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ST. XAVIER'S COLLEGE ( AUTONOMOUS), MUMBAI

## **Xplore - The Xavier's Research Journal**

Xplore (Humanities and Social Sciences edition) is published by the St. Xavier's College, Mumbai as an annual journal, incorporating peer-reviewed articles. The articles published deal with all branches of Humanities and Social Sciences.

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*Cover: The crest of St. Xavier's College Mumbai., Designed in 1929 by Fr. T. Molina. Shows an eagle teaching its young ones to fly. Above it, on the left, is the emblem of the Society of Jesus which consists of the Greek initials of the name of Jesus set in a sun; on the right is a chequered moon, taken from the arms of the house of Xavier. The motto in Latin is taken from the bible and refers to the eagle who encourages (its young ones) to soar aloft.*

## **From the Managing Editor's desk**

'Xplore', the Staff Research Journal of St Xavier's College (Autonomous), Mumbai, was conceived with the mandate to EXPLORE uncharted academic waters in order to EXPLAIN the inexplicable issues so as to EXPLODE stereotypes and prejudices. The hallmark of 'Xplore', since its inception, has been to challenge sagacious individuals to EXPOSE and EXPLOIT the inherent fluid and flux nature of erudition by:

- Diving deep into the reservoirs of accumulated knowledge and challenging the existing assumptions, inferences and conclusions;
- Rowing further and further into the choppy seas of knowledge with the sole purpose of converting knowledge into wisdom; and,
- Sailing cogently into confluences of varied disciplines for creating novel synthesis and new paradigms.

The College is grateful to the Writers of Xplore 2017 for not just their contributions but for displaying the tenacious academic fervor and spirit articulated above in their writings. I also thank the team of peer reviewers for making this edition possible and credible. The academic girth of Xplore 2017 encompasses deliberations on Ecology, Education, Governance, Insurance, Migration as well as the Politics-Arts connect. Kudos to these Writers as their exemplifications, interpretations and critiques are compatible with contemporary scholastic trends across the globe.

The arduous efforts of Dr. Aditi Sawant, who relentlessly pursued this set of Writers to compile Xplore 2017 and the painstaking efforts of Dr. Pearl Pastakia, who meticulously looked into the linguistic aspects of each article, deserve to be acknowledged, appreciated and applauded. It can be confidently stated that Xplore 2017 reiterates the notion that continuous engagement with knowledge is sacrosanct.



**Dr. Agnelo Menezes**

Managing Editor - Xplore

And

Principal

St. Xavier's College (Autonomous), Mumbai.

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## An Analysis of Student Oriented Assessment Methods

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### Abstract

It is in general observed that giving only a term end exam based on a vast syllabus studied through the semester makes students study only for a month just before the exams. Students then do not necessarily learn the subject in depth. To make sure that they have grasped every part of the syllabus it is essential to evaluate them regularly. Continuous evaluation ensures the student's involvement in the learning process. It also allows the use of different modes of evaluation throughout the course. Each student is comfortable with one or two modes of evaluation but not each one that we may implement. The student will manage to improve his overall score through the mode of assessment most suitable for him. Two new methods tried out for internal assessment in the Dept of Physics, St. Xavier's College, Mumbai are discussed in this paper. For theory courses of Physics at First Year of BSc, the open notes method was successfully tried out with 200 students. The student results after this evaluation showed dramatic improvement compared to the previous years. In a TY class of 40 students, students discussed the questions asked in a group of 4 to 5 with the help of available reference books for 45 minutes and then wrote the answers individually without referring to any material in the next 45 minutes. The result of this evaluation did not show any improvement but rather showed that it affected the grades of the brighter students.

Keywords: open book, peer learning, evaluation techniques

### Introduction:

Students of various universities mostly go through exams which they perceive as goal-oriented. Students then achieve mastery in bringing good grades with no aim of understanding the subject (James et al. 2014). The learning process and method for understanding and assimilation adopted by each one is different (Evgenij et al. 2016). Through assessments teacher gets feedback on his teaching. There should be motivation for the students to learn as well as to get evaluated. This can happen if students see a chance to make full use of their skills and perform well to their satisfaction in at least one of the exams (Bento and Buffet, 2016; Marguerite, 2011). Our intention was to make learning enjoyable and not exam oriented. Assessments are important for students to know how well they are prepared to apply this knowledge as well as for the teacher to know how far he/she has achieved his/her goal of making the students confident in the subject.

The End Semester Exams (ESE) are always written tests with a question paper based on Bloom's taxonomy (Bloom, 1956). These exams assess the students on various categories like knowledge, information, application, and creativity. Every student may not have the ability to attempt questions based on every category equally well.

The Continuous Internal Assessments (CIA) is based on a smaller part of the syllabus and has less weightage. Each internal assessment can focus on a different skill of disposition of knowledge and its application. It can test the student in smaller steps. Different methods like assignment writing, group/individual presentations, problem solving, group projects, objective type questions, subjective paper, objective paper, field trips followed by report writing and so on could be adopted. Breaking the total internal evaluation into multiple components, each using different method, can give a fair chance to every

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student to get credit for his/her dominant skill.

- Objective questions To test the knowledge and information as per Bloom's taxonomy.
- The application of knowledge and creativity to be tested through projects and presentations.
- Problem solving demands the ability to apply the gathered information and skill of analysis (Marguerite, 2011).
- Assignment writing involves all the categories covered in Bloom's taxonomy but allows the student to work at leisure thus giving a better chance to bring in creativity.
- For group presentations, members of a group can take advantage or make use of each other's skills. It is surely a task for teacher to plan the assessment method and do a fair evaluation. Only then can students look at it as feedback their own preparedness in the subject and be motivated to learn (James et al. 2014, Lawson, 2012).

### **Innovative Methods**

#### **Open notes test (ONT)**

The open book exam is a well-accepted method, being used at many universities/colleges. It requires the availability of reference books in good numbers for students at the time of exam. If a student has not gone through the reference books earlier, it is difficult for him/her to make appropriate use of the available books at the time of exam. Hence, we decided to try ONT as an evaluation method.

