



# CMR JOURNAL OF INNOVATION AND RESEARCH

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## From the Editor's Desk...

It gives me immense pleasure to bring out Volume 2 (Issue 2) of 'CMR Journal of Innovation and Research'. We have received contributions from academicians and practitioners from India and abroad. It has been our consistent effort to keep the journal contemporary and multidisciplinary. Therefore, 'CMR Journal of Innovation and Research' has selected articles, case studies, and book reviews on emerging trends in multidisciplinary areas. This issue includes interesting research papers on diverse areas.

The first paper 'Capacity Building Programmes for Socially Backward Women Gram Panchayat Representatives in Karnataka' focuses on the grass root level government organizations in India and the increasing role played by women from backward castes in these organizations.

The second paper focuses on the 'Role of Self-Help Groups (SHGs) in Improving the Socio-economic Status of Women'. It studies the impact of Bank Linkage Programmes in catering to the financial requirements of the 'unreached poor'.

The third paper 'Narmada Dam, Ecology, and Human Rights: A Study in Para-Federal Governance in India' studies the interfaces between the needs of economic development, human development and ecological preservation in India.

The fourth paper, 'Application of Information Technology in Indian Stock Exchanges: A Study of Mode of Trading at NSE' studies the role of technology in enabling stock exchanges to rapidly ramp up volume of trade at the same time reducing errors, increasing efficiency and improving the ability to offer more complex products and services.

The case study – focuses on the management issues and challenges faced by an organization due to lack of control and co-ordination between the head office and branch office.

The book review – one on 'New Ideas in Strategic Thinking and Management', provides fresh perspectives on strategic planning and decision making. The editorial team of CMRJIR expresses its gratitude to the contributors. We hope our readers will enjoy and benefit immensely reading this issue. We look forward for your continued support and valuable comments.

**B.S.Patil**  
**Editor-in-Chief**  
**CMR Journal of Innovation and Research**



## **CAPACITY BUILDING PROGRAMMES FOR SO-CIALLY BACKWARD WOMEN GRAM PANCHAYAT REPRESENTATIVES IN KARNATAKA**

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### **Abstract**

*The empowerment of Scheduled Castes (SC) and Scheduled Tribes (ST) through participation in local self-government has emerged as an important phase of the ongoing socio-economic and political transformation process in India. The seventy third Constitutional Amendment is a milestone in empowerment of women belonging to weaker sections. This enabled reservation of 33 per cent of the Gram Panchayat seats for women. Recently, government of Karnataka has increased the reservation from 33 per cent to 50 per cent for women. Large numbers of women belonging to weaker sections (SC & ST) entered Gram Panchayats for the first time, due to reservation. Efforts have been made to empower members, especially the women representatives of Gram Panchayat (GP) through different types of training programmes to increase their participation, level of understanding and create awareness. In this context, the paper tries to understand the process and level of empowerment of female GP members belonging to weaker sections, based on personal interview of 53 GP women members of Hubballi taluk in Karnataka. The paper presents the socio-economic profile of SC/ST women representatives, usefulness of reservation of seats for women, motivating factors for contesting the election, decision making power, participation in local organizations, and willingness to contest the future election for Panchayat bodies. Moreover, the usefulness of special capacity building programme conducted by Centre for Multi-Disciplinary Development Research (CMDR) has also been presented.*

*Key Words:* Gram Panchayat System, Capacity Building Programmes, Women Empowerment, Socio-Economic Status.

## 1. Introduction

Empowerment of women is a long term goal which needs to be supported by non-government organizations (NGOs). They need to increase critical awareness about their own function by working with other local organizations and forming networks and co-ordinate with the government (Tucker, 2003). In spite of more than 70 years of independence; economic condition of SC/ST people has not improved substantially. The Government of India has been trying to achieve empowerment of women over the years through various programmes and constitutional safeguards, but it has failed to improve the quality of life of Scheduled Castes and Scheduled Tribes Women in general. After six decades of independence there are only less than 10 % women in the Indian parliament as well as in every state assembly. However, the government of India has made provision for women reservation for participating actively in the local bodies which provides plenty of scope for women representatives to focus on gender issues. Empowerment of SC and ST Women representatives means each GP member will obtain the power to think and act freely, exercise choice to their potential and give better service to people without any hesitation.

The 73rd Amendment to the Constitution brought in 1992 is a major breakthrough that assures participation of disadvantaged groups in political administration. It brought a 33 % reservation for women into the Panchayat Raj System of local governance in India. Through government legislation some of the panchayat posts have been reserved for women i.e. for SC, ST and OBC (Article 243(D) of the Constitution of India). Therefore, by advantage of reservation, members of SC/ST group have become panchayat leaders and members. Recently the governments of India and all the states have increased the proportion of women reservation seats up to 50 %. Many of the states (including Karnataka) have raised their women reservation quota to 50 %. But unfortunately, in many cases these socially exclusive representatives (SC/ST) are unaware of their duties and responsibilities. The Government has tried to create awareness on duties and responsibilities of PRI representatives.

A study by DAC (2009) in Karnataka on tribal communities and panchayats reveals that the members have very little say in decision making. This study reports that tribal community is still oppressed and not able to fully participate in the mainstream activity due to lack of empowerment of people belonging to the tribal community. Tame (2014) in her study on tribal women in Arunachal Pradesh, reports that reservation has created space for tribal women's needs and they are slowly gaining confidence to perceive their roles by familiarizing themselves with panchayat rules. It was also noted that there was change in their perceptions of themselves although there were a few who acted like 'puppets'. They also seemed to be interested in politics as many of them wanted the government to organize campaigns to politically

empower them. Another study by Sivanna (2014) covering Mandya and Gulbarga tries to answer whether SC members and presidents of GP are able to participate in decision making process at the panchayat level. This study reveals that the involvement of SC members in decision making is limited and is confined to issues related only to SCs. Although the study finds no disinclination against SC presidents, it indicates the efforts of dominant castes to elect presidents who can be manipulated. Members reported that political parties are inevitable as each member identifies himself or herself with political parties, which creates differences among members and sometimes leads to clashes on account of differences of opinions. The study reports that as per the perceptions of GP members, dominant castes preferred dummy candidates and their dominance was due to ignorance of SCs about rules, procedures and fear of officials. Members also felt that both education and political skills are necessary for political empowerment of the marginalized.

In some parts of India SC/ST representatives are denied entry to the Panchayat office and when they win the election, they are denied charge of the office or not allowed to sit in their seat. The voice of SC/ST women is not fully represented in the political ground. Many studies have focused on reservation, training programme and women representatives' empowerment in India (Palniturai, etc 2004, Chauhan A, 2003, Sachchidananda, 2006). Still, studies need to focus on the issues of empowerment of SC/ST female representatives. In this connection, the paper tries to present the process and level of empowerment of SC/ST female GP representatives in Karnataka. The process of empowerment has been presented in terms of reservation of seats to GP and their representation and training programmes attended. The level of empowerment has been understood in terms of motivation for contesting election, their capacity to take independent decision, participation in local organizations, willingness to contest election in future. In an effort to empower the SC/ST members, Centre for Multi-Disciplinary Development Research (CMDR), had conducted a special training programme only meant for SC/ST representatives of Hubballi taluk in the year 2015. The Usefulness of this training programme, in the process of empowerment, has also been presented. The paper is based on the primary data collected from SC/ST members of Hubballi taluk in Karnataka.

## 2. Socio-Economic Profile of SC/ST Members

Scheduled Castes (SC) and Scheduled Tribes (ST) communities are historically disadvantaged people. The SC/ST groups have suffered social, economic, cultural, and political inequalities for many centuries. It is necessary to understand the socio-economic profile of the elected SC/ST women representatives. Table 1 shows profile of SC/ST Gram Panchayat members of Hubballi taluk. This indicates educational level, age group, occupation, income and type of ration card holdings of the members. The educational status of these members reveals that male members (either SC or ST) are literate and they have attended primary and secondary schools. In case of female, most of them are illiterate and only a few have attended primary and secondary

schools. Age composition of the members reveals that most of the SC/ST GP members are in the middle age group (i.e. 36-50). SC /ST Female members are found in all the age groups. SC male are in age group of 21-35 and 36-50 years and ST male are in 36-50 and 51.60 years. The occupation pattern of the members reveals that most of the members are agricultural laborers and some members are cultivators. Very few are doing other types of works like petty business and tailoring. The level of income and type of ration card holding of the members reveals that almost all the members are poor. On the whole, most of the SC/ST Gram Panchayat members are poor and their educational attendant level is also not so high.

**Table 1: Socio-Economic Profile of Gram Panchayat SC and ST Members (%)**

| Particulars                                  | SC     |       | ST     |      |
|--|--------|-------|--------|------|
|  | Female | Male  | Female | Male |
| Illiterate                                   | 70.0   | 0     | 52.9   | 0    |
| Primary                                      | 20.0   | 100.0 | 29.4   | 50.0 |
| Secondary                                    | 0.0    | 0.0   | 17.6   | 50.0 |
| Degree and above                             | 10.0   | 0.0   | 0.0    | 0.0  |
| Members by Age Group (%)                     |        |       |        |      |
| 21-35  | 5.0    | 50.0  | 23.5   | 0.0  |
| 36-50  | 70.0   | 50.0  | 58.8   | 75.0 |
| 51-60  | 20.0   | 0.0   | 5.9    | 25.0 |
| 61-70  | 5.0    | 0.0   | 5.9    | 0.0  |
| Above 70                                     | 0.0    | 0.0   | 5.9    | 0.0  |
| Members by Occupation (%)                    |        |       |        |      |
| Agriculture                                  | 15.8   | 0.0   | 5.6    | 25.0 |
| Wage Labour (Agri/Non Agri Labour)           | 63.2   | 75.0  | 44.4   | 75.0 |
| House work                                   | 15.8   | 0.0   | 44.4   | 0.0  |
| Others (Private Sector, Tailoring, Business) | 5.3    | 25.0  | 5.6    | 0.0  |
| Members by Income Level (%)                  |        |       |        |      |
| Less than Rs 18000                           | 50.0   | 42.9  | 58.0   | 50.0 |
| Rs 19000-Rs 50000                            | 26.5   | 28.6  | 38.0   | 50.0 |
| Rs 51000-Rs 100000                           | 14.7   | 14.2  | 0.0    | 0.0  |
| Rs100001-Rs 200000                           | 5.9    | 14.3  | 4.0    | 0.0  |
| Rs 200000 and Above                          | 2.9    | 0.0   | 0.0    | 0.0  |
| Members by Type of Ration Card (%)           |        |       |        |      |
| APL  | 15.0   | 0.0   | 0.0    | 0.0  |
| BPL  | 30.0   | 28.6  | 38.0   | 50.0 |
| Antyodaya                                    | 50.0   | 14.2  | 0.0    | 0.0  |
| Others                                       | 5.0    | 14.3  | 4.0    | 0.0  |

Source: Primary Data

### 2.1.1. Reservation and Political Participation:

#### 2.1.2. Reservation and Political Background of Members:

Traditionally political and economic power rests with the upper castes. It was very difficult for the weaker sections of the people to enter into politics before the 73rd amendment to the Constitution which ensured reservation for SC/ST female members. Discussion with the members revealed that only 10 per cent of the SC/ST members have a political background. Family members of these members were involved in political activities. This has helped these members

to enter into politics and contest panchayat elections. However, a majority of the members were first entrants to Gram Panchayat elections. Reservation of seats has enabled them to contest for the elections. Now, members belonging to weaker sections, including women, are contesting in the wards where the seats are allotted for general category. This shows increased level of confidence among the weaker sections, particularly women. Table 2 shows proportion of SC/ST members across the different categories of seats.

**Table 2: Proportion of SC/ST Members (%)**

| Reservation Category | Members by Education Level (%) |        |       |                  |        |       |             |        |       |
|----------------------|--------------------------------|--------|-------|------------------|--------|-------|-------------|--------|-------|
|                      | Scheduled Castes               |        |       | Scheduled Tribes |        |       | SC/ST Total |        |       |
|                      | Male                           | Female | Total | Male             | Female | Total | Male        | Female | Total |
| SC                   | 75.0                           | 20.6   | 29.3  | 70.0             | 4.0    | 3.4   | 45.5        | 13.6   | 18.6  |
| SC Women             | 0.0                            | 55.9   | 46.3  | 20.0             | 12.0   | 10.3  | 0.0         | 37.3   | 31.4  |
| ST                   | 0.0                            | 0.0    | 0.0   | 0.0              | 4.0    | 13.8  | 27.3        | 1.7    | 5.7   |
| ST Women             | 0.0                            | 0.0    | 0.0   | 10.0             | 72.0   | 62.1  | 0.0         | 30.5   | 25.7  |
| General              | 25.0                           | 8.8    | 12.2  | 5.0              | 0.0    | 3.4   | 27.3        | 5.1    | 8.6   |
| General women        | 0.0                            | 14.7   | 12.2  | 70.0             | 8.0    | 6.9   | 0.0         | 11.9   | 10.0  |
| Total                | 100.0                          | 100.0  | 100.0 | 100.0            | 100.0  | 100.0 | 100.0       | 100.0  | 100.0 |

Source: Primary Data

#### 2.1.3. Motivation for Contesting GP Election:

Table 3 shows sources of motivation for contesting Gram Panchayat election. It depicts that motivations for contesting for GP member are varied especially for male and female members. Apart from self-motivation, male members are motivated by the ward people, whereas in case of female the proportion of members self-motivated is less compared to male, irrespective of caste. These members are mainly motivated by the family members, ward and caste people

to contest the elections. On the whole, male members are mainly self-motivated and supported by ward people. In case of female, motivation of family is important and is supported by ward people. The discussion with the women members reveals that in recent years, more and more women are coming forward to contest the elections on their own. This indicates that women belonging to weaker sections are now getting ready to face the challenges which they were facing traditionally.

