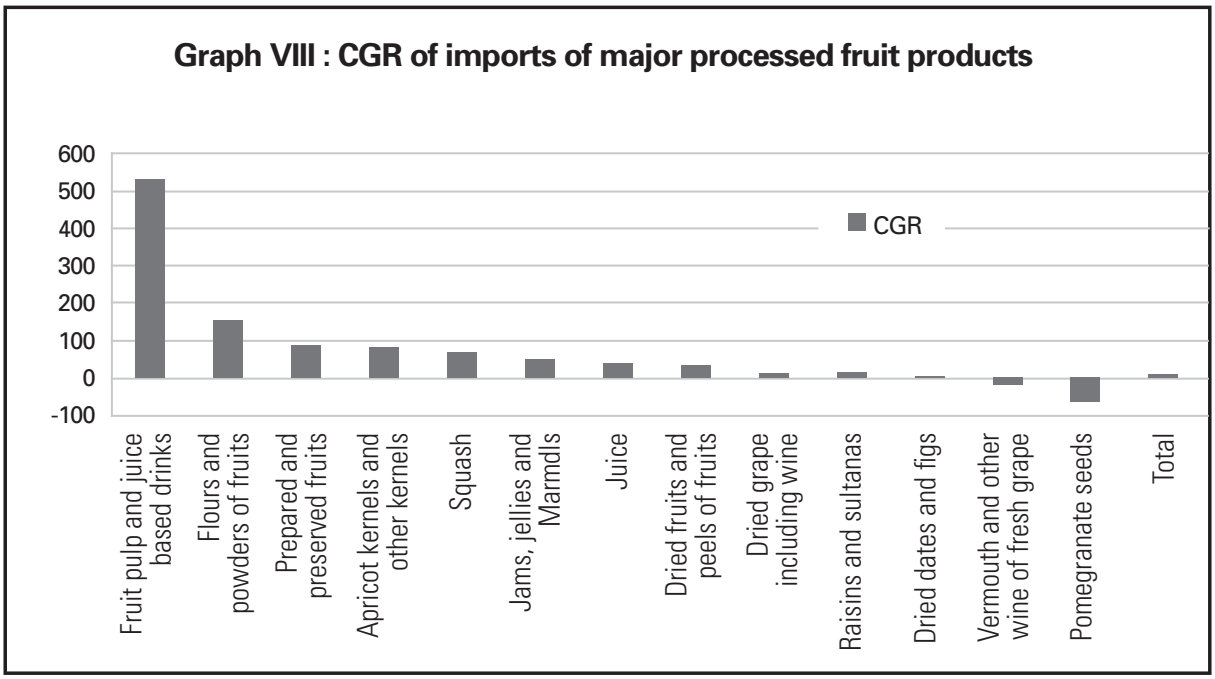
Graph VIII : CGR of imports of major processed fruit products



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Vol:6, 2 (2012) 87 ISSN 0974-0082

BOOK REVIEW

Accounting for Management

D.Gopinath & G.V. Kesava Rao
Paramount Publishing House, Hyderabad-500029, Publication G 2012,pp 1 to 272
Reviewer : Bhavya N

The authors of the book are highly experienced in academic especially at the post graduate level and have taught the subject for over two to three decades. The authors has made all efforts to present the subject in as a lucid manner as possible. The target group is the post graduate students especially MBA and have used effective language and style of writing in the whole text book.

Accounting plays a vital role in various sector of businesses & a student from any disciplinary background should have adequate knowledge of accounting. The subject is the base for all other advance financial specialization subjects. The book not only gives the theoretical knowledge about accounting but also gives importance to its practical applicability in terms of using different techniques of analyzing the financial statements and exposing the students to usage of accounting software for the better understanding of the subject.

The book is intended basically for the MBA first semester students, in particular who come from different backgrounds like BSc, BA, B Pharm , Engineering etc. This book emphasizes the need and importance of accounting in growing world of business.

The book has been divided into eight modules covering and sub chapters in each module. The book is formatted in a logical sequence starting with the VTU syllabus and brief contents involving eight modules and also detailed contents with sub chapters in each chapter. The first module talks about the basic introduction to accounting which includes need for accounting, functions and limitations, accounting standards, accounting equation and terminologies of financial accounting. The second module talks about preparation of books of accounting which includes classification of accounts, journal. Ledger and cash book the third module covers the final accounts which include trading account, profit and loss account, balance sheet of sole trading and Joint Stock Company. The fourth module contains analysis of financial statements which includes financial statements and techniques of financial statement like common size statement, trend percentages and ratio analysis. The author has only used cash flow statement as one of the techniques in analyzing a financial statement and has excluded fund flow statements. The concepts of depreciation and its methods are not elucidated in detail in the book. There should have been an update on the GAAP in the context of global reconciliation for the benefit of users of the book.

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M P Birla Institute of Management, Associate Bharatiya Vidya Bhavan, Bangalore
Established: June 2007
ISSN 0974-0082
July 2012, VOL. 6, ISSUE. 2

Administrative & Editorial Office:

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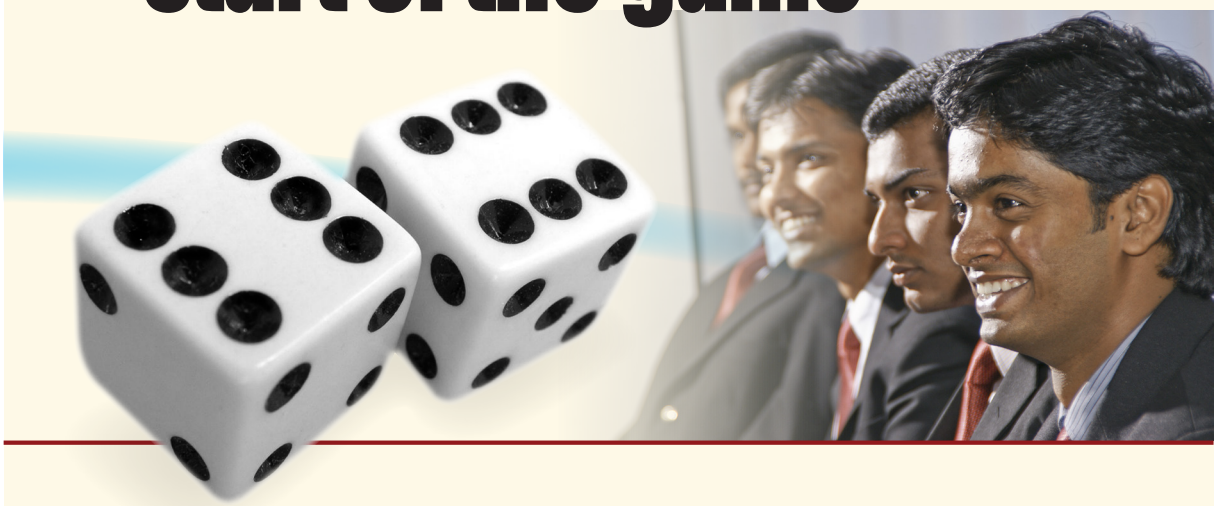

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