For ONT, students were allowed to bring and refer only to hand written notes; no printed or photocopied material was allowed during the exam. This ensured that each student studied the material in advance so as to make his/her own notes. Using personal notes

not only saved time but also brought in confidence while writing the exam. These questions tested the ability of a student to combine and apply the concepts available in the notes at different places.

Teacher setting the exam questionnaire also found this method challenging. Direct questions to which the student could just copy an answer from one section of his/her notes were not be asked.

#### **Group Discussion (GD) followed by the traditional way of writing an exam:**

In the third year of graduation, the level of Physics courses is difficult. Knowing that students find it difficult to grasp the subject, a GD based method was tried out with the intention that there would be peer learning which would help them not only to understand the subject but also learn different approaches to tackle problems. Groups of 4-5 students were formed, making sure that no group would have all the students exclusively below from average level and each group would have at least one student of above average level. In the regular class some sessions were arranged where students worked in the groups so formed which helped them get acquainted with each other. A list of books, which could be referred to during the exam, was given to the students well in advance. Each group was given a different question paper having the same level of difficulty. The students sat together in their respective groups for 45 minutes, and discussed the solutions, taking the help of reference books. After the discussion, they all sat separately without access to any reference material. Each student was then given 45 minutes to answer the same question paper that was discussed in his/her group.

#### **Analysis:**

Table 1 gives the comparative data of the FY BSc class after introducing ONT as the evaluation method. With the ONT, students gave feedback that they achieved confidence in their process of studying. As this

happened before the End Semester Exam it helped them prepare for the End Semester Exam. The overall passing percentage increased to 55% where as in all the earlier years, where only the traditional method of written test was implemented, it was only 45-47% in our Physics course. This increase looked marginal but the confidence with which students continued learning Physics in the second year was noticeable.

**Table 1 : Comparison between two batches based on ONT and GD based method.**

	Result before ONT (2014-15 FY batch of 200)	Result after ONT (2015-16 FY batch of 190)	Result before GD based (2015-16 TY batch of 31)	Result after GD based (2016-17 TY batch of 30)
CIA	45%	64%	71%	70%
ESE	46%	52%	80%	86%
Overall	45%	55%	71%	71%

Source: Test Conducted by Authors

With Third Year class having done group discussions prior to writing the test, average level students benefited the most and showed betterment in their personal scores. There was marginal change in the scores of brighter students; they did take it as a challenge to help others improve their scores. A few weaker students could write a little better. This did not change the result of the class. On receiving the feedback from the weaker students it was realized that these students did not study at all in advance and were completely relying on the help of others in the group. It was not possible for the other students to solve the questions, and make these unprepared students understand every thing from scratch in the limited time given. This underlined that every one has to do the minimum basic learning in advance to get the maximum benefit of the group work.

### Conclusion:

The ONT helped students get the direction to study. Having made the knowledge and information easily available it judged their ability to apply it. It also facilitated the teacher to learn how successful he/she was at imparting the knowledge and preparing the

students to think independently. The group discussion followed by test writing developed the spirit of cooperation and team building among the students. It gave a sense of satisfaction to the brighter students as they could test their own ability to impart the knowledge. Both the new methods served the purpose of building up confidence in the students for studying Physics.

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## **Assurance of Insurance: The Socio Politics of Money and Health**

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### **Abstract**

Whose life is it anyway? Individuals, especially the salaried class continues to believe in the logic of 'let us save up for a rainy day.' In the process it works harder to ensure that there is sufficient that they save up for events and calamities that get regularly redefined not by the individual anymore but insurance companies and fitness experts. Against this in the background the healthcare charges have been hiked in the recent past. If one considers health, today illness and disease has shifted out of the domain of being a natural condition to one that can only be addressed by a privileged socio-economic class. Is health getting caught up in the rigmarole of taxation, insurance and bio power? Or does it continue to mean the simple absence of disease?

Keywords: Health, bio-politics, insurance, taxes, reproductive health and gender.

As the year comes close to an end, there is sufficient discussion on how to efficiently plan ones finances for the next year. There is a frantic mental activity to get every minute detail about how, between December of the previous year and the next three months of the new year, the investments could be tax saving and yes lastly also life saving!

In the last few years, media in every form has ensured that we were taking care of our health. Advertisements in print media, online and also now on our public announcement systems in our suburban trains in Mumbai will talk about mutual funds, LIC etc at recurrent time periods and almost with some overstated sense of concern for our health and our death. But the question to ask is whether were we in complete and absolute charge of our own health against the backdrop of the crumbling government health system as well as our own. This piece intends to take up closely some issues: internal conditions to stay resistant to illness, the definitions of health, wellness, being sick, medical "cover", gender, class, the sheer economics of hospitalization and lastly how apathetic we could be to our own death. Do we easily buy and sell it?

### **Objectives of the Paper**

1. Detail the interconnections between health, bio-power and hegemony of private healthcare provision/services
2. To explore the consequences of simplifying death in a market based insurance policy system.

### **Insurance is about what? Money or class?**

When one thinks of insurance, the common terms that emerge are: health, well being, care, love, illness, gift of God or revenue concerns, foreign investment in healthcare in India, better surveillance on death and also shift from long term care facilities to short term and the entire world of financial investment in medical health insurance and assurances.

Health was seen for the longest time as the absence of disease. However, the definition of disease in the last few years has been made into a magnum opus concept which was not so much about the reasons for falling ill but how we had to efficiently 'finance' it. In this dynamic, one has to be able to see more closely the gender and class dimensions. When one talks about the money involved in taking care of one's health there

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is a clear understanding that it is largely today dependent on whether you could afford to be or stay sick for a period.

Health expenditure in India, is heavily burdened by issues of lack of infrastructure development, access points, poor quality and staffing (Ellis, Alam, & Gupta, 2000). However besides this the larger share of the argument is actually the share that the government i.e.: the public sector takes up, to ensure adequate, standardized and subsidized health care services to people in rural and urban India. If one takes a closer look at the financial break up and within that health expenditure in a household, one would find that often it is 'out of pocket expenses' (Ellis, Alam & Gupta, 2000) on health. The discussions are largely resting on financial constraints on the part of the government and how we now had to turn it into the hands of the private sector. As traditionally one always thought of privatization of any sector as synonymous with its betterment and enhancement. However, the hidden consequence of this process was the typical feature of its commodification. Once put forth as a commodity it brought in the question of valuation and pricing for it to be bought and sold.