**Table 3: Sources of Motivation for Contesting GP Election**

| Source of Motivation | Members by Education Level (%) |      |                  |      |
|----------------------|--------------------------------|------|------------------|------|
|                      | Scheduled Castes               |      | Scheduled Tribes |      |
|                      | Female                         | Male | Female           | Male |
| Self-Motivation      | 10.7                           | 57.1 | 13.8             | 40.0 |
| Family               | 46.4                           | 0.0  | 41.4             | 0.0  |
| Caste People         | 17.9                           | 0.0  | 20.7             | 20.0 |
| Ward People          | 25.0                           | 42.9 | 24.1             | 40.0 |

Source: Primary Data

#### 2.1.4. Participation in Local Organization:

Apart from the Panchayat activities, SC/ST Members have also been participating in different local organizations such as Self-Help Groups (SHG), School Development Management Committee (SDMC), Village Water Supply and Sanitation Committee (VWSC) and caste associations (SC/ST). The proportion of participation of male and female members is almost the same i.e. 75 Per cent. Table 4 indicates that

female members mainly participated in Self Help Groups (SHG) activities whereas male members participated in School Development Management Committee (SDMC) and caste associations. The participation of male members in local organizations is more than the participation of female members. On an average if males participate in 3 organizations, females participate in 2 organizations.

**Table 4: Participation of SC/ST Members in Local Organizations (%)**

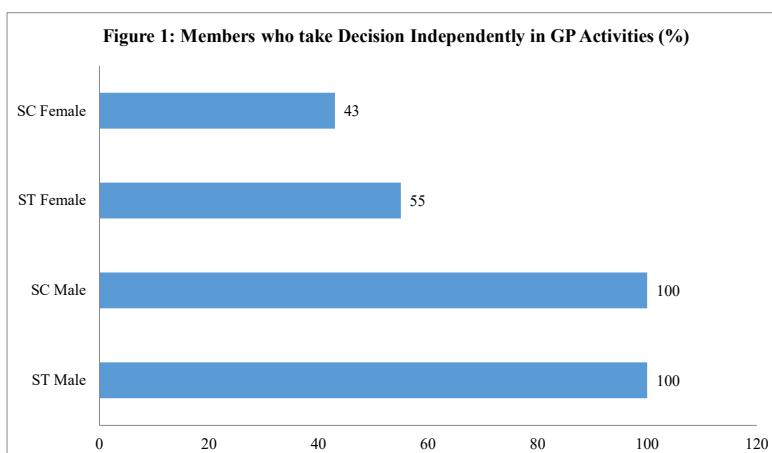
| Organizations                                 | Female | Male |
|---|--------|------|
| School Develop Management Committee           | 8.1    | 62.5 |
| Village Water Supply and Sanitation Committee | 10.8   | 62.5 |
| Caste Association                             | 5.4    | 37.5 |
| Watershed Development Committee               | 10.8   | 12.5 |
| Self Help Groups                              | 45.9   | 0.0  |
| Lake Management Committee                     | 8.1    | 0.0  |
| Forest Management Committee                   | 2.7    | 0.0  |
| Farmer Association                            | 2.7    | 0.0  |
| Co-operative Milk Society                     | 2.7    | 0.0  |
| Others. (Bhajana Mandali, Drama Company)      | 8.1    | 12.5 |

#### 2.1.5. Decision Making Power:

It is expected that all the GP members should take independent decisions in GP activities without getting influenced by other people. Figure 1 shows the proportion of members who take independent decisions in the activities of Gram Panchayats. It reveals that male members, either SC or ST take independent decisions. The proportion of female members who take independent decisions is less compared to male members. Female members get the help/advice mainly from family members, especially from their husband. Among the females, ST female members are

performing better as compared to SC female members in taking independent decisions. It can be observed in some of the GP that female members hesitate to come alone to Panchayat to attend the meetings. They are accompanied by their family members as the traditional concept of patriarchy still exists in rural areas. Discussion with the members reveals that this type of notion has been declining gradually in the rural areas and more and more female members are coming along to GP without any family member accompanying them. This is a good sign of empowerment of women.

**Figure 1: Members who take Decision Independently in GP Activities (%)**

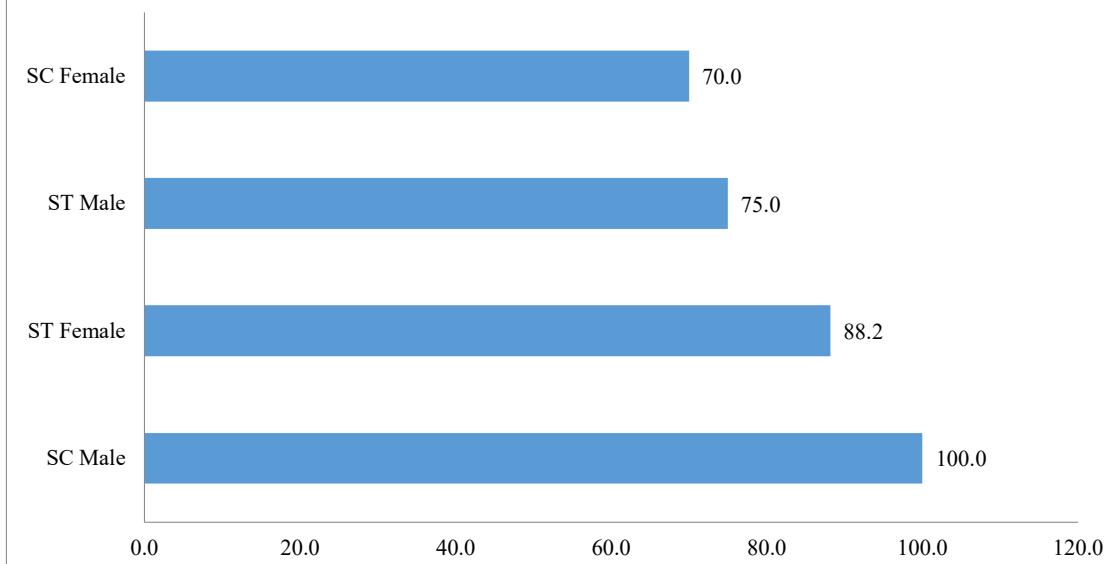


## 2.2 Willingness to Contest Election in Future for PRIs:

Usually panchayat members, who were elected for the first time to Gram Panchayat, took it as an opportunity to understand the functions of GP, various developmental schemes and to acquire the necessary skills of self-governance. Most of the SC/ST members contested election without any political background and many of them were elected due to family and pressure from village leaders or political leaders. The willingness to contest election in future for PRIs shows

interest and confidence in the political field. Figure 2 presents willingness of the SC/ST representatives of GP to contest in future elections to serve the people. It shows that majority of the members are willing to contest the elections in future. Majority of the SC/ST female members who contested panchayat election due to the pressure from family and village leaders showed willingness to contest in future panchayat elections as they gained knowledge, experience and interest in politics as members of GP.

**Figure 2: Members Willing to Contest in Future Election**

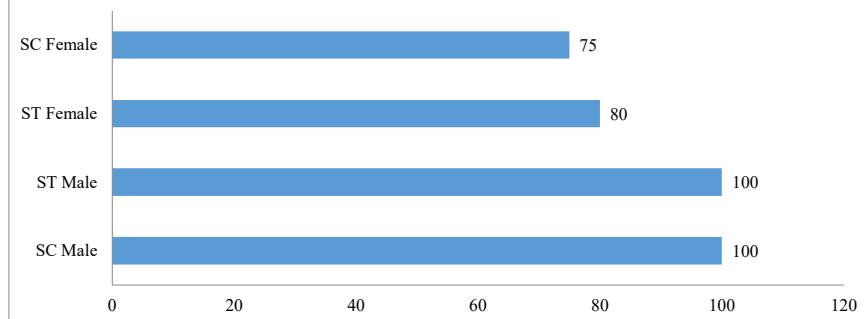


## 4. Capacity Building Programme and Empowerment:

4.1. Capacity Building of Members through Training: In Karnataka, the State Training Institute (STI), Mysore regularly conducts satellite training programme for Panchayat representatives. Apart from this some NGOs and private institutes also organize training programmes to help representatives become more self-confident and to give them more knowledge about their role and responsibility as Grama Panchayat members. Figure 3 shows the proportion

of SC/ST members who attended training programmes earlier conducted by State Training Institute, Mysore, at taluk or district level. It reveals that all the male members participated in training programmes but the participation of female members is comparatively less. Moreover, it has also been observed from the discussion with the members that female members attended less number of training programmes. On an average, participation of males and females is in the ratio 8:6.

**Figure 3: Participation of Members in Training Programmes**



Discussion with the members reveals that following are the main reasons for not attending the training programmes (regularly). They are:

- Lack of co-operation and communication gap between PDO and members,
- Lack of earlier intimation by Taluk Panchayat and Grama Panchayat,
- No proper transport facility/arrangement,
- Dominance of upper caste male members in training,
- Female members have family responsibilities, i.e. taking care of their children at home.
- Most of them are agricultural laborers and they cannot forego their daily earnings.

#### **4.2. Perception about Special Capacity Building Programme:**

CMDR had organized a 3-day training programme for SC and ST Gram Panchayat members of Hubballi taluk in Karnataka during the year 2015. Hubballi is one of the relatively better developed taluks in Karnataka according to the High Power Committee Report (2002). There are 53 SC/ST members in the taluk out of total 323 members. The training programme was organized well in advance with earlier intimation to the GP members. Officers from CMDR visited the members' houses to induce them to attend the programme and they also sought the co-operation of the family members to send the GP member (especially female members) to training. Taluk Panchayat and Gram Panchayats also extended the support. Members have been provided with travel facility and daily allowance. Thus, all efforts were made to avoid the limitations of the earlier training programmes. Members opined that capacity building programme for SC/ST women members is a good way of breaking of caste boundaries, help them exchange their knowledge and give them a better opportunity to help each other. Women SC/ST members felt that it would help them if separate training programmes are organized for women. They said that men do not encourage them to ask questions and laugh when women ask questions during the training programme.

Overall, the members felt that the training programme meant for SC/ST members, conducted by CMDR, has increased their self-confidence, knowledge and led to overall improvement in personality. Now, they can ask for the rights of weaker sections

#### **5. Concluding Observations and Policy Implications:**

The paper finds that almost all the SC/ST female members have poor social and economic background. Reservation of seats of GP has given them the opportunity to contest the elections and enter in to Gram Panchayats. Now SC/ST female members are contesting not only for reserved seats but also for other seats (general category). After being elected, most of the female members get training to have knowledge about GP activities. But the proportion of female SC/ST members attending the training programme is less compared to male members. The level of

and get the problems solved. It has been observed during the training programme that the female representatives are still hesitant to respond to questions in front of male members. The female members informed that men do not encourage them to ask questions and they laugh at them when women members ask questions. Therefore, women members asked for separate training programmes for women. They wish that training programmes should focus on i) women empowerment, ii) programmes for SCs / STs and, iii) legal issues and application of various laws. On the nature of training programmes they said that the programmes should be participatory, include humour, jokes, discussions and not just narrating about the panchayat acts, functions, programmes, etc. In addition, they added that this type of capacity building programme should be conducted within 6 months after the Grama Panchayat election for women members separately. This type of special programme would help SC/ST women representatives for effective implementation of scheme/programme and carry out development work in the panchayat level.

#### **Case 1: Empowerment through Capacity Building Programme**

An ST woman member of Adargunchi Grama Panchayat got elected for the first time in a Grama Panchayat Election. According to her, she contested election with self-interest. After receiving 2 times training programme she realized about her role and responsibility at panchayat level. She felt that training programme provided her more self-confidence, more knowledge, awareness about her role, rights, responsibility in panchayat as well development and welfare programmes. This knowledge helps her to attend a women empowerment workshop at Jaipur Rajasthan. She felt that after getting 4 times trained she became more independent and as a panchayat member she is actively participating in panchayat activities and is attending to several problems related to drinking water, roads, housing and school. She told that she has a dream to contest TP or ZP election and continue in the political line. Finally, because of capacity building programme she became active in panchayat activities and occupied a respectable position in the society.

empowerment of female members reveals that they are lagging behind in terms of taking independent decisions, attending training programmes, participation in local organizations and willingness to contest elections in future. The members found that special training for SC/ST members has helped to increase the self-confidence, knowledge and awareness about their role, rights and responsibilities. SC/ST female members felt that special training only for SC/ST female members would be more beneficial apart from general training programmes.

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# ROLE OF SELF-HELP GROUPS (SHGS) IN IMPROVING THE SOCIO-ECONOMIC STATUS OF WOMEN

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## **Abstract:**

*Socio-economic empowerment contributes significantly towards overall development. Women's empowerment is extremely important for increasing their socio-economic status in the society. Self Help Groups (SHGs) are the key instruments in women empowerment. They are generally facilitated and supported by NGOs. SHGs-Bank Linkage Programme is emerging as an effective mechanism to cater to the financial requirements of the "Unreached Poor". This has been very successful in meeting the financial requirements of rural women and in strengthening the collective self-help capacities of the poor. Recently, women's empowerment has taken a prominent place in the government policy and academic research. The main focus of the present research is to study the role of SHG in enhancing the socio-economic status of women in the family and society.*

*Key Words:* *Self-Help Groups, Bank Linkage Programme, Credit Utilization*

## **1. Introduction:**

The nature of the many socio-economic conditions prevailing in the society today make women less-privileged compared to men. This is more prevalent in rural areas. One of the ways to rectify this situation is through 'women empowerment'. It needs to be given importance to eradicate poverty and to improve their socio-economic status. Self Help Group (SHGs)-Bank Linkage Program is emerging as an effective mechanism to cater to the financial requirements of the 'Unreached Poor'. This has been very successful in meeting the financial requirements of rural women and in strengthening the collective self-help capacities of the poor. SHGs are playing a significant role in enhancing the socio-economic status of women in the family and society through their credit activities. This in turn leads to speeding up the economic development of the country.

## 2. Indian Scenario:

Self-help groups (SHGs) and credit management groups are on the rise in India. Banks are playing a predominant role in lending micro-credit to SHGs. The inception started with the concept of 'women and micro-finance' in 1970 introduced by Ilaben Bhat, founder member of 'SEWA' (Self Employed Women's Association) in Ahmadabad. The 'Annapurna Mahila Mandal' in Maharashtra and 'Working Women's Forum' in Tamil Nadu and the National Bank for Agriculture and Rural Development (NABARD) sponsored groups have followed the model of 'SEWA'. In 1991-92 NABARD started promoting self-help groups on a

big scale and this led to the 'SHG movement'. In 1993, the Reserve Bank of India also allowed SHGs to open saving accounts in banks. The SHG movement began gathering momentum in Gujarat, Maharashtra, Andhra Pradesh, Rajasthan, Tamil Nadu and Kerala. Now banks like NABARD, Bank of Maharashtra, State Bank of India, Cooperative Banks, Regional Rural Banks, Government institutions like Maharashtra Arthik Vikas Mahamandal (MAVIM), District Rural Development Agency (DRDA), Municipal corporations and many NGOs are actively involved in the promotion of SHGs.

## 3. SHG Model in India

Three diverse models of SHGs came into existence in India. One form is where Banks finance the SHGs, the second is SHGs are formed by NGOs and the third is agencies financed by banks. Banks finance SHGs, NGOs and other agencies as financial intermediaries. The second model is the most accepted model; three-fourths of all the SHGs come under this model. SHGs have a unique organizational system in India for women empowerment

and wellbeing. SHGs are supported by the Government of India for providing training to women to become entrepreneurs. When the SHGs organize training to nurture the entrepreneurial skills of Indian women, banks provide financial assistance to carry out business. As a social movement with government support, SHGs become more or less a part and parcel of the society.

## 4. Review of Literature

Chatterjee (2003) explored the impact of participation in Self Help Groups on the empowerment of women in the background of the immense significance given to the group approach in designing programmes for rural women. The study was conducted in Mewat District in the Northern State of Haryana. It focuses on different dimensions of empowerment – material, cognitive, perceptual and relational. Access to credit can help in expansion of material base of women by enabling them to start and expand small businesses, often accompanied by market access. Das (2012), observed that while the MFI model of microfinance is unsustainable, the SHG-Bank Linkage approach can make a constructive effort on security and empowerment of the underprivileged. The findings from this study suggest that there is a rise in the history and perspectives of rural credit in India in the form of micro-

finance. There is a requirement for superior governance to supervise challenges for future so that complete growth is possible.

According to Das (2012) Self Help Groups (SHGs) under Indian micro finance programme have become a vehicle to track various developmental schemes and even for profit motives. Several rating systems for micro-finance involvement and Self-Help Groups (SHGs) have been developed in the past; however they lack uniformity. Ghadoliya (2006) elaborated on the need to Empower Women through Self -Help Groups and concentrated on Role of Distance Education. Education is the largest beneficial force and increase in the levels of education nurtures a progressive attitude. The introduction of industrialization and modernization have resulted in a sea change in the attitudes and thought process of people.

## 5. Objectives of the Study

- To study the effect of SHGs on improving socio-economic status of women
- To study the role of SHGs in financial inclusion
- To study the ways of credit utilization by members of SHGs
- To determine whether and to what extent participation in Self Help Groups has an impact on the empowerment of women members.

## 6. Methodology

A qualitative study was used to investigate women's perceptions about their improvement in the socio economic status in the society. The variables for the study are freedom of mobility, ability to make household decisions, political consciousness, economic security etc.

## 7. Data Collection and Sampling

Data for the study was collected from both primary and secondary sources. Primary data was collected through a structured questionnaire and secondary data was obtained from various published and unpublished records, books, journals and concerned websites. In the first stage all the four SHGs have been selected for the study. Data was collected from the respondents who were with the group for at least one year and these respondents were randomly selected from each group. Thus 150 respondents were selected for the present study.

## 8. Data Analysis

Self Help Organizations play an effective role in poverty alleviation and improving socio- economic conditions of the poor. In India especially SHGs are contributing towards reducing poverty and empowering women in particular. SHGs have been successful in making positive social change in all members. SHGs have played a notable role in facilitating the poor in rural areas. The SHG's have obtained a well-known status in enhancing social and financial returns. The encouragement of income generation activities for poor women is a powerful medium to resolve several socio-economic problems.

**8.1. Socio-Economic Conditions of Beneficiaries:** The demographic variables like age, education, caste, religion, marital status, family income, housing conditions etc. are some of the important variables that affect the socio economic status of women. Most of the respondents belong to the age group of 26-35 years (42.59%) and 36-45 years (35.99%). Most of the beneficiaries are literate, and have received basic education; 14 women respondents were reported to be illiterate. Illiteracy was found more pronounced in Shree Kshetra Darmasthala and Shree Shakti organization .Importantly, educated women respondents were reported high in Bangalore city. Most of the women respondents were married; widow beneficiaries had higher level of education compared to others. An overwhelming majority of respondents reported that their family size is large, comprising more than 4 members. Importantly, less than 30% of women respondents reported that they are living with their in-laws. The majority of the respondents reported that in laws are not living with them. It is a general tendency that poor families live

Hence, a total of four SHGs were selected for the study from Bangalore. About six Focused Group Discussions were conducted among the group members of the SHGs and their perceptions of improvement in socio economic status before and after joining SHG.

For this study simple random sampling was used due to the homogeneous nature of women SHGs in Bangalore. 4 SHGs were selected randomly. Data was collected using questionnaires; and interviews. Two types of questionnaires were administered in the study - one for the members of SHGs and one for the heads of institutes; 150 people including 4 heads of SHGs were interviewed for this study.

independently, concentrating on their own family members. All the respondents from Bangalore were found to be living in rented houses. Basic toilet facilities are also not available to many beneficiaries. Some of the beneficiaries have access to piped water for drinking. However, the proportion of households who do not have access to safe drinking water sources has been reported high. The majority of the respondents accepted that they are dependent on LPG for cooking.

Most of the beneficiaries are either landless (60%) or possessing small and marginal landholdings. More than one fourth respondents were laborers. They worked as laborers to provide income for their family. Bangalore is one of the cities where we can find many factories and working areas where women can employ themselves. One-fourth respondents reported that their husbands are illiterate. Importantly, the respondents accepted that their husbands are unemployed. It was reported high. This is the main reason why the women are forced to work to maintain their family. The main subsidiary employment of the surveyed households is shown in Table 4.19. Agriculture, animal husbandry and labor are reported to be main subsidiary occupations.

The satisfaction of respondents with family members has been reported to be quite high. Most of them were found to be satisfied with their family members. Women's participation in decision-making in family is an important indicator for measuring their empowerment. Though 60% beneficiaries reported that decisions are being taken by their husbands, yet, more than one third respondents accepted that they do participate in decision-making

process. Thus, the socio-economic conditions of women have demonstrated that their status has improved since joining the SHGs and availing themselves of micro-finance. Participation in Micro-financing: SHGs would essentially be formed for the purpose of empowering the poor to take charge of critical decisions concerning their lives and improve its quality. The process adopted for formation of the group has major influence over the way the group would evolve overtime. Importantly, women's participation in women's self-help groups in its various activities is important for meeting the broad objectives of micro-financing and effective functioning of SHGs. The respondents were asked questions regarding motivation to join the groups. Majority of the respondents - 72% reported that NGO's workers motivated them. Self-motivation to join the SHGs was recorded high (43). It is clear that NGOs are main motivators for joining SHGs as well as sensitizing the community. Out of total respondents, 41% were ordinary members while 45% were secretaries and another 2% were presidents of SHGs.

Regular meetings are very important, especially so in the initial stage. The SHGs would decide on a fixed date, time and place for the meetings. This would ensure that the women remain committed to the group and would be able to plan in advance. More than 56% respondents reported that meetings of SHGs are held monthly. The initiation of

meetings has been reported to be mixed i.e. project staff and group members (26). The respondents were further asked about their participation in decision making during the meetings. The majority of the respondents i.e. 77% reported that all members participate in the decisions of the group meetings. Importantly, in the decision making process, NGO's facilitators also participate to enable the group members in choosing the best alternative. The issues like cash in hand, balance in bank, savings of group, number of members who have taken loans, name of bank, group income, total capital of group etc. are well known to the majority of the members of group. However, awareness regarding constraints of groups like meetings, calendar, rules and regulation, group records, objectives of groups etc. has been recorded low. There has been nominal linkage in the saving rate of members. A significant increase in savings has been recorded in the study. Importantly, there has been increase in the savings amount. Most of the members are saving above Rs. 5000. The respondents were asked to reveal the important purposes of savings. The prominent factors reported were: self- respect, emergencies, medical, and social security, agricultural operations, festivals, marriages, education of children etc. The most important purpose among the factors cited was found to be education and for emergencies of the women

## 9. Findings

- The size of group plays an important role in the process of group dynamics. It has been observed that normally the group comprises 12 members. The groups have stabilized over the period. Only 8 percent SHGs received the revolving fund and 13% received bank loans.
- The main sources of savings are curtailing expenditure and saving from income. The average savings per group has been reported to be Rs. 12,442/- while per member it has been reported to be Rs. 1,199/-. Similarly, per group average credit has been reported to be Rs. 54,274/- while per member it has been found to be Rs. 5,231/-
- Awareness regarding basic services to the SHGs members has been reported to be satisfactory. Roads, drainage and socio-economic development are reported as prioritized local issues for development.
- The main factor of motivation for savings is mainly securing future. The SHGs face problems regarding income generation activities. They have also initiated community development activities. However, only 48% of them have initiated income generating activities. Further, only some members of the SHGs have initiated income generation activities.
- Most of the beneficiaries belong to the age group of 26-45 years. They were either found illiterate or educationally backward. They are mostly married and belong to nuclear families. Their housing conditions do not meet the minimum requirements and they face problems of electricity, safe drinking water and sanitation. The land holding size of respondent's families has been reported to be small and most of the members are landless. The beneficiaries were mainly self-employed, housewives and laborers. The respondent's husbands were mostly either unemployed or self-employed. The household income of majority of respondent's families has been reported to be low; however, the contribution of beneficiaries to the family income has been recorded to be significant.
- Most of the beneficiaries have joined SHGs, recently. They were motivated mostly by NGO workers, friends and mostly they are ordinary members. It was reported that only some members participate in meetings of Groups, which are being convened by the project staff, NGO's, workers and functionaries of groups. The decisions in these meetings are taken by majority of the members.
- Awareness of SHGs activities has been reported to be quite satisfactory but constraints of groups, achievements of groups etc. are not known to all the members.
- The saving rate per member has been reported to be low i.e. less than Rs. 5000 per month. The main purpose of savings has been reported to be asset building, education of children, medical, agricultural operations etc.

- Only 31% of respondents have received benefits and access to credit that had an impact on their overall socio-economic status. The SHGs have provided social opportunities to make them aware regarding rights, entitlements and development programmes as well as starting income generation activities for substantial earnings and self-employment. They have also encouraged members for active participation in development programmes and for taking active role in decision making process both at domestic and market fronts.

## 10. Conclusions

Socio-economic empowerment contributes significantly towards the overall development of society. Women's empowerment is extremely important for increasing their socio-economic status in the society. Recently, women's empowerment has taken a prominent place in the government policy and academic research. There has been a paradigm shift in development and governance. Democratic decentralization, partnership with NGO's, empowering community based organizations, participatory development, sustainable growth and equity etc. have proved to be instrumental in people participation, in development and governance as well as their empowerment. The major organizations, which promote SHGs in India, are NABARD, SIDBI, SEWA, MYRADA, ADITHI, PRADAN, WWF, CDF, and Cashphor India. There are a number of NGOs and voluntary organizations which are actively engaged in promoting SHGs and micro-finance. Swa Shakti and Swayam Sidha are two important projects aimed at socio-economic empowerment of women through promoting SHGs, bank linkages and development of income generating activities.

SHGs are key instruments in women empowerment. They are generally facilitated and supported by NGOs. These NGOs advise and train members in a variety of on and off farm income-generating activities. In the present study SHGs have played an important role in empowering women by strengthening their earning ability, boosting their self-confidence and promoting regular savings. Thus the participants had economic security, easy credit accessibility, better decision making in family, improved family environment (relative freedom from domination), and increased mobility and improved political and legal knowledge. SHGs had provided women a common platform to discuss and solve their individual and community problems. Since this study was conducted on feasibility basis, samples from wider geographical areas could have given us a better picture of rural Bangalore women. It is recommended that Women SHGs formation especially in marginalized communities of rural areas be encouraged; capacity building of the members should be ensured. The Government should provide interest free/subsidized loan to SHGs to help the members come out of poverty.

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# **NARMADA DAM, ECOLOGY AND HUMAN RIGHTS: A STUDY IN PARA-FEDERAL GOVERNANCE IN INDIA**

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## **Abstract:**

*This paper purports to contribute to the understanding and explanation of the interfaces among the needs of economic development, human development, and ecological preservation in India. In a nutshell, it seeks to contribute to the great debate on sustainable development in India, deepened and sharpened in the context of two major transformations in its political system and the political economy India has been going through since the early 1990s. These are the parameter-altering processes of political federalization from a predominantly centralized parliamentary system and the paradigm shift from the 'socialistic pattern of society' to business liberalism and globalization. To study this problem empirically, we intend to contextualise this debate in Gujarat with a focus on the Sardar Sarovar Dam in the chain of the multi-state river valley development project on the Narmada, involving the Union of India and the riparian states of Madhya Pradesh, Maharashtra, Gujarat, and a non-riparian state, Rajasthan. In course of conceptualising and executing this mega project, a complex set of issues have arisen among the federal and regional states, the civil society, and the World Bank which was a major source of funds. To operationalise this project, a series of new institutional bodies, involving the states and the civil society, in addition to the conventional legislative/executive/judicial federal structures, have been put in place. We call them 'para-federal institutions.' Along with federal and ecological issues, it is imperative that a project of this magnitude in terms of natural and economic resources and social and ecological impacts must satisfy strictest constitutional, economic, cultural, and governance norms.*

**Key Words:** Narmada Dam, Ecology, Human Rights, Para-Federal Governance

## **1. Introduction:**

Narmada is the largest west-flowing river in central India. It originates in the Maikala Hills in Madhya Pradesh and after a 1,300 km journey; it enters the Arabian Sea in Gujarat below Bharuch. It does not directly flow through Rajasthan and Maharashtra, but they are also parts of the larger Narmada river basin. In Hindu mythology, the Ganga springs from the hairlocks of Shiva and Narmada from His body. The Narmada pradakshina pilgrimage follows the route from Bharuch to Amarkantak up and down the two banks of the river. The second-century-CE Greek geographer Ptolemy chronicles Namada as the perennial route between the Arabian Sea and the Ganga valley.