### **Biopolitics: Surveilling your body**

Michel Foucault (1976) talks about bio power and biopolitics. These concepts have often been used within the domain of sexuality, discipline and punishment. It can be expanded to apply to a wide variety of issues within the domain of health services

The era of biopolitics is marked by the explosion of numerous and diverse techniques for achieving the subjugation of bodies and control of populations: techniques that coordinate medical care, normalize behavior, rationalize mechanisms of insurance, and rethink urban planning, for example. The aim is the effective administration of bodies and the calculated management of life through means that are scientific and continuous. It is a form of power whose highest function is no longer to kill but to “invest life through and through” (HS1, 139, *History of Sexuality*, Vol. 1).

Mechanisms of power and knowledge have assumed responsibility for the life process in order to optimize, control, and modify it. In other words, the exercise of power over living beings no longer carries the threat of death, but implies the taking charge of their life. Life and its mechanisms are brought into the realm of explicit calculation in the regimes of knowledge - power.

Foucault has mentioned the use and regulation of bodies as spaces to ensure that knowledge and power work in tandem with each other. What would that mean within the context of healthcare in India?

### **Whose health is it anyway?**

Reproductive and Sexual Health? Malnutrition?  
Can we look at Women and child care as one unit?

Re-looking at definitions of cover, illness :

It is rather intriguing to discover the many definitions that can be (re)written of commonly used terminology when one makes a reference to health or sickness. One such policy that is under scrutiny here is a Health Guard policy of a leading insurance company. Some definitions that need further detailing have been listed below:

- I. **Cover:** If one uses the analogy from a carrom board, once a player pockets/bags the queen can get the respective points only if another of his takes up another piece on the board. The queen here can signify an individual's health which is a sole possession but today can consider it as safe and owning of it, if he/she (purchases) takes a cover. In the current context one can place this idea on the medical insurance policy that we are now compelled to buy. The Media is replete with the critique of the public sector when it comes to any bima yojana. It will give a detailed narration of how it is long, arduous process of paper work and being in communication of the good old 'babu' who is often only going to ask for a bribe or more time to process your urge 'to be fully insured.' With this as the backdrop of health

insurance provision, one is introduced to a paper free, hassle free and a comfortable (not to miss the air conditioning that is the quick reference to comfort here) insurance assurance!!! The company names might change but the disclaimers continue to have the same script 'written in a much smaller font size.' As educated citizens, the question is how often do we read the offer document. Here is one such, which is replete with words and expressions which make any individual feel that he/she is in safe hands of private medical services provision in India.

- i. **Medical expenses:** If you are hospitalized on the advice of a doctor because of illness or accidental bodily injury sustained or contracted during the policy period, then we will pay you, reasonable and customary medical expenses incurred as below:
  - a. **Hospitalization expenses:** As an in-patient in a hospital for accommodation, boarding expenses including patient's diet as provided by the hospital/nursing home, nursing care, the attention of medically qualified staff, undergoing medically necessary procedures and medical consumables.
  - b. **Post Hospitalization expenses:** In respect of medical treatment and essential investigations for a period of upto 90 days after discharge from a Hospital for medical treatment related to the illness or accidental bodily injury.
- II. **Definitions:** This section needs to be looked at with a 'critical eye' and one would be wondering how neatly classified our health concerns can be. The preface to these are most important and demonstrate it following the policy of 'inclusion' efficiently enough. "Words or terms mentioned below have the meaning ascribed to them wherever they appear in this Policy, and references to the singular or to the masculine, include references to the plural or to the feminine wherever the context permits." This last sentence

will be commented on a little further in the document.

- a. **Accident, Accidental** - An accident is a sudden, unforeseen and involuntary event caused by external, visible and violent means.
  - b. **Alternatives treatments** - Alternative treatments are forms of treatments other than treatment by "Allopathy" or "modern medicine" and include Ayurveda, Unani and Homeopathy in the Indian context.
- III. **Hospitalization:** Within this criteria there is a clause on Chronic condition, which needs special mention here. "A chronic condition is defined as a disease, illness or injury that has one or more of the following characteristics - it needs ongoing or long term monitoring through consultations, examinations, check ups, and/or tests - it needs ongoing or long term control or relief of symptoms - it requires your rehabilitation or for you to be specially trained to cope with it - it continues indefinitely - it comes back or is likely to come back.

Medical 'cover' is contingent on complying with intricate definitions of the terms of "hospital and hospitalization" and how chronic our health condition needs to be in order for it to be worthy of any attention and urgent help. As much as these words carry the façade of being inclusive there are questions of gender, sexuality and class that continue to be on the periphery. The definitions state of making the reference to the masculine and the feminine but not the third gender. Also if we take up the clause of gender and chronic condition definition together, the question that remains completely unanswered is: what kind of health are we catering our insurance policies to? They do not make any reference to the numerous medical help women and couples seek to procreate. Fertility treatments are a big part of the health concerns and risks for women today. These treatments require constant medical check-ups which at times last for several years to come. Blockages of

fallopian tubes which require surgery, and a meticulous and at times painful procedure of the HCG and frequent checking thereafter are expensive. Even in such an instance of a surgery requirement along with hospitalization, this does not get classified as being taken up by the insurance company. The medical expenses have to be borne by the woman or the family itself. The company when approached has clearly stated that for women, such treatments are not really 'covered' under the Health guard or any such policy.

### **Conclusion :**

The question that stays on is whether health care and insurance is a need, basic human right or a privilege? And as one takes the rights based approach, one has to consider that for far too long, we have looked at it only from the lens of disease and illness alone. It is time we continue to use the lens of rights, but also clearly explore the dimensions of class, gender and a more inclusive and wide definition of health care services provision. It should uphold the right of young adults, of the working class and should ensure that health insurance is no longer a commodity to be bought and sold but to be seen as a basic and accessible human right.