The Narmada Valley Development Project is the largest inter-state river development scheme in India aiming at improving irrigation, flood-control, and hydroelectric power generation. It envisages construction of 30 big dams, 135 medium dams, and 3000 small dams on the Narmada and its tributaries passing through Madhya Pradesh, Maharashtra, and Gujarat. Sardar Sarovar in Gujarat named after Sardar Ballabhbhai Patel, the Deputy Prime Minister and Home Minister in the first Jawaharlal Nehru Indian National Congress government in independent India, is the largest dam among all.

## 2. Conceptualization

The conceptualization of the dam was done by an Irrigation Commission in British India in 1901, whose Report envisaged a barrage near Bharuch in Gujarat. However, the black alluvial soil of the region was considered unsuitable to justify huge investment. After India's independence in 1947, Prime Minister Jawaharlal Nehru, in his quest for state-directed economic development through centralized democratic planning for establishing a 'socialistic pattern of society', talked of big dams as 'temples of modern India'. His liberal-conservative Deputy Prime Minister, Sardar Patel, a native Gujarati from sturdy peasant stock, differed from Nehru's socialistic inclinations but not on the issue of big dams.

Though Patel expired in December 1950, Nehru went ahead with the project and laid the foundation of a 49.8 meter-high dam in 1961. A larger dam was planned, which required inter-state agreements among Gujarat, Maharashtra, and Madhya Pradesh. Agreement remained elusive, and a fourth state, Rajasthan, also became a party to the dispute later by raising certain issues as an affected party. In 1969, the Government

of India headed by Prime Minister Indira Gandhi (Indian National Congress) constituted the Narmada Tribunal after a complaint by the Government of Gujarat, and subsequently by the Government of Rajasthan, under section 3 of the Inter-State River Water Disputes Act, 1956. It provides for such a course of action for adjudication of a dispute, if the Union government 'is of the opinion that water dispute cannot be settled by negotiations.' In 1972, the four states applied for adjournment of the proceedings of the tribunal as the Chief Ministers of the concerned states had come to an agreement to settle the dispute with the mediation of Prime Minister Indira Gandhi. The four states arrived at a limited agreement in July 1974 on fourteen issues and requested the tribunal to decide the remaining issues. The tribunal gave its award in August 1978 (Government of India, 1988: 489-90). In addition to the water-sharing formula among the riparian states, the award stipulated that those ousted by the construction of the dam from their habitats should be allotted alternate land at least one year in advance of the submergence.

## 3. Challenges in Project Implementation

The construction of the Sardar Sarovar Dam had continued sporadically since 1961, but it gathered momentum in 1988. Even before the clearance of the Narmada Valley Development Projects in 1987 by the Union Ministry of Environment and Forests, the World Bank had sanctioned a loan for \$450 million for the largest dam, the Sardar Sarovar, in 1985. Almost from the start, vigorous debate, controversy, and Gandhian protests have been a marked characteristic of the Narmada dam projects, especially the Sardar Sarovar in Gujarat and Indira Sagar in Madhya Pradesh. This is in sharp contrast to the earliest post-independence river valley projects, e.g. Damodar Valley Corporation on the river Damodar and its tributaries flowing through Bihar (now Jharkhand since the state's bifurcation in November 2000) and West Bengal and the Bhakra-Nangal Dam over the river Sutlaj in Punjab (now mostly in Himachal Pradesh since state's trifurcation in 1966). The first was set up under an Act of Provisional Parliament-cum-Constituent Assembly in 1948, and the latter constructed between 1948 and 1963. The developers' argument has been that damming the river facilitates flood control, irrigation, hydro-power for industrialization, water for drinking and other incidental purposes, besides lakes with fishing and navigation and tourism potential. Those in opposition protest by invoking the devastating environmental, human problems and social costs that outweigh the often-elusive gains claimed by the protagonists of big dams.

Social and political mobilization on the issue of non-implementation of resettlement and rehabilitation programmes for the displaced persons by the state governments

and the ineffectiveness of agencies created for these purposes in each state brought people's organizations and movements into the field by 1986. These activities and organizations aggregated into the Narmada Bachao Andolan (NBA). Popular charismatic leaders like Baba Amte and Medha Patkar turned out to be the guiding stars of these activities and movements. Under Clause XIV of the final order of the Narmada Water Disputes Tribunal (NWDT), the Government of India constituted the Narmada Control Authority (NCA) and its Review Committee (RCNCA) in 1980, for proper implementation of the terms and conditions and orders of the Tribunal. The NCA is vested with the powers of implementation of the project, regulation and control of the Narmada Waters and their sharing; acquisition of land likely to be submerged under the Sardar Sarovar project by the concerned states; compensation, resettlement, and rehabilitation of the displaced persons, and sharing of costs and implementation of the environmental protection measures. It is chaired by the Union Secretary of Water Resources and comprises of:

- Union Secretaries of Ministries of Power, Environment and Forests,
- Social Justice and Empowerment and Tribal Welfare,
- Chief Secretaries of the four concerned states,
- one executive member,
- three full-time members appointed by the Union government, and
- four part-time Engineering Members nominated by the concerned state governments.

The RCNCA and NCA are headed by the Union Minister of Water Resources. The RCNCA may, suo motu or on request of any concerned state or the Union Secretary of the Ministry of Environment and Forests, review any decision of the NCA (Government of India, Ministry of Water Resources, n.d.).

In 1992, the World Bank appointed an independent review commission chaired by Bradford Morse. Its 1992 report was highly critical of the governments in India as well as the World Bank for non-implementation of environmental protection safeguards and rehabilitation and resettlement of the oustees. The commission recommended the Bank's withdrawal, pending remedial implementation measures. In October 1992, the Bank decided to continue the financing of the project but made it clear that if the promised benchmarks remained unmet by April 1993, the Bank would step back (Wood, 1994).

Subsequently, the World Bank formed the Pamela Cox Committee that largely endorsed the Morse Commission Report with patchwork remedy to somehow salvage the project. Eventually, under immense national and international uproar, the bank withdrew from the Sardar Sarovar Project. The Government of Gujarat decided to raise \$ 200 million to keep the project going (Jones, n.d.).

The NBA filed a writ petition (civil) No. 319/ 1994 against the Union of India and four concerned state governments, seeking a comprehensive review of the project. In course

of the litigation, the Supreme Court by its order, dated 19 February 1999, permitted the state of Gujarat to raise the height of the dam to reservoir level 85.0 metres from 80.3 metres as per its earlier direction, excluding the 3-metre high humps necessary for the safety of the dam. This was done by the government of Gujarat (Government of India, Ministry of Water Resources, n.d.).

Under the directive of the Supreme Court, the state governments of Madhya Pradesh, Maharashtra, and Gujarat constituted independent Grievance Redressal Authorities (GRAs) to examine and monitor whether the resettlement and rehabilitation (R & R) schemes as mandated by the NWDT award have been substantially complied with. All the GRAs are headed by retired High Court Chief Justices or Justices. Considering the reports of the respective GRAs, the Supreme Court by a 2:1 majority disposed the case and ruled that the construction of the dam shall continue as per the NWDT award. The construction of the dam was allowed up to plus 90 metres and any additional raising of the level would only be pari passu after the implementation of R & R measures, and on the clearance by the R & R subgroup of the NCA, in consultation with the three GRAs. The Environment Sub-group of the NCA would give clearance for further construction of the dam at each successive stage, if any, beyond 90 metres (Government of India, Ministry of Water Resources, n.d.).

#### **4. Capacity Expansion**

In 2014, the height of the dam had been allowed to be raised to 121.92 meters. Within two weeks of Narendra Modi (Bharatiya Janata Party/ National Democratic Alliance) succeeding Manmohan Singh (Indian National Congress/United Progressive Alliance) as the Prime Minister of India following the 2014 general elections, it was announced that three metal radial gates rising to the height of above 17 meters would be superimposed on the top the dam taking its height to 138.68 metres. The work would be completed within three years at

the cost of Rs. 342 crores. The claim of the BJP Government of Gujarat is that the proposed construction is essential and justified for proper utilisation of the dam's potential. The NBA laments the failures in the mandatory R & R at present itself. The proposed height will further affect an estimated 2.5 lakh people in varying degrees, covering 245 villages in the Narmada valley across Gujarat, Maharashtra and Madhya Pradesh. The NWDT award and the Supreme Court require the R & R of affected people well in advance (Bavadam, 2014).

#### **5. Rehabilitation Measures**

The rehabilitation package currently stipulates that all male members of the affected families over 18 years in age are entitled to get two hectares of land. Thousands of families, mostly tribal and small farmers, are yet to be allotted alternate land while hundreds have declined to accept cash compensation in lieu of land, and thousands have been duped by a nexus of corrupt officials and brokers. In view of all this, it is a puzzle how the NCA gave the clearance for the dam's height to be raised. A judicial commission is looking into alleged cases of corruption involving about Rs. 1000/- crores

in Madhya Pradesh. In a letter dated June 12, 2014, to Prime Minister Modi, the leader of the NBA movement Medha Patkar and others pointed out: 'Neither the R & R Sub-Group nor the Environment Sub-Group can grant clearance to raise the dam in the present situation, since the Supreme Court's judgement of 2000 clearly mandates that permission shall be given pari passu, only after ensuring full and lawful compliance on all measures'. The government's announcement, Medha says, has started 'a new phase in the struggle' (Bavadam, 2014).

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## **APPLICATION OF INFORMATION TECHNOLOGY IN INDIAN STOCK EXCHANGES: A STUDY OF MODE OF TRADING AT NSE**

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### **Abstract:**

*The last decade has witnessed extensive use of technology in stock markets. The increased adoption of technology might lead to disruptive trends in the current decade in stock exchanges arena. The tremendous growth in financial trading volumes in the last couple of decades has been made possible with the use of technology. This paper attempts to analyze the key trends in trading technologies in Indian Capital Markets of 21st Century, in particular the mode of trading at NSE is examined. In this connection, Algorithmic, Non-Algorithmic, Direct Market Access (DMA), Co-Location, Internet Based Trading (IBT), Mobile Trading, Smart-order Routing (SOR) are analyzed extensively.*

*Key Words:*NSE, Algo, Non-Algo, DMA, Co-Location, IBT, Mobile Trading, SOR

### **1. Introduction:**

Technology has been the key driver of finance sector around the world and is a key enabler of economic development in India. Technology has played a great role in the evolution of stock exchanges. Today people can access, trade and invest much more easily than before. The securities market today enjoys an extended reach and serves investors in remote areas also. Over the past few decades, technology has transformed the trading of securities. Before the arrival of computers in stock markets, all trading was conducted in pits or trading floors. Back offices were filled with clerks to ensure that transactions were properly completed and reconciled. Gradually both the back office and the actual trading process have been transformed by automation. Many financial markets have abandoned floor-based trading systems in favor of electronic limit order book or screen based trading systems. There was much de-

bate about moving from floor-based trading systems to screen based trading systems (SBTS) in the 1970s. SBTS has become accepted as the predominant form of trading in the last two decades.

In India, there has been a major shift in the way business is done in the stock market. There has been a long journey from meeting under the banyan tree in Mumbai to hiding behind computer screens and executing trades at the speed of light. Indian Securities Markets have witnessed a huge transformation through technology since 1990s. Rapid advances in IT have determined important changes and innovation in the operation of stock exchanges. Technological advancements in the Indian Securities Market transformed the way trading takes place and has in turn, resulted in the process becoming easier, faster, transparent and safer for investors.

## 2. Historical Background

**Table 1: Comparison of Indian Stock market before and after automation**

| Pre-1994                          | Post-1994                            |
|-----------------------------------|--------------------------------------|
| Low Transparency                  | Full Transparency                    |
| Low Reach                         | Nationwide Reach                     |
| Weak Risk Management              | Real –time Risk Management           |
| Long Clearing & Settlement cycles | T+2 Clearing & Settlement cycles     |
| Paper Intensive                   | Electronic Matching                  |
| Physical Share Certificates       | Full De-Materialization              |
|                                   | F&O, Currency, Interest Rate Futures |
|                                   | Real-Time Cross Margining            |

Source: NSE

## 1. Literature Review

There are extensive studies, reports and books available on Indian stock markets. The relevant literature from books, periodicals, newspapers and online sources has been reviewed for this study. Cardella, et al., (2014) surveyed empirical studies on the development and effects of increased computerization across various financial markets. The researchers found that there have been dramatic changes in certain derivative markets, foreign exchange and in particular equity markets. The research has found positive effects of computerization on measures of market quality, but the survey highlights that human intermediation is still prominent and beneficial in certain areas. In a report entitled “The future of computer trading in financial markets” published by Government office for Science, it is reported that there is no direct evidence that high frequency computer based trading has increased volatility.

Goldstein, Kumar and Graves (2014) reported that the use of computers to execute trades has increased overtime, resulting in a variety of computer algorithms executing electronically targeted trading strategies at high speed. The researchers describe the evolution of increasingly fast automated trading over the past decade. The authors survey and contrast several studies on the impact of high-speed trading on the performance of securities market. The authors examine some of the regulatory questions surrounding the need for safeguards over the fairness and risks of high-speed, computerized trading. Lin (2013) discussed the sea changes happening in finance. The researcher emphasized that machines are on the rise and humans are on the decline. Technological advances have made finance faster, larger, more global, more inter connected and less human. According to the researcher modern finance is becoming an industry in which the main players are no longer entirely human. Instead the key players are now cyborgs: part machine, part human. Modern finance is transforming into what this article

calls cyborg finance. This report further opines that over the last quarter century, computerization and artificial intelligence have revolutionized finance and they continue to fundamentally transform finance from an industry dominated by humans to one in which humans and machines share domination. The author is of the view that this transformation has resulted from advances in technology and regulatory reforms over the last few decades. Bhunia and Ghosal (2011) studied the impact of ICT on the growth of the Indian Stock Exchange using a modified version of the Gompertz technology diffusion model introduced by Chow (1983) and accordingly reshuffled the model for ICT development. The results of the study revealed that preferred variables appreciably affected information and communication technology in respect of amplifying the number of stock brokers, investors and admittance to ICT.

Ming-Chi Lee (2009) studied how stock investors perceive and adopt online trading in Taiwan. The author developed a research model which integrates perceived risk, perceived benefit and trust, together with technology acceptance model (TAM) and theory of planned behaviour (TPB) perspectives to predict and explain investors' intention to use online trading. The model was examined through an empirical study involving 338 subjects using structural equation modelling techniques.

Gorham and Singh (2009) present a history of exchanges, their purpose and development. They delve into the process of floor-based trading and the technological innovations that led to the development of electronic exchanges. The authors identify four major themes in the transformation of exchanges:

- The shift from floors to computer screens
- The shift from private clubs to public companies
- The shift from local and national to global competition and
- The shift from smaller to larger operations.

According to their research, the most important of all the transformations that exchanges are undergoing is the shift from trading floors to trading screens.

A report on Indian Exchanges (2009) by IDFC research describes that transparency, annuity revenues; high operating leverage and solid entry barriers make exchanges a near-perfect business. The report further argues that Indian Exchanges are almost on par with global peers in terms of corporate structure and sophistication of systems, Indian Exchanges are gathering scale. As elucidated in the report exchanges have been around for centuries, but the business model continues to strengthen with the industry increasingly gaining depth.

Shah, et al., (2008) observed that the public equity market within India, both spot and derivatives, takes place almost entirely at the two exchanges – NSE and BSE. There is an open electronic limit order book (ELOB) with order matching by the trading computer. The research revealed that the processes of organized financial trading in India have focused on Exchanges.

John (2007) described the rapid technological change that characterized Indian financial markets in the last three decades of twentieth century by increasing the opportunity costs of maintaining India's unreformed equity market microstructure. The researcher argued that India eventually adopted many latest

innovations, leapfrogging from archaic market institutions and practices in the early 1990s to international best practices at the beginning of the new millennium. The paper further elucidates that by 2001, reforms brought India up to par with the global standards for every aspect of its equity market microstructure.

Jain and Johnson (2006) expounded on the technological revolution that swept financial markets around the world. Computerization and satellite communication have transformed the organization of stock exchanges and improved secondary market liquidity.

Lee (2002) presented a range of predictions about securities exchanges. The author analyzed that historically. Exchanges have had seven main types of revenues:

1. Membership subscription fees
2. Listing,
3. Trading
4. Clearing
5. Settlement charges
6. Company news and
7. Quote and trade data.

In this paper four broad themes related to securities exchanges are discussed concerning information, industry, governance and politics.

## 2. Objectives of the Study

- To portray in detail, the nature and architecture of trading technology in Indian Stock Market
- To study mode of trading in National Stock Exchange, India.

## 3. Scope of the Study

The current landscape of trading access in Indian Markets can be summarized as below:

- Manual Order entry through exchange terminals (NEAT, BOLT)
- Order Management Systems (CTCL)
- Direct Market Access for Sophisticated Clients (DMA)
- Internet Trading for Retail Investors (Via PCs, Mobile and Wireless platforms)
- Co-Location Facilities (Co-Lo)
  - For proprietary traders and
  - Brokers offering lower latency access to clients

- Algorithms for proprietary trading
  - High Frequency Trading Algorithms (Similar to Market Makers in the past)

National Stock Exchange of India is one of the leading exchanges in the world on several key parameters. Technology at the exchange helps to fulfill the demand for capacity, reliability and performance ensuring the competitive edge of NSE

**Table 2: NSE's Global Rankings**

| Parameters           | Rank            |
|----------------------|-----------------|
| Index Options        | 1 <sup>st</sup> |
| Single Stock Futures | 2 <sup>nd</sup> |
| Index Futures        | 7 <sup>th</sup> |
| Single Stock Options | 8 <sup>th</sup> |

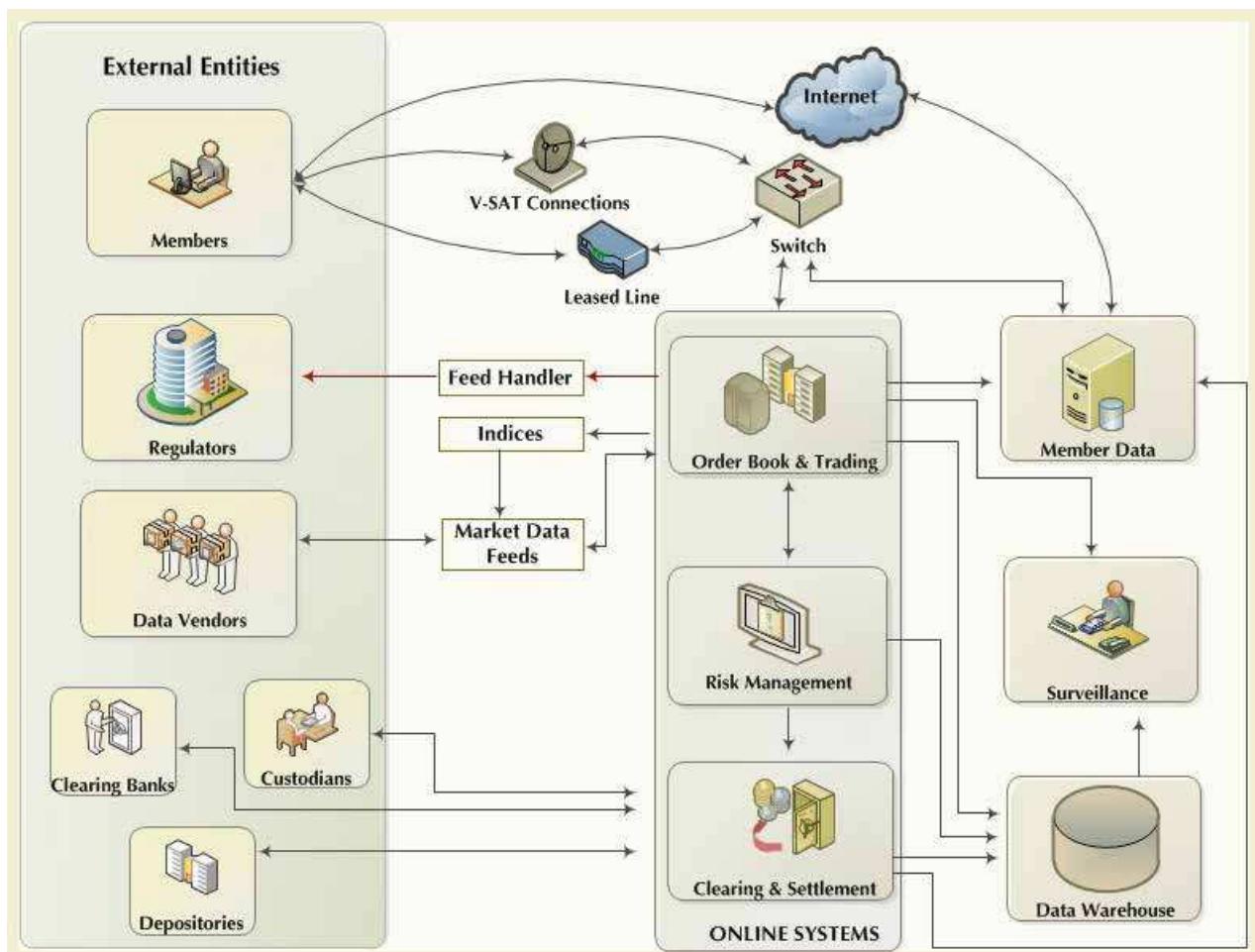
Source: WFE (Rankings done for the period Jan-Dec 2014)

## 5. Core Trading System

NSE's trading system, called National Exchange for Automated Trading (NEAT), is a state-of-the-art client server based application. It has an uptime record of over 99% with latency in single digit millisecond level for all orders entered into the NEAT system.

The earlier generation of trading system was highly dependent on the growth of microprocessor industry for improved scalability. This was creating speed breakers in the growth demanded by Indian market participants. Some time back NSE re-architected the trading system to achieve unlimited scalability. The system now has a multi-layer architecture, designed for unlimited scalability at every layer. Each layer of

trading system can be scaled up by adding more hardware to the layer. The re-architecting of the system has eased out meeting the ever growing capacity needs of trading. This application extensively uses in-memory database technology to provide for performance needs expected from a matching system. The matching engine response time can be measured in single digit millisecond for the thousands of transactions processed by the system every second. To complement the matching engine speed, market data is generated and distributed at a very high refresh frequency. Using multicasting, the market data access is accessible to all trading members almost simultaneously.



## 6. Algo Trading (AT)

Algorithmic Trading refers to use of computers and programmes to generate and execute orders in markets with electronic access. Any order that is generated using automated execution logic shall be known as algorithmic trading. AT refers to orders that are automatically placed in the market by software programmes built on certain mathematical models. AT involves the translation of public information into mathematical models that compute orders that are placed automatically on the market for execution. AT represents a fusion of human traders and computers where the role of the human input shifts away from executing trades to instructing the computer on how to place buy/sell trades.

Information today travels at a rate faster than at any other time in recorded human history, therefore those who utilize this faster pace of transfer of information could benefit in their trading operations. The usage of computers for sending an order to the exchange based on predefined rules is broadly referred to as 'AT'. It is based on technology driven pre-programmed mathematical model-based stock trading. The growth of algorithmic trading is very closely related to the development of the electronic trading market. The important milestones in the global electronic trading industry are outlined below.

**Table 3: Milestones in Global Electronic Trading**

| Year | Event  |
|------|--|
| 1969 | Instinet allowed electronic block trading  |
| 1971 | NASDAQ electronic board started  |
| 1972 | Cantor establishes first electronic market place for US Government Securities                              |
| 1976 | NYSE DOT routes small orders   |
| 1978 | ITS links NYSE and other US Stock Exchanges  |
| 1980 | Instinet enables DMA to US exchanges   |
| 1982 | Tokyo Stock Exchange introduces computer assisted order routing and execution system                       |
| 1986 | Paris Bourse introduced an electronic trading system   |
| 1988 | MTS Platform creates secondary market for Italian government bonds   |
| 1992 | CME launches first version of GLOBEX electronic futures platform   |
| 1993 | EBS adds competition for spot FX   |
| 1997 | SEC Changes order handling rules   |
| 1998 | Eurex launches first fully electronic exchange for futures   |
| 2001 | Liquid net ATS created allowing "dark pool" buy side crossing for equities                                 |
| 2007 | US regulation NMS, European MiFID (Markets in Financial Instruments Directive) regulation comes into force |

**Table 4: AT Milestones in INDIA**

| Year      | Event   |
|-----------|---|
| Apr,2008  | SEBI allows Direct Market Access  |
| Aug,2010  | Smart Order Routing introduced  |
| Mar,2012  | SEBI issues broad guidelines for algorithmic trading                                      |
| Jan, 2013 | Forward Market Commission (FMC) issues guidelines for algorithmic trading in commodities. |

## 7. Direct Market Access (DMA)

Direct Market Access is a recent innovation in Indian Securities Markets. DMA and Algorithmic Trading are popularly used in the advanced markets of US, UK and Europe. DMA provides large investors & institutions with great control over trades, faster and better quality of execution, facilitation of complex trading strategies, and lowered brokerage fees. So the transaction flows through DMA have shown significant

increase. DMA facility was not available in the Indian Markets till 2008. SEBI permitted stock exchanges to facilitate its trading members to offer DMA to institutional clients in April 2008. Foreign Institutional Investors and Domestic Institutions such as mutual funds and insurance firms can now directly execute their trading without any manual intervention by their brokers.

## 8. Co-Location

The advent of automated trading systems (ATS) and High-Frequency Trading Systems (HFT) led to a need for low latency trading architectures. One of the ways to reduce latency is to move physically closer to the exchange. This means that the signal generated by the order manager for an order reaches the exchange faster. To cater to the requirement, co-location facilities (rack space for the trading server within the exchange) are offered. NSE introduced co-location services for the

traders in Jan 2010. This facility allows market participants to rent servers located within the NSE's premises. Co-Location refers to exchanges allowing members to setup automated trading systems (ATS) on their premises to reduce latency i.e. time required for orders to flow between the exchange and the broker's trading system. NSE on an average saw 22% of its turnover from co-location servers during 2015.

## 9. Internet Based Trading (IBT)

Internet Based Trading is a method of trading in securities whereby it is possible for the investors to do trading through internet. It is also called online trading. Internet has enabled clients to transact online through the brokerage's website and execute the trade themselves. This significantly reduces the number of contact points required otherwise, thus reducing cost and load (of servicing clients) on stock broking companies' branches. Online trading, a popular notion, among retail

investors is one of the most successful industries created by the internet revolution. Internet Trading started in India on 1st April 2000 with 79 members seeking permission for IBT. On 1st Feb 2000, NSE opened up the IBT for its members. The SEBI committee on Internet based securities trading and services has allowed the net to be used as an order routing system (ORS) through registered stockbrokers on behalf of their clients for execution of transactions.

## 10. Mobile Trading

Mobile Trading is a new channel approved for trading which enables brokers to provide trading capability on smart phones and mobile devices. Both internet trading and mobile trading has enabled the retail investor to track the stock market

movements closely. The mobile trading is a flexible, dynamic and interactive facility which enables the investors to trade in the market even on the move.