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## **A Study of the Symbolic Native American presence in Toni Morrison's A Mercy**

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### **Abstract**

Toni Morrison's *A Mercy* is a poignant reminder of the lives that were affected in the race to chase the American Dream. While she mainstreams the African American community's plight in her novels, in *A Mercy* she gives voice to the Native American community as well. The Native Americans were displaced from their roots in order to construct a White America. *A Mercy* celebrates the undying spirit of the Native Americans when she creates the character of Lina. Lina's ability to seek solace in nature keeps her sane. The ecocritical spirit of the novel emerges due to Lina's perspective of seeing the human and non-human world as one. Her recourse to memory and myths keeps her connected with her roots. It is due to Lina that there is a sense of a community among the marginalized working in Jacob Vaark's house.

Keywords: Native American, Memory, Community, Place, Fourth World, Re-telling, Myths

Nobel Laureate Toni Morrison's work mainly consists of giving voice to the African American community. In her zeal to mainstream the African American community, she has portrayed the injustice, pain and trauma that the former has suffered through the ages. *A Mercy* published in 2008, one of her shortest texts depicts the story of Florens and her integration into America before slavery was institutionalized. Although the main focus of Morrison's writing in *A Mercy* is the African American community, she foregrounds the pathos of other people living in the United States by expanding her canvass to show the interaction and intersection between various marginalized communities. "The novel explores the relationships among enslaved indigenous people (Lina); Africans transported to the colonies or born there (her mother and Florens); biracial children of the slave trade (Sorrow); indentured Europeans (Willard and Scully); free black artisans (the blacksmith); European women transported to the colonies, some to become wives (Rebekka and her shipmates); and landholders (Jacob Vaark) (112:Strehle)." Writers such as Toni Morrison and many other writers have given immense visibility to the African American community. However, the native Americans, a community which regards itself the Natives, have continued to live in the background. Lina, the Native

American woman in *A Mercy* is an important dimension to the dynamics of race and gender. This paper in particular explores the representation of the indigenous woman Lina who symbolizes the existence and survival of the Native American nation even as colonizers were chasing the American Dream.

Barring Lina the rest are immigrants into America - either by volition or by force. Lina's life and identity are rooted in the place where she is born. This paper is underpinned in an ecocritical theoretical perspective to discuss the character of Lina. Her intense association with place as a Native American vindicates the ecocritical position this paper takes. Further this paper looks at how Lina re-invents herself through her memory. Since Lina is uprooted from her parents' home, her only connection with them is through memories. Throughout *A Mercy*, the characters search for their past in their memories. Florens, Sorrow, Jacob Vaark and his wife Rebecca are affected by their memories. For Lina it is not only her memories, but also her penchant at re-telling the myths as narratives, that keeps her stable. Although Lina is not Toni Morrison's central protagonist in *A Mercy*, this paper foregrounds Lina's character due to her Native American identity within an American

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setting which is slowly becoming conscious of the us versus them binary narratives. The Natives or indigenous people have inhabited the Americas before the Whites, or the Blacks, their presence is negligible in the literary works of White or African American mainstream writings except for negative or an unrealistic presence. Hence Lina is an interesting character to dwell upon within the context of an African American work. It is an acknowledgment of the pain and sufferings that the Native Americans experience at the hands of the European colonizers. Lina who has grown up in the lap of nature is uprooted from her cultural setting and re-planted into a different cultural space hence Morrison hints at the sufferings that Lina endures even before slavery proper could begin on Jacob Vaark's farm.

Tedder says, "A Mercy is set circa in 1690, a time not only before the fullest expansion of chattel slavery in the South, but also before the creation of the United States government" (Tedder 145). The crux of Toni Morrison's *A Mercy* is an Angolan slave-mother's relinquishing of her daughter (Florens) in order to protect her against oppression and exploitation. The mother's renunciation of Florens is an act of mercy because her sole intention is to save her from potential sexual abuse. She urges Mr. Jacob Vaark, a land owner from Virginia who sees her as a "human child (*A Mercy* 166)" to accept Florens as a partial payment for the loan that was unpaid by D'Ortega, her owner. Due to this crucial episode, *A Mercy* is regarded by many critics as a "prequel (McHenry 16)" to *Beloved*. In her attempt to include the multicultural aspect of America, Toni Morrison showcases the rise of immigration into the New World, and the indigenous community. The portrayal of Lina is a reflection of the Fourth World space that is ascribed to the Native Americans in the America. "Fourth World," is a term that came into use following the formation of the World Council of Indigenous Peoples (WCIP) in 1972. Fourth World people are the original indigenous inhabitants who existed before European or other colonizers invaded, occupied, or otherwise conquered and settled their homelands. Native

people of America, Aboriginals of Australia, Maoris of New Zealand, First Nations of Canada, Dalits / Tribes of India are considered as peoples of Fourth World (Rao&Reddy 277). It is a highly contentious term with the indigenous people in countries like Canada refusing to acknowledge the phrase the Fourth World for themselves. The indigenous people consider themselves as First Nations however, the struggle for a vibrant existence still continues. The term Fourth World first came into wide use in 1974 with the publication of Shuswap Chief George Manuel's: *The Fourth World: An Indian Reality*. Manuel thought of the Fourth World as the "indigenous peoples descended from a country's aboriginal population and who today are completely or partly deprived of the right to their own territories and its riches." (Manuel 40)

In today's parlance race has stopped being only black-white relations instead it is in a constant "interplay (Stave & Tally 2)" with "gender and social class (2: Stave & Tally)". According to Stave and Tally, "Morrison's portrayal of the colonies that would eventually become the United States is nuanced and intricate, exploring not simply race issues, but those of gender, religion, geography, among many other, and doing so in ways that engage in an interface with a host of cultural artifacts and foundational myths (Stave & Tally 1)." Lina inhabits the Fourth World as per Shuswap Chief George Manuel's definition of the Fourth World. Deprived of land and her own loved ones, she lives at the mercy of the others. Lina, lives in the house of Mr. Jacob Vaark a white man along with other domestic help - Florens and Sorrow; two indentured European laborers - Scully and Willard. Jacob Vaark is the pioneer who arrives in America to follow his dream in the New World. Lina is the native who is homeless and resides in the Vaark household as their property bought at a price. James Braxton Peterson says, "Throughout *A Mercy*, Lina occupies a narratologically marginal space (17: Peterson)." In addition to her peripheral position, she is also an object of scorn and contempt. "A praying savage, neighbors call her, because she is once churchgoing yet she bathes herself every day and Christians never

do. Underneath she wears bright blue beads and dances in secret at first light when the moon is small (A Mercy 5).