## 11. Smart Order Routing (SOR)

SEBI has approved SOR facility since August 2010. SOR allows brokers trading engines to systematically choose the execution destination based on the factors like price, cost, speed, likelihood of execution and settlement, size, nature or any other consideration relevant to execution of the order. India is among the very few markets in Asia where the same stocks are listed on two different exchanges. When an investor wants to trade

a security, he/she would want to execute at the best possible price, which at times would be on the NSE and at others on the BSE. With the advancement of electronic trading in the country, an increasing proportion of orders are being sent to exchanges by automated systems. SOR technology enables these systems to choose the best possible price, just like their human trading desk counterpart, but at machine speed.

## Mode of Trading at NSE

Statistics related to internet based trading at NSE are given below.

In the cash market segment, internet trading value increased from Rs.7,65,271 Cr in 2010-11 to Rs. 10,25,706 Cr in 2015-16.

The IBT value as a % of trading volume increased from 10.70% to 24.21% during the same period.

**Table 5: Internet Trading Value in the CM segment in comparison with total trading volumes at NSE**

| Year           | Enabled Members* | Registered Clients* | Internet Trading Value | Internet Trading Value | % of Total Trading Volume |
|----------------|------------------|---------------------|------------------------|------------------------|---------------------------|
|                |                  |                     | (Crores)               | (US \$ bn)             |                           |
| <b>2010-11</b> | 387              | 56,40,513           | 7,65,271               | 171.39                 | 10.70                     |
| <b>2011-12</b> | 428              | 61,48,447           | 5,97,430               | 116.78                 | 10.63                     |
| <b>2012-13</b> | 445              | 62,68,798           | 5,83,073               | 107.20                 | 10.76                     |
| <b>2013-14</b> | 459              | 68,74,574           | 6,27,478               | 105.00                 | 10.99                     |
| <b>2014-15</b> | 480              | 63,59,312           | 10,05,984              | 160.72                 | 11.62                     |
| <b>2015-16</b> | 506              | 94,61,735           | 10,25,706              | 154.63                 | 24.21                     |

Source: NSE Fact Book (2016)

**Table 6: Internet Trading in the F&O Segment of the Exchange**

| Year           | Enabled Members* | Registered Clients* | Internet Trading Value | Internet Trading Value | % of Total Trading Volume |
|----------------|------------------|---------------------|------------------------|------------------------|---------------------------|
|                |                  |                     | <b>7,65,271</b>        | <b>(US \$ bn)</b>      |                           |
| <b>2010-11</b> | 380              | 43,63,400           | 43,18,184              | 967.12                 | 7.38                      |
| <b>2011-12</b> | 421              | 41,51,677           | 49,10,582              | 959.91                 | 7.83                      |
| <b>2012-13</b> | 437              | 38,33,149           | 59,05,158              | 704.76                 | 9.36                      |
| <b>2013-14</b> | 451              | 41,16,039           | 76,52,572              | 688.78                 | 10.01                     |
| <b>2014-15</b> | 472              | 46,95,396           | 1,16,13,948            | 1,855.54               | 10.44                     |
| <b>2015-16</b> | 498              | 47,50,774           | 14,624,067             | 2,204.65               | 22.56                     |

Source: NSE Fact Book (2016)

#### Objectives of the Study:

In the F&O Market Segment Internet Trading Value increased from Rs. 43,18,184 Cr in 2010-11 to Rs. 14,624,067 Cr during in

2015-16. The IBT value as a % of trading volume increased from 7.38% to 22.56% during the same period.

**Table 7: NSE Cash Market – Mode of Trading (Jan –Dec 2015)**

| Mode of Trading                    | JAN | FEB | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   | Oct   | Nov   | Dec   |
|------------------------------------|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Non-Algo</b>                    | 45  | 44  | 44  | 44  | 43.9  | 41.28 | 44.79 | 40.09 | 39.28 | 42.74 | 41.90 | 45.71 |
| <b>Algo</b>                        | 16  | 16  | 18  | 18  | 3.95  | 17.74 | 16.06 | 18.55 | 18.28 | 16.63 | 19.48 | 16.11 |
| <b>Direct Market Access(DMA)</b>   | 1   | 0   | 1   | 1   | 4.02  | 0.93  | 0.47  | 0.49  | 0.63  | 0.53  | 0.66  | 0.38  |
| <b>Co-location(Co-Lo)</b>          | 23  | 25  | 23  | 23  | 35.98 | 24.60 | 22.45 | 25.95 | 25.66 | 22.9  | 22.02 | 20.73 |
| <b>Internet Based Trading(IBT)</b> | 11  | 11  | 11  | 11  | 11.17 | 11.03 | 11.71 | 10.47 | 11.3  | 12.11 | 11.18 | 12.32 |
| <b>Mobile Trading</b>              | 1   | 1   | 1   | 1   | 0.81  | 1.63  | 1.76  | 1.75  | 2.16  | 2.39  | 2.27  | 2.62  |
| <b>Smart Order Routing(SOR)</b>    | 3   | 3   | 2   | 2   | 0.18  | 2.79  | 2.76  | 2.70  | 2.69  | 2.71  | 2.50  | 2.12  |

Source: NSE Website

**Table 8: NSE Derivatives Market (JAN –DEC 2015)**

| Mode of Trading                    | JAN | FEB | MAR | APR | MAY   | JUN   | JUL   | AUG   | SEP   | Oct   | Nov   | Dec   |
|------------------------------------|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Non-Algo</b>                    | 45  | 44  | 44  | 44  | 43.9  | 41.28 | 44.79 | 40.09 | 39.28 | 42.74 | 41.90 | 45.71 |
| <b>Algo</b>                        | 16  | 16  | 18  | 18  | 3.95  | 17.74 | 16.06 | 18.55 | 18.28 | 16.63 | 19.48 | 16.11 |
| <b>Direct Market Access(DMA)</b>   | 1   | 0   | 1   | 1   | 4.02  | 0.93  | 0.47  | 0.49  | 0.63  | 0.53  | 0.66  | 0.38  |
| <b>Co-location(Co-Lo)</b>          | 23  | 25  | 23  | 23  | 35.98 | 24.60 | 22.45 | 25.95 | 25.66 | 22.9  | 22.02 | 20.73 |
| <b>Internet Based Trading(IBT)</b> | 11  | 11  | 11  | 11  | 11.17 | 11.03 | 11.71 | 10.47 | 11.3  | 12.11 | 11.18 | 12.32 |
| <b>Mobile Trading</b>              | 1   | 1   | 1   | 1   | 0.81  | 1.63  | 1.76  | 1.75  | 2.16  | 2.39  | 2.27  | 2.62  |
| <b>Smart Order Routing(SOR)</b>    | 3   | 3   | 2   | 2   | 0.18  | 2.79  | 2.76  | 2.70  | 2.69  | 2.71  | 2.50  | 2.12  |

Source: NSE Website

**Table 9: Mode of Trading in the cash segment at NSE**

| Month           | Algo | Non-Algo | DMA | Co-Location | IBT  | Mobile | SOR |
|-----------------|------|----------|-----|-------------|------|--------|-----|
| <b>Apr-2010</b> | 10.7 | 76.4     | 0.3 | 2.3         | 10.4 | 0.0    | 0.0 |
| <b>Apr-2011</b> | 16.3 | 64.8     | 0.7 | 7.9         | 10.2 | 0.0    | 0.1 |
| <b>Apr-2012</b> | 16.2 | 56.6     | 0.5 | 14.2        | 11.2 | 0.2    | 1.0 |
| <b>Apr-2013</b> | 18.8 | 50.1     | 1.0 | 16.1        | 10.9 | 0.5    | 2.6 |
| <b>Apr-2014</b> | 17.0 | 49.0     | 0.8 | 18.7        | 11.6 | 0.9    | 2.0 |
| <b>Dec-2014</b> | 15.8 | 46.6     | 0.3 | 1           | 11.3 | 1.2    | 2.2 |

Source: NSE Fact Book (2015)

### NSE Cash Market -Key Trends:

- Algo Trading increased from 10.7 % in Apr 2010 to 15.8% in Dec 2014. It recorded a high of 20.9% in Aug 2013.
- Non-Algo trading decreased from 76.4% in Apr 2010 to 46.6% in Dec 2014.
- DMA share has been stagnant at 1.3% during the period 2010-14.
- Co-Location share has increased from 2.3% in Apr 2010 to 22.6% in Dec 2014.
- IBT has been almost steady at 10.4% in the period Apr 2010 –Dec 2014.
- Mobile Trading has remained marginal at around 1.2% in Dec 2014.
- SOR is also insignificant at 2.2% in Dec 2014.

**Table 10: Mode of Trading in the Equity Derivatives Segment at NSE**

| Month           | Algo | Non-Algo | DMA | Co-Location | IBT  | Mobile | SOR |
|-----------------|------|----------|-----|-------------|------|--------|-----|
| <b>Apr-2010</b> | 7.6  | 80.5     | 2.0 | 1.8         | 8.0  | 0.0    | 0.0 |
| <b>Apr-2011</b> | 19.9 | 67.1     | 2.7 | 2.2         | 8.0  | 0.0    | 0.1 |
| <b>Apr-2012</b> | 4.3  | 59.0     | 7.6 | 18.8        | 10.3 | 0.1    | 0.0 |
| <b>Apr-2013</b> | 5.4  | 50.8     | 8.9 | 24.7        | 10.0 | 0.2    | 0.0 |
| <b>Apr-2014</b> | 4.4  | 46.1     | 8.1 | 29.8        | 11.2 | 0.5    | 0.0 |
| <b>Dec-2014</b> | 3.4  | 46.7     | 3.9 | 34.0        | 11.3 | 0.6    | 0.0 |

Source: NSE Fact Book (2015)

### 13. NSE Equity Market - Key Trends

- Algo Trading increased from 7.6 % in Apr 2010 to 26.3% in Mar 2012 but it decreased to 3.4% since then up to Dec 2014.
- Non-Algo trading decreased from 80.5% in Apr 2010 to 46.7% in Dec 2014.
- DMA share has been stagnant at 4 % during the period 2010-14.
- Co-Location share has increased from 1.8% in Apr 2010 to 34% in Dec 2014.
- IBT increased from 8% in Apr 2010 to 11.3% in Dec 2014.
- Mobile Trading has remained marginal at around 0.6%.
- SOR is also insignificant during the period Apr 2010- Dec 2014.

### 14. Major Findings of the Study

- Algorithmic trading has rapidly become a significant portion of Indian Markets. Over 200 NSE members utilize algos and constitute around 37-38% of overall values in 2015.
- Several algos are operated from co-location facilities at Exchanges. At NSE co-location, more than 100 brokers are operational and constitute around 22% of total volume.
- In the 'cash market segment', internet trading value increased from Rs 7,65,271 Cr in 2010-11 to Rs. 10,05,984 Cr in 2014-15. The IBT value as a % of trading volume increased from 10.70% to 11.62% during the same period.
- In the F&O Market Segment Internet Trading Value increased from Rs 43,18,184 Cr to 1,16,13,948 Cr during 2010-11 to 2014-15. The IBT value as a % of trading volume increased from 7.38% to 10.44%.
- In NSE cash market, Algo trading increased from 10.7 % in Apr 2010 to 15.8% in Dec 2014. It recorded a high of 20.9%

in Aug 2013. Non-Algo trading decreased from 76.4% in Apr 2010 to 46.6% in Dec 2014. DMA share was stagnant at 1.3% during 2010-14. Co-Location share has increased from 2.3% in Apr 2010 to 22.6% in Dec 2014. IBT is almost steady at 10.4% in Apr 2010 –Dec 2014. Mobile Trading has remained marginal at around 1.2% in Dec 2014. SOR is also insignificant at 2.2% in Dec 2014.

- In NSE equity derivatives market, Algo trading increased from 7.6 % in Apr 2010 to 26.3% in Mar 2012 but it decreased to 3.4% since then up to Dec 2014. Non-Algo trading decreased from 80.5% in Apr 2010 to 46.7% in Dec 2014. DMA share has stagnant at 4% during 2010-14. Co-Location share has increased from 1.8% in Apr 2010 to 34% in Dec 2014. IBT increased from 8% in Apr 2010 to 11.3% in Dec 2014. Mobile Trading has remained marginal at around 0.6%. SOR is also insignificant during Apr 2010- Dec 2014.

## 15. Conclusions

This paper has analyzed the key trends in trading technologies in Indian capital markets in the 21st century. In particular the mode of trading at NSE was studied in detail, Algorithmic, Non-Algorithmic, Direct Market Access (DMA), Co-Location, Internet Based Trading (IBT), Mobile Trading, Smart-order Routing (SOR) were analyzed exten-

sively to examine the role of technology adoption in rapidly increasing trade volumes. The results of the study revealed that adoption of technology has also enabled the stock exchanges to successfully ramp up financial trading volumes to meet the ever-increasing demands of traders.

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## CASE STUDIES:

### BANGALORE AND HYDERABAD INTERNATIONAL AIRPORTS – A RACE TOWARDS WINNING THE HEARTS OF CUSTOMERS

**S. Sai Manohar**

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Mr. Avinash, is a senior Vice President of Skytrekker Ltd; a highly regarded and reputed consultancy company involved in rating domestic and international airports based on passenger comforts and conveniences. His company's head office is located in Bangalore and his company has a branch office at Hyderabad. He travels frequently between

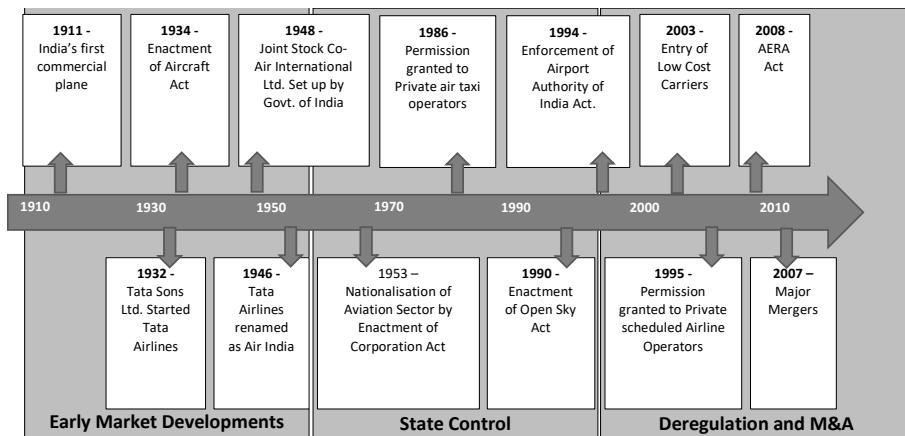
Bangalore and Hyderabad by air. He has made some interesting observations about the facilities and conveniences offered to passengers at these airports. He is interested in offering some suggestions to the authorities at both the airports on some specific areas where they can add new facilities or improve upon existing facilities to enhance passenger comfort and convenience.

#### 1. Brief History of Air Travel in India

Air travel in India has come a long way since 1911 when mail was transported in a Humber biplane from Allahabad to Naini. Nearly 16 years later, in 1927 the first domestic route between Delhi and Karachi became operational. The route was managed by Air Services of the Indian State with support from Imperial Airways of Great Britain. Six years down the line, the first Indian Private Airline 'Tata Airlines' started its operations connecting Madras with Karachi. In 1946, Tata Airlines was renamed Air India.

Post-Independence, in 1953 the Indian government passed an act nationalizing all the airlines operating in the country. They were merged into two entities – Indian Airlines – catering to the domestic market and Air India – catering to the international market. It was only in 1991 that the government de-regularized the civil aviation industry and allowed private players to operate in the country.

**Figure 1: Evolution of Airline Industry in India - Timelin**

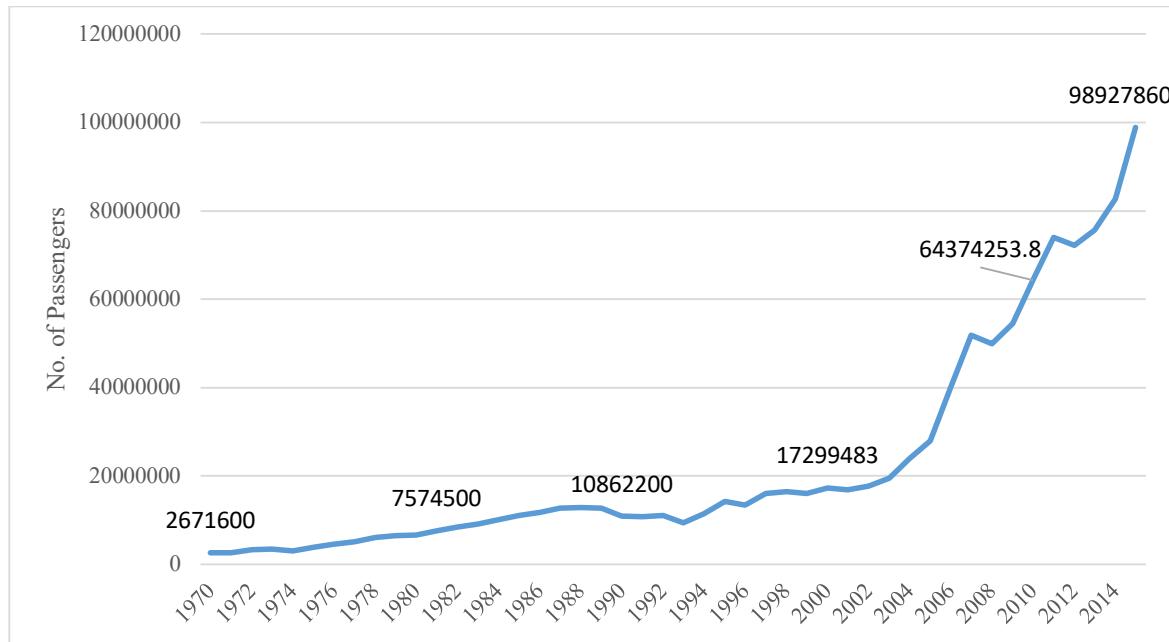


## 2. Growth of Civil Aviation in India

The first major milestone that put the Civil Aviation Industry of India on a high growth trajectory was the liberalization of the Indian Economy in 1991. Liberalization of the economy led to a surge in the economic growth which resulted in increased

demand for travelling longer distances for both business and pleasure. The existing airport infrastructure soon became insufficient to meet the rapid increase in demand.

**Figure 2: Growth in Passenger Traffic in India**



Source: Based on World Bank Data

In order to cater to the rapidly increasing demands, the government of India began increasing the capacity of existing airports and developing several new international airports under the PPP model. Among the major initiatives undertaken as

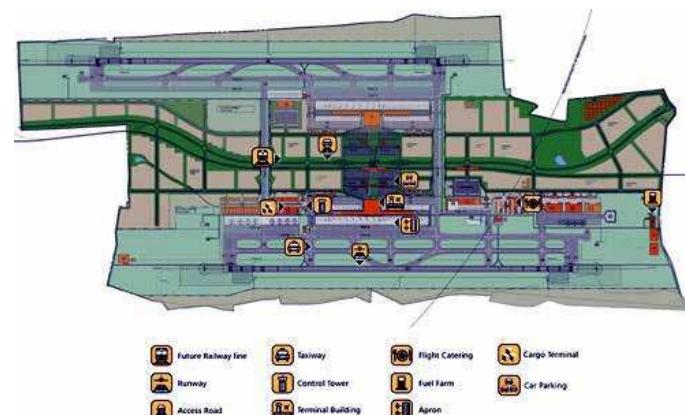
part of the liberalization of the civil aviation sector were restructuring of Delhi and Mumbai airports and development of Greenfield airports at Hyderabad and Bangalore

## 3. Rajiv Gandhi International Airport – Hyderabad

Rajiv Gandhi International airport is located at Shamshabad, about 22 km south of Hyderabad. It replaced the former international airport at Begumpet and commercial flight operations began on 23 March 2008. The project is a public-private joint venture between GMR Group, Malaysia Airports Holdings Berhad (MAHB), the Government of Telangana and Airports Authority of India (AAI).

- GMR Group - 63%
- Government of Telangana – 13%
- AAI - 13%
- MAHB-11%

### 3.1. Equity holdings distribution in RGIA



**3.2. Airport Terminal :** It was developed in three phases, and upon completion provides infrastructure for 40 million passengers annually. After completion of the first phase, the airport can cater to 12 million passengers a year. The estimated cost of RGIA was Rs 24.7 billion (US\$560 million). 5,500 acres have been acquired by the Government for constructing RGIA. It is the largest airport in India in terms of area.

### 3.3. Figure 4: Rajiv Gandhi International Airport Overview



Source: <http://www.airport-technology.com/projects/hypderbadindia/hypderbadindia1.html>

### 3.4. Features and facilities that Enhance Consumer Convenience at RGIA:

**RGIA:** RGIA was the first airport in India to offer e-boarding facilities to passengers travelling via the airport. It has 100 check-in counters to facilitate speedy check in of passengers. In addition to having a number of food and shopping outlets, RGIA also has a wide range of accommodation options for travelers who opt for overnight stay at the airport. They can avail options from the affordable dormitory type accommodation to super luxury 5 star hotel accommodation.

The airport also has the longest runway in Asia to accommodate the world's biggest plane – the Airbus A380. In addition to the main runway, RGIA has 4 more runways to

enable 2 aircrafts to land and take off simultaneously. Most other international airports have only one main runway and a standby runway.

**3.5. Quality of Services at RGIA:** RGIA has consistently been rated amongst the top 3 airports in the world in the annual surveys on Airport Service Quality conducted by Skytrekker Ltd. The ASQ survey is widely recognized as the industry standard for measuring air traveler's satisfaction with the services and facilities offered at airports. The surveys are conducted annually at more than 250 airports across the world. Each year, around 550,000 air travelers are interviewed for the ASQ Survey. The ASQ Survey covers 34 key service areas. It includes seven major categories, such as access, check-in, security, airport facilities, food and beverage providers.

RGIA has also received the Director General's Roll of Excellence for consistently being among the top 3 airports in the world (5-15 million passengers' category) for 5 consecutive years. The award is in recognition of the excellent quality of airport services provided to the passengers. RGIA is the only airport in India to have received this distinction.

RGIA has also been ranked as the best airport in India; it was ranked 5th best Airport in Asia and was in the 8th position in global rankings in the 5-15 Million Passengers Per Annum category. The rankings are based on annual surveys conducted by Skytrekker. Nearly 12 million people participate in the surveys every year. The survey is administered at 388 airports across the world. The survey evaluates passenger experience on 39 parameters for airport service quality. They include arrival at an airport, transit and departure processes to the boarding gate among many others.

For the complete list of parameters please refer to the appendix.

## 4. Kempegowda International Airport

Bangalore International Airport is located at Devanahalli about 30 kilometres from Bangalore City. It is built on 1,622 hectares (4,009 acres). The airport became operational in May 2008, replacing HAL Airport as the city's main commercial airport. It was renamed in 2013 as Kempegowda International Airport. It was the first greenfield airport to be constructed in India on the PPP model.

In 2014-15 KIA was ranked third busiest airport by passenger traffic in the country, behind the airports of Delhi and Mumbai. It handled about 15.24 million passengers and 400 air traffic movements (ATM) per day. KIA is constructed and managed by Bangalore International Airport Limited (BIAL). BIAL is a Public limited company formed under the Companies Act, India. It includes private companies and government entities.

### 4.1 Equity holdings distribution in BIAL

- Private promoters: GVK - 43%
- Siemens Project Ventures GmbH - 26% and Zurich Airport - 5%
- Government entities:
- Karnataka State Industrial Investment and Development Corporation - 13%
- Airport Authority of India - 13%

The Government of India has given BIAL the rights to design, develop, and manage the airport for 30 years from the date of commencement of commercial flight operations. It has an option to extend the contract for an additional 30 years.

**Figure 5: Layout of Kempegowda International Airport**



Source: <http://praja.in/kn/2008/05/19/parking-bengaluru-international-airport>

**4.2 Features and Facilities That Enhance Consumer Convenience at KIA:** Kempegowda International Airport has a number of check-in options to help customers check in with minimum hassle. The range of options KIA provides include online check-in, tele check-in, self-service kiosks, and check-in counters of airlines.

Passengers like Mr. Avinash who travel frequently tend to use the online option to check in since it helps to reduce their waiting time at the check in counters. There are more than 80 check-in counters to help passengers quickly check in and proceed for the mandatory security check.

Mr. Avinash noted that the estimated average time it takes for a person from the time they enter the airport to the time they finish the check in formalities for domestic travel is between 2 to 10 minutes; the estimated time it takes to finish the check in procedure and reach the security check area is between 5 to 7 minutes; and the average time it takes to finish the security check could be between 5 to 10 minutes. Another small but highly appreciated and frequently used facility by Mr. Avinash at KIA are the weighing machines set up at the departure gates – it is of great convenience to passengers since they can verify the weight of the baggage before entering the airport. This helps the passengers to

either remove the excess baggage or make alternate arrangements to carry it. It also helps to reduce the check in time and more importantly passengers could be relieved from the hassle of paying excess baggage charges.

**Figure 6: Kempegowda International Airport Overview Airport**



**4.3: Quality of Services at KIA:** KIA was ranked as the 'Best Regional Airport in Central Asia' for the year 2015 based on the annual customer satisfaction survey conducted by Skytrekker. The Skytrekker Awards are now recognized as one of the most prestigious awards in the aviation industry since they are based on a transparent survey system. The salient features of the survey system are:

- Skytrekker does not charge any fees to the airports to participate in the survey.
- The Skytrekker awards are based on customer votes on various parameters used in the survey.
- There is no panel for judging the performance of the airports.
- Skytrekker does not permit sponsorship of any kind by the airports for the survey.
- Skytrekker also does not allow any company owning and managing an airport to sponsor the awards.
- It does not charge any fees to the members or anyone else to attend the Awards ceremony.

KIA also received the platinum certification from International Air Transport Association (IATA) in January 2010 for becoming

the first airport in India to be 100% Bar Coded Boarding Passes (BCBP) compliant.

Bar Coded Boarding Passes (BCBP) use IATA industry standard 2D bar codes. They offer greater convenience for air travelers since they can be accessed through a number of devices and at any location. They reduce the need for printing passes and also facilitate off-airport check-in, thereby resulting in savings up to US\$1.5 billion every year.

KIA is also the first airport in India to receive Baggage Improvement Programme (BIP) certification from IATA in 2011. In addition to providing various facilities to enhance the convenience of passengers, KIA has been a pioneer in introducing several services for the airport cab drivers. It runs free eye camps for the drivers and provides road safety training for them. KIA in association with the Government of Karnataka took the initiative in 2015 to offer accident insurance cover for the airport cab drivers and their families. The initiative was also extended to commercial drivers providing cab services to the airport. Till date 2000 cab drivers and their families have benefitted from this initiative.

## 5. Areas of Improvement

According the Skytrekker survey the three most important areas where air travelers look for hassle free services and adequate facilities are:

- Queueing times
- Terminal Seating and
- Terminal Cleanliness

Customers visiting Rajiv Gandhi International Airport and Kempegowda International Airport have given the following ratings for the facilities offered at these airports.

| <b>S. No</b> | <b>Facilities /Conveniences</b> | <b>Rajiv Gandhi International Airport - Hyderabad</b> | <b>Kempegowda International Airport - Bangalore</b> |
|--------------|---------------------------------|---|---|
| <b>1</b>     | Queueing Times                  | 4 Star Rating   | 3 Star Rating                                       |
| <b>2</b>     | Terminal Seating                | 4 Star Rating   | 3 Star Rating                                       |
| <b>3</b>     | Terminal Cleanliness            | 5 Star Rating   | 4 Star Rating                                       |

Based on these ratings, Mr. Avinash feels that the Hyderabad airport has an edge when it comes to customer satisfaction but when we consider factors like the number of travelers using the airport, the number is significantly higher for the Bangalore Airport. Bangalore Airport is the 3rd busiest airport in the country while Hyderabad Airport is the 5th busiest airport.