### **Ecocriticism and A Mercy**

Lina tells Florens, “We never shape the world.... The world shapes us (A Mercy 71).” The characters in A Mercy are doomed because of the world that surrounds them. The catastrophe of their lives is catalyzed by their location. Lawrence Buell defines eco-criticism as a “study of the relationship between literature and the environment conducted in a spirit of commitment to environmentalist praxis (Buell 420).” Thus place is an important consideration in any narrative, more so with Native Americans because land is sacred to the indigenous people. Human beings were considered one with the place. The indigenous perspective of land does not make a dualistic distinction between land and people or humans and non-humans. Every aspect of the universe has value and an intrinsic sense of being. The Natives have a sense of belonging and oneness with the land. Leslie Marmon Silko says, “The land, the sky and all that is within them- the landscape - includes human beings (Silko 267).” “Ecocriticism is the study of the relationship between literature and the physical environment. (xviii: Glotfelty).” In A Mercy, Lina's connection with nature strengthens her to overcome her loneliness and sorrow. “Ecocriticism expands the notion of the world to include the entire ecosphere (xix: Glotfelty).” For Lina, the whole Universe is part of her existence and being. In fact she is intrigued by the callous attitude of the Vaarks towards nature and their surroundings.

Lina is a witness to the destruction of the land and her people by the colonizers. The biological decimation with the introduction of small pox germs successfully eradicated the indigenous people. Their lands could be easily captured due to the biological warfare carried out by the colonizers. Lina who survives that small-pox attack recognizes the destruction against nature even as the soldiers come to rescue her. A witness to the extermination of her entire village due

smallpox, the feeding of dead flesh by swooping vultures and wolves and the cleansing of the village through fire - Lina sees it all! She thus represents the America that attempted to wipe out all indigenous people. Lina's story points to the acknowledgement of the reality that the issue of race is not restricted only to merely black-white relations. The Native Americans too were treated as inferior to the Europeans. Stave and Tally opine that it is best to avoid trigger reaction that “ interprets “race” to reference black-white relations, given that in colonial America another different people lived here who were subjected to biological mayhem as well as painstakingly plotted genocide (Stave & Tally 2).” Morrison acknowledges the pain and trauma that Lina and her people experience just like the African Americans.

The harmony of the land is disrupted due to greed exhibited by the colonizers who were chasing their dreams in the New World. Due to the introduction of small pox and other illnesses the native world is wrecked. Leslie Marmon Silko opines that survival depends on “harmony and cooperation not only among human beings, but among all things-the animate and the less animate... (Silko 267).” Besides the biological and planned genocide, survivors such as Lina are uprooted from their territories and planted into places which are completely new and hostile. Although Lina is placed with “kindly Presbyterians” (A Mercy 47) she is ill at ease with them due to the overhaul in the cultural setting. Since they own her, they name her Messalina, “after a scheming woman, the wife of the Roman Emperor Claudius (Montgomery 630).” They attempt to impose upon her that traditional practices are unhealthy. Further, Lina's plight is pitiable because she is a native and yet not at home. She tells the forest of beech, “You and I, this land is our home...but unlike you I am exile here (A Mercy 59).” Lina's connection with nature is indisputably strong. She instinctually knows that hurting nature will not result in any good. For example she believes that “Killing (fifty) trees in that number without asking their (trees') permission, of course his efforts would stir misfortune (A Mercy 44).” Jacob

Vaark dies before the completion of the third house for which he had caused the “death of fifty trees (A Mercy 43).”

“Ecocriticism interrogates the dualism prevalent in Western thought, dualisms that separate meaning from matter, sever mind and body, divide men from women, and wrench humanity from nature (Glotfelty xxiv).” Lina also highlights the perspective of the ecofeminists who focus on the link between the oppression of women and the domination of nature (Glotfelty xxiv). Critics who have analysed Morrison's *A Mercy* “have largely missed Morrison's interest in the binary logic brought by the colonists to America and her tracing of the links between the highest hopes for the New World and the consequent divisiveness (of race, gender, sexuality, ability, religion, and class) that wreaked havoc on community in America (Strehle 111)” Further, she also explores the dualism that exists in Western thought processes concerning humans and nature. “(Lina) She learned that bathing naked in the river was a sin; that plucking cherries from a tree burdened with them was theft; that to eat corn mush with one's fingers was perverse. That God hated idleness most of all, so staring off into space to weep for a mother or a playmate was to court damnation. Covering oneself in the skin of beasts offended God, so they burned her deerskin dress and gave her a good duffel cloth one. They clipped the beads from her arms and scissored inches from her hair (A Mercy 47,48).” Morrison exposes all the stereotypes that the Presbyterians (the powerful Whites) harbor about the Natives. Toni Morrison further exposes the imagined notions and condescending attitude that the hegemonic groups had for the indigenous people. “They were pleased to have her (Lina), they said, because they admired native women who, they said, worked as hard as they themselves did, but scorned native men who simply fished and hunted like gentry all day. Impoverished gentry, that is, since they owned nothing, certainly not the land they slept on, preferring to live as entitled paupers ( A Mercy 47).” Since land is snatched away from Lina's people, they are required to adjust and adapt to a new way of life. Lina's mode of surviving the

tragedy that assails her is memory, storytelling, celebrating the community spirit etc. These methods enable her to survive despite the loss of land and family.

### **Re-invention through Memory**

According to Peterson, the “connection between individual memory and environment is an eco-critical perspective on the relationships between humanity and environmental discourses (Peterson 16).” When reality is unbearable memory of the glorious past can be a source of comfort. In Lina's case, she has a rich legacy of having stayed in a vibrant community which was palpable with action. Her ability to sift through her memories and retain the best and the most desirable ones enables her to live her life in Jacob Vaark's house. She is able to re-invent herself because of her perception of the changes in her world and her ability to adapt to her circumstances. For her own survival in Jacob Vaark's house, she delves deep into her memory She was “lonely, angry and hurting (A Mercy 58)” and therefore decided to fortify herself by piecing together scraps of what her mother had taught her before dying in agony. Relying on the memory of what her mother had taught her before dying in agony and relying on her own resources, “she cobbled together neglected rites, merged European medicine with native medicine scripture with lore, and recalled or invented the hidden meaning of things (Tedder 155)”. During the mistress' sickness she uses her native medicines. Lina places magic pebbles under Mistress' pillow, keeps the room fresh with mint and forced angelica root in her patient's festering mouth to pull bad spirits from her body. She prepares the most powerful remedy she knew: devil's bit, mugwort, Saint-John's-wort, maiden-hair and periwinkle; boiled it, strained it and spooned it between mistress' teeth (A Mercy 50) Lina is a symbol of medicine. Lina lives in the house of Jacob Vaark. The gates of the house have two copper snakes which meet at the top almost reminding one of the symbols of pharmacy in other words - medicine and healing. The healing that Lina extends is not restricted to the people from her own community.

Found, in other words, a way to be in the world. There was no comfort or place for her in the village (A Mercy 58) Solitude, regret and fury would have broken her had she not erased those six years preceding the death of the world. The company of other children, industrious mothers in beautiful jewelry, the majestic plan of life: when to vacate, to harvest, to burn, to hunt; ceremonies of death, birth and worship. She sorted and stored what she dared to recall and eliminated the rest, an activity which shaped her inside and out. By the time Mistress came, her self-invention was almost perfected. Soon it was irresistible. (A Mercy 50) Bellammy suggests, "Lina's process is characterized by inclusivity, recognition of what has been lost, and willingness to adapt to what has come (Bellammy 21)." She also represents the creation of a new cultural fabric that offers a hybrid texture instead of a purist traditional outlook. In Vaark's house she starts a new life with a renewed "purpose" and "wholeness" without losing her essential identity despite the changes and an increasingly hostile construction of the world. (Bellammy 21)

While presenting the trauma that Lina experiences Morrison also focuses on the survival instincts that Lina possesses. In her bid to survive alongwith her fear in "losing shelter and being lonely in the world she acknowledges her status as heathen and let(s) herself be purified by the worthies (A Mercy 47)." Lina's recourse into nature becomes her mode of survival because she chooses to be one with the birds, plants and the elements of nature. Since she believes in the company of the birds and other animals she defeats the solitude that threatens to engulf her before the arrival of Jacob Vaark's wife and the others. Since she belongs to the indigenous community which believed and stayed in a community, her sudden solitude could have erased her existence however her own inner strength leads her to connect with the universe and thrive. "Solitude would have crushed her had she not fallen into hermit skills and become one more thing that moved in the natural world. She cawed with birds, chatted with plants, spoke to squirrels, sang to the cow and opened her mouth to rain. (A Mercy 48,49)."

She also did not restrict her knowledge to herself instead she wholeheartedly taught others the path to live abundantly. She teaches her master "how to dry the fish they caught, to anticipate spawning and how to protect a crop from night creatures (A Mercy 59)."

### **Forging a Community spirit**

Further, Lina almost builds a sense of community between herself and Florens. She becomes the mother figure to Florens who has been given away by her mother to Jacob Vaark as a compensation for her master's bad loan. Since Jacob Vaark appears milder in cruelty compared to her own master, Florens' mother sends her away with an open heart to protect her against the oppression that she had faced at the hands of her White masters. Lina's presence at Jacob Vaark's house is a source of solace to Florens - "Then Lina smiles when she looks at me and wraps me for warmth (A Mercy 6)." Just like Lina, Florens too was displaced and both Lina and Florens longed for a mother. "Mother hunger-to be one or have one-both of them were reeling from that longing which, Lina knew, remained alive, traveling the bone (A Mercy 63)." Both Lina and Florens thus grapple with their status of "orphanhood" as Susana Vega-Gonzalez calls it (Vega-Gonzalez 120). Like a mother she is able to identify Florens' deep love for the blacksmith. When Lina tries to enlighten her, saying, "You are one leaf on his tree...(A Mercy 61)."

For Lina "Florens had been a quiet, timid version of herself at the time of her own displacement. Before destruction. Before sin. Before men (A Mercy 61)." Florens thus is a mirror image of herself. "Lina had fallen in love with her right away, as soon as she saw her shivering in the snow (A Mercy 60)". Lina's affection for Florens is immense because she regards the latter as her own compared to the mistress' daughter who was never hers. Lina says, "she is without a clan and under a Europe's rule (A Mercy 104)." After her family's decimation, her romantic relationship turns into an absolutely abusive one - "... he uses the flat of his hand when he has anger, when she spills lamp oil on his breeches or he finds a tiny

worm in the stew. Then comes a day when he uses first his fist and then a whip (A Mercy 104).” Lina's misery is both at the personal and the political level. The lack of love in the relationship with a man is the last straw for Lina however she does not lose her ability to love or show affection.

### Re-telling of Myths

Storytelling is another strategy of consolation and surviving loneliness. It enables Lina to connect with Florens, her primary interlocutor, who has no one else in the world. The bond that Lina shares with Florens can be ascribed to the discussions and tales that they share with each other. They cope with the loss of their loved ones in the shelter of the stories which Lina narrates from time to time. Stories enable them to create something new for themselves even though it is in the realm of imagination. Their orphaned status compels them to connect with people outside their bloodlines and bond with outsiders or even stay alone. Their ability to remain detached comes because of the stories that are embedded in their minds. They therefore manage to exist despite troubles that are at hand. “Around the figure of the orphan coalesce the ideas of detachment, alienation, bereavement and on many occasions, mourning on the one hand, and the chance to create something anew, the possibility of inventing oneself and ultimately undergoing an empowering rebirth (120: Vega-Gonzalez 120)

One of the stories that she narrates to Florens, is about the cruelty of humans towards others. A story that is repeatedly told is the heartbreaking story of an eagle hatching and protecting its progeny against snakes and other dangerous elements “But one thing she cannot defend against: the evil thoughts of man (A Mercy 62).” The tale of the eagle symbolizes the stories of Lina and Florens. In the story -“One day a traveler climbs a mountain nearby. He stands at its summit admiring all he sees below him... The traveler laughs at the beauty saying, “This is perfect. This is mine (A Mercy 62).” The eagle's protest against the

man's intrusion yields a severe debilitating blow injuring the eagle's wing and thus it “falls and falls.” Florens would whisper, “Where is she now?” “Still falling,” Lina would answer, “she is falling forever (A Mercy 62).” Florens barely breathes. “And the eggs?” she asks. “They hatch alone,” says Lina. “Do they live?” Florens' whispering is urgent. “We have,” says Lina (A Mercy 63).” Lina's story is a reflection of their lives where Florens and Lina have survived in their own ways. The stories keep them sane and connected to each other. Like a mother, Lina steps into the shoes of Florens' mother who sends her away for her own protection. Lina's sincerity is applauded by the other slaves in the house for instance Scully says, “(Lina) Her loyalty, he believed, was not submission to Mistress or Florens; it was a sign of her own self-worth-a sort of keeping one's word. Honor (A Mercy 151).” Although her loyalty is recognized Lina is ill-treated when the perils of slavery actually set in. Rebekka Vaark, the mistress of the house transcends into a slave owner by underscoring the divisions between the slave and the owner - Outside sleeping is for savages she says, so no more hammocks under trees for Lina and me even in fine weather (A Mercy ).” This discrimination also indicates that racism has no gender consciousness. Anyone who assumes power is capable of perpetrating cruelty.

Despite Lina's kindness and loyalty, her reward is painful. Towards the close of the novel her voice is not even heard - Worse is how Mistress is to Lina. She requires her company on the way to church but sits her by the road in all-weather because she cannot enter. Lina can no longer bathe in the river and must cultivate alone (A Mercy 159,160).” Lina's re-telling of the myth is her attempt to console herself and Florens. It is akin to their shared past of losing their loved ones and being compelled to live in misery. In the story of the eagle, which is a sacred bird for the Native Americans, Lina throws light on the downfall of her people, however, she does not give up. She peoples her life with everyone although they treat her shabbily. Montgomery says “Lina's character offers insight into the complex subjectivity that mediates against

reductive attempts at racial categorization (Montgomery 630).” She makes concerted efforts to become a part of everyone's life. “By embracing the materials at hand, rather than longing for materials that are lost in the past or unavailable in the present, she finds a way to move, to save herself from being “crushed” (Tedder 157)

Lina is the discordant note in the conflicting space. She is a Native American among the powerful whites and the enslaved Blacks. However, she doesn't lose her essence instead her essence affects others literally and metaphorically. Thus Lina finds her own strategies for survival in a white and African American world where she is the only outsider and the occupant in the fourth world – as a native marginalized in her own world. But her ability to see life which stems from her Native American way of life brings meaning to her fourth world existence. Toni Morrison creates a fourth world alright, but it is a world which interacts and intersects with the other worlds around them. Maxime Montgomery says, Lina's character offers insight into the complex subjectivity that mediates against at racial categorization (Montgomery 630) Further, she engages creatively with everyone to re-invent herself. Lina becomes a representative of a community which was subjected to absolute humiliation and misery. Nevertheless, she also becomes symbolic of the people who never concede defeat and find new ways of re-inventing themselves.

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## Goods and Service Tax

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### Abstract

The implementation of GST has resulted in a drastic change in the Indian Economy as far as Tax Administration and Tax Collection are concerned. GST has changed the entire regime of taxation after demonetization was implemented in the country. In this paper an attempt is made to analyse the impact of GST on various parameters of the economy. The paper describes the conceptual and technical framework of GST followed by the analysis of its impact on volume of transactions, supply and various business processes.

Keywords : GST, Central Excise Duty, VAT and Service Tax

### A. OVERVIEW

While we as citizens take pride in India's character as a land with diverse people, cultures, languages and religions, this diversity, at times, is a bottleneck and hurdle for growth of business. Our country has a federal structure wherein the states have the power to legislate on the taxation front. Consequently, we had excise levied by the Centre, octroi, sales tax and other local taxes levied by different states. With the growth of the service sector, we had the Centre levying service tax from 1994. All these, different levies, maze of compliances, enabled the unscrupulous to evade the law. This, finally resulted in increased costs to the hapless customer. GST was a necessity to support the Prime Minister's promise of creating an environment where there would be "ease of doing business".

Undoubtedly, the law that has been passed after the required constitutional amendment is not ideal. One had expected GST to be one levy to subsume all others but in its current form we have CGST, SGST and in the case of interstate transactions IGST. Different registrations in different states will create substantial compliance burden on business entities. Normally, GST was expected to be levied in a manner that only the incremental value addition would attract the tax. Unfortunately, due to stringent rules for grant of input credit that may not happen. Further reverse charge mechanism (RCM) would create a burden on the registered taxpayers. It is also felt that RCM may severely affect the small and micro enterprises who

do not register themselves because they do not cross the threshold of the turnover limit.

Though there are large number of problems /issues, GST is indeed a historic step. One is hopeful that as we go along, many of the creases will get ironed out. The government is alive to various procedural glitches and is responsive to representations from professionals, businesses and other stakeholders. Another significant characteristic of GST is the digital platform through which it will be administered. If this turns out to be robust it will reduce the leakages and in the long run consumers will certainly benefit. The next couple of years promise to be exciting and challenging for professionals.

Jack Welch, who led General Electric to this scale of success, once said, "Change before you have to."

India Goods and Services Tax (GST), a new consolidated indirect tax, implemented from 1st July 2017 as per current indications, is a common tax on supply of both, goods and services, to be commonly levied and collected by Centre, 28 States and 7 Union Territories, on a common base, at common rates, having common procedures to be administered fully electronically through a common digital platform.

Reaching this far, with an enactment, at the Central level, of all the three laws, Integrated GST, Central GST, Union Territory GST as also law for imposing Compensation Cess, an innovative instrument to collect tax for distribution among State Governments

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for likely loss of revenue on GST implementation, is no mean achievement.

Most rules are also finalised and agreed, rate schedules are broadly agreed and announced and the State Governments have enacted State GST Acts. This is an unparalleled accomplishment for a country having a federal structure of governance, with population of over a billion people and wide diversity in many ways.

### **GST Features**

We have adopted, as charging event, the concept of "supply", the term used internationally, replacing manufacture, sale and provision of services as major taxes, Central Excise Duty (on manufacture levied by Central Government), State Value Added Tax (on sale of goods levied by State Governments), Service tax (on provision of service levied by Central Government), Octroi and Entry tax (on entry of goods in local area for consumption levied by Local Authorities and State Governments), Luxury tax (on specified services levied by State Governments) and specified cesses levied by Central and State Governments merge into one tax, GST, levied at the same rate by Central and State Governments on common base.

All taxable goods and services, across the country, when they move from one state to another, will have paid tax, the Integrated GST (I-GST) which is sum of Central GST (C-GST) and State GST (S-GST) or Union Territory GST (UT-GST). This will be so, even in cases where goods/services move to own branches, depots, distributors, stockists, otherwise than on sale/transfer of property in goods. The tax so paid, to the extent of B2B (and, in most cases, when the goods move to own branches, depots and like will be B2B transactions) will be fully creditable unlike the earlier system where, Central Sales Tax was not levied on transfer of stocks to own depot, branch (against F form), levied at concessional rate for B2B transactions (against C form) and was not creditable; it was retained by the originating State.

The objective of this design feature of our GST system is to ensure that goods and services moving across States do not have to be supported by C/F/I and like forms, prevalent under the current system for no or concessional rate of tax (forms to be obtained from tax department) as also verified at check-posts set up by State Governments at their borders to capture movement of goods without taxes, can be done away with (to achieve one tax across the nation without, sort of, border restrictions) and, at the same time, provide reasonable assurance to the State Governments of non-leakage of revenue. Of course, the unscrupulous will attempt to find ways around it; vigilance and way bill mechanism in the new system seek to track such leakages.

So far as movement of goods and services pursuant to supply within a State is concerned, goods and services would have paid due tax, C-GST plus either S-GST or UT-GST.

I would not be surprised, if, after a few years, some of the Union Territories merge their U-GST and some smaller States merge their S-GST with C-GST and hand over tax administration to Central Government - like Harmonized GST of Canada. This could result in a fair degree of saving of tax compliance cost for businesses and administration cost for governments at State/UT level.

### **GST - A Business Perspective**

The Goods & Services Tax ('GST'), is the biggest reform in the Indian indirect tax structure since the economy opened up, twenty six years ago. At last, it is a reality. The 122nd Constitution Amendment Bill which was cleared in the Rajya Sabha last August laid the foundation for the change. It was further cemented by the formation of the GST Council & passage of the GST Act and Rules. Now with the GST Rates and Transition provisions finalised, the 1st July deadline for the radical change is inevitable.

As per the current law, businesses are required to pay multiple taxes and adhere to multiple compliances

and timelines. Once GST comes into play, all taxes will come under one umbrella, making it much simpler for the industry. The GST Law will also prove to be a boon for the industry that currently has to deal with different tax processes in all different States. The hassle of dealing with different State Governments with varied rules will be done away with.

This tax aims to make India a single market, avoid the effect of cascading taxes and reduce tax burden on the consumer. The key features of this tax regime are elimination of tax on tax, lower rates, faster growth and system driven compliances for the industry as well as the consumers.

While GST will impact various stakeholders differently, the consumer shall be the most benefitted party. Consumer items continue to be exempt from a levy of GST or are to be subjected to GST at lower rate as more than 50% of the items within the consumer price index bracket are placed at a lower rate than they presently are.

Having said the above, I am mindful that this is a complete change for the Industry and its functioning. The way of dealing with transactions would completely undergo a change with the new concept of supply resulting in a paradigm shift from the age old scanner of manufacture, sale and service concepts. This would not only entail changes in business processes, but would completely change the accounting processes and the ERP system of every business would require to adapt to this change quickly.

For Corporates, now the decision to set up manufacturing operations and supply chain would be influenced not by tax benefits, but based on business efficiencies. With destination based principle of taxation and export to be zero rated, the competitiveness of Indian firms would surely increase.

The law in the current form has been successful in attempting the above. Credit should be given to the

Tax Authorities and the political willingness to achieve this by both the Houses of Parliament, State Governments and the Finance Ministry.

With the support of the industry and the receptive consumers, GST will be successfully implemented and accepted by India.

Let us hope for the future is an India in which trade is free, compliances are easier, growth is phenomenal and consumers are satisfied. This would have been best achieved through a single low rate structure, similar to what was originally proposed.

### **Gains and Pains**

The charge on supplies within one legal entity [identified based on Permanent Account No. (PAN) allotted by Income tax Department], when goods move to another State to self has a logic in that it enables transfer of input tax credit from one State to another where sale will take place and the input tax credit can be utilised. This feature is enabled through I-GST mechanism which is a sort of settlement mechanism. I- GST can be used for payment of I-GST itself, C-GST, S-GST and UT-GST and, in same manner, all those taxes, C-GST, S-GST and UT-GST, can be used for paying I-GST. Same is not true so far as C-GST and S-GST/UT-GST are concerned. They will move parallel and not meet, meaning C-GST input tax credit cannot be utilised for payment of S-GST/UT GST and vice versa.

This requirement of payment of tax on inter-