It could be an indicator to the authorities in Bangalore to increase the facilities in order to facilitate ease of passenger movement.

Based on the results of the customer satisfaction surveys provided by Skytrekker Ltd., the holding companies of Rajiv Gandhi International Airport and Kempegowda International Airport are exploring the feasibility of adding metro services from the city to the airports. These are highly cost intensive projects but when completed could greatly increase the convenience of air travelers by drastically cutting down the travel time and also reducing travel fatigue.

## 6. Key Takeaways

Despite experiencing initial glitches during the construction phases, the holding companies of both the airports have proved that with the right leadership at the helm of affairs and adequate support from the governments the uniquely developed PPP model can be successfully implemented and managed.

Both airports are constantly striving to improve passenger facilities and amenities and they are witnessing a steady increase in the number of travelers using the airports every

year. Both airports have also won a number of awards both in India and abroad for excelling in passenger convenience and safety. They have also been ranked among the best regional airports on a number of occasions.

However, they are not yet on par with the best airports in the world but are on the right track and with the commitment shown by the holding companies of these airports, they show promise of being ranked on par with the best airports in the world.

## 7. Questions for the Readers:

1. Based on the parameters used in the customer satisfaction surveys of Skytrekker Ltd., what are the areas that Kempegowda International Airport and Hyderabad International Airport should focus on in order to be among the top 10 airports in the world in terms of service quality?
2. Do you feel that there are any important parameters that Skytrekker Ltd. has overlooked in its annual surveys? If so

what are these parameters and how do you think they will improve passenger comfort and conveniences at these airports?

3. Could you suggest new but feasible ways to use latest technologies to reduce costs and improve services at these airports?

## 8. Teaching Notes:

The case covers issues related to service quality, measures taken to enhance customer safety and conveniences, and the different approaches taken by the two airports to meet similar requirements of the customers. The case also

explores new avenues of customer service on which these airports must focus in order to further improve the quality of services and bring them on par with the best international airports.

## 9. Suggested Discussion Topics:

- The first challenge in the case is related to identifying the areas of customer service that require immediate attention from the airport authorities.
- The second challenge centers around prioritizing areas of service based on their critical importance to customers and providing solutions in a timely manner.

- The next challenge is to identify the unspoken/unstated needs of customers and come up with unique solutions for them.
- Another challenge is to come up with creative ways of offering services to customers that delight them and make their visit to these airports a memorable one.

## 10. Appendix

### 10.1 Service Parameters of the Skytrekker Annual Survey

- Getting to and from the Airport, Ease of Access
- Public transport options, efficiency and prices
- Taxi availability and prices
- Availability of luggage trolleys (airside and landside)
- Terminal comfort, ambience and design
- Terminal cleanliness, floors, seating and public areas
- Seating facilities throughout terminals
- Immigration - queuing times / system
- Immigration - staff attitude
- Waiting times at Security screening
- Courtesy and Attitude of Security staff
- Check-In facilities, queuing systems and seating
- Terminal signage, boarding, transfer and arrivals
- Clarity of Boarding Calls and Airport PA's
- Flight Info Screens - clarity / quality of information
- Friendliness of Airport Staff
- Language skills for Airport Staff
- Ease of Transit through Airport
- Location of Airline Lounges
- Washroom and Shower facilities in terminal
- Cleanliness of Washroom facilities
- TV and Entertainment facilities
- Quiet areas, Day rooms, Hotel facility, rest areas
- Children's play area and facilities provided
- Choice of Shopping - tax free and other outlets
- Prices charged in retail outlets
- Choice of bars, cafes and restaurants
- Prices charged in bars, cafes and restaurants
- Internet facilities and WiFi availability
- Business centre facility
- Telephone and fax locations
- Bureau de change facilities
- ATM facilities
- Smoking policy / Smoking lounges
- Standards of disabled access and facilities
- Baggage Delivery times

## BOOK REVIEWS:

### **THE GOLDEN TAP - THE INSIDE STORY OF HYPER-FUNDED INDIAN START-UPS**

**Suman Pathak**

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suman.p@cmr.edu.in*

In the present time when NDA led government's special focus is on 'Make in India' and 'Start-up India', this book has its relevance for the current generation. These campaigns have begun to make a meaningful impact on the people and economy of the country.

'Make in India' is an initiative by the Government of India to support multinational and national companies to set up manufacturing facilities in India. It was launched by Prime Minister Mr. Narendra Modi on (25 September 2014). India would emerge (after beginning of the programme in 2015) as the top destination globally for foreign direct investment, surpassing United States of America and China - (NDTVProfit.com). We know that the government policies have their own limitations, so attracting venture capital is also important. It is a matter of concern to check if our ecosystem is conducive enough for business so that the investors can pump money in the projects. The last section of the book discusses this concern briefly. The author of the book is a serial entrepreneur and has given inside stories of the challenges and difficulties that budding entrepreneurs and investors face. In this era when the government is trying to motivate new entrepreneurs, the book has its significance to provide fresh perspectives to novice entrepreneurs, and expose them to the various thoughts and philosophies of personalities for starting enterprises and how to sustain them in the fast changing market. The initial success of entrepreneurial movement and the motivation for sustainability of a young entrepreneur depends on how much he/she is able to attract global inves-

tors towards his/her venture. Some relevant questions are raised, of which some are unanswered in the book but it provides a platform for brain storming to new entrepreneurs like 'Why are global investors willing to write million dollar cheques to young and inexperienced entrepreneurs?

The 'Startup India' campaign is based on an action plan aimed at enabling banks to boost entrepreneurship by financing start-up ventures and thereby facilitating job creation. The campaign was first announced by the Prime Minister in his 15th August address from the Red Fort. It focused on restricting the role of States in policy domain and getting rid of the "license raj" and hindrances like in land permissions, foreign investment proposals, and environmental clearances. It was organized by Department of Industrial Policy and Promotion – (The Indian Express, 2015)

The Golden Tap is a must-read narrative of the most exciting era for the Indian economy which is currently brimming with startups. There is a startup wave sweeping this country. The book by Kashyap Deorah is highly applicable at a time when the technology startup revolution has seen an amazing rise in 2015.

The book is divided into four parts. The first part is dedicated to the Internet era, the second part discusses how the globalization made a change in the thought process of venture capitalist, the third part is the coverage of Smartphone era, which is very recent and an ongoing concept. The fourth part is for summing up with the ideas as to how the initiatives of the new government created

hope for future and how it's able to attract the venture capitalists to India.

The internet wave consists of two chapters. The first chapter-The internet change everything talks about the internet boom and bust. This part of the book has given the inception and growth of Netscape, Yahoo and Amazon. This part has a very interesting teaming up with Stanford and IIT on various projects and how this interesting team has given Attercop and Backrub. Attercop became Junglee in 1996 and backrub became Google in 1998. This part also focused on how the venture capitalists multiply their money by just having faith on these entry level entrepreneurs. This is the era when every small and big business starts developing their website. The same part of the book throws light on the ecosystem of IIT Bombay and discusses start-ups of IIT Bombay. A seminar on the Internet business held in IIT Bombay has given the idea of new business model, the B2B and B2C business models which give a thought that the author could start a business around this. This part has also given a thought of developing ecosystem of entrepreneurship in IIT Bombay. In fact, during the internet era the Indians are writing codes on the design of Stanford Startup.

The second chapter of the same part is 'The Five Stages of Grief'. This chapter focuses on the work culture in USA and how we Indians can become a victim of that any time on the issues which are very light or humorous for us. The training of cross cultural management is very essential for every Indian who is going abroad for the job. In this place only the author focuses on how his instinct of becoming entrepreneur got matured as he planned to start his own venture. Here the author shares all the support he got from family, colleagues and friends.

The second part of this book focuses on the globalization era. The time period of this era is 2003-2009. This era has discussed the emergence of Infosys, Wipro and TCS as global companies in the field of technology from India. This is the same time period when the technology companies like IBM, Microsoft, Cisco and Intel started their centers in India. The author discusses the characteristics of this era as start-ups that adapt US innovation to India markets. The motivation of the Venture Capitalist in Internet era of multiplying their money attracts them towards India, China and Israel. This is the time when in India, Travel, Matrimonial, jobs, and financial services seemed to be ripe enough to go online. The Venture capitalists in this era are in search of any successful product of US to apply in India. The 14th Prime Minister of India Dr. Manmohan Singh attracted investors to India. The first year of UPA I gave the highest GDP. In fact, in this part the author is trying to correlate the entrepreneurial ecosystem with political environment of the country. This part also discusses the impact of economic crises on the morale of venture capitalists.

The third part of the book covers the Smartphone wave that started in 2010 and is still going on. The Smartphone wave intends to mention how the frequent usage of Apps made consumers' life convenient and how it attracts the investors in raising funds is also mentioned. The year 2011 is noted as an interesting year in the field of Ecommerce. The Smartphone wave is perhaps the most important part of the book. The significance of this part is that the author throws light on the definite attitude and issues related to the startup industry of India. This part also gives a clear-cut idea about understanding of the Indian startup ecosystem so this part would appeal as an eye-opener. The noticeable change in our youth mentioned by the author from alma-mater of IIT Bombay gives a feeling of pride and an idea about the shift for entrepreneurship as the 15-year-old dream of author. The great Indian Boom a chapter in part-3 has discussed the change in number of internet and mobile phone users in the last ten years and that there is a drastic move of users. The highest users of ecommerce through mobile are from India. In the same chapter, the author has pointed out the change and shift of Indian society for entrepreneurs; now they have social acceptance, recognition and respect which was missing earlier. Lot of startups attract global funds in India.

Part four of the book 'Where Do We Go from Here' is the most important part of the writing. This section is devoted to the forthcoming position of the Indian startups. In this part, the author has discussed the growth of startups in China and how we are different from China. Indians have different aspirations as compared to the Chinese. The author explains that the attitude and objective of Chinese entrepreneurs are entirely different than those of the Indians for doing business. The author's faith is that India has a potential to evolve uniquely, which transforms India into the next India. Eventually the author also focuses on the various issues related to starting a business in India and has shown a faith in change brought into the systems by the present Government. We already have a philosophy of favouring small and individual merchants for profitable business. The same part focuses on various concerns about the ecosystem of tech startups like fraud and piracy. The author has suggested a space for entrepreneurship that if Indian companies join hands with foreign companies and combine their technology leadership with the operational capabilities of Indians they can easily achieve profit.

This book also has a hidden story of innovation and creativity of various successful companies. On the one hand, the book shares the story of formation of Google and Amazon and their success and on the other it contains stories of inception of various organizations. It's a fascinating read at one stretch. It has a rich repertoire of events and is an interesting read for anyone who wants to comprehend the role and thought process of founders, investors, and the dy-

namism of the market.

It is an amazing book that gives us an idea of 20 years of technology startup industry, its booms, bursts, successes and failures. The book shares enriching experiences from IIT Bombay to Stanford. This book also contains the authors' experiences. It narrates a number of incidents of group formation for a college venture, the beginning of team exercise, networking, and technology innovation, life at the campus and so many other interesting conversations within the groups that gives the reader a chance to feel that life. The book has done an honest effort to answer why an IIT or Stanford pass-out opts for being an entrepreneur rather than opting for a fascinating career in the corporate world. The ecosystem of these institutions really provides a platform for the inventions and then carrying out those projects based on continuous innovations.

The author concludes his book with some very progressive business models and some valuable suggestions for Indian ecosystem like elimination of Red Tape, and improvement in workforce skills etc. The author in the conclusion also has expressed appreciation for Indian strength which gives us some advantage over China. Since we speak English fluently, and a large number of our tech entrepreneurs have had exposure to global environment, now these entrepreneurs have access to global funding as well which gives them resources to build a global business. What is missing in the book is that the cover of the book would suggest that this is the story of the hyper funded Indian startups. In fact there

is just an approximately, 30% discussion on the Indian startups. The author structures the book well which starts with the Internet wave, which saw the rise of internet giants like Amazon and Google, followed by the Globalization wave where the success story of Facebook is given and then it leads to the Smartphone wave which is the time we are beholding at the moment. He finishes with a section dedicated to the future outlook of the Indian startups. Having said all this, I find this book worth a read.

The author Kashyap Deorah is an entrepreneur and investor. He has given fifteen years of his life to understanding global technology companies of the Silicon Valley, USA and India. Not only that, he has done business in China, South East Asia and Northern Europe. He started three companies and sold it. He also acts as an angel investor for various startups. His passion led him to start his first company RightHalf.com during his final year at IIT Bombay in 2000. After an acquisition by a Silicon Valley company, Kashyap spent seven years in the US. He returned to India in 2007 to start Chaupaati Bazaar, a phone commerce marketplace, and then he merged it with India's leading retailer Future Group. In 2012, he co-founded mobile payments company Chalo and sold it to San Francisco based Open Table, a leader in the restaurant reservations space. He is passionate about traveling to new places and telling good stories.

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#### *Journals:*

Berger, Lawrence A, J David Cummins, and Sharon Tennyson (1992). Reinsurance and The Liability Insurance. *Journal of Risk and Uncertainty*, 6 (1), 253-272.

#### *Chapters from Edited Books*

Marshall, W. A. (1975). The Child as a Mirror of his Brain's Development. In: Sants, J & Butcher, H. J. (eds). *Development Psychology*. Aylesbury, Bucks: Hazell Watson & Viney Ltd.

#### *Conference Proceedings:*

Lamba, S. L, (2001). Indian Insurance Industry: Expansion and Convergence, Confederation of Indian Industry, Proceeding of International Conference on Insurance, July.

#### *Online Sources:*

Batts, S. (2007). Antioxidants in Berries Increased by Ethanol (but are daiquiris healthy). [Online] April 24th 2007. Available from: [Scienceblogs.com http://scienceblogs.com/retrospectacle/2007/04/antioxidants\\_in\\_berries\\_increa\\_1.php](http://scienceblogs.com/retrospectacle/2007/04/antioxidants_in_berries_increa_1.php). [Accessed: 2nd May 2008].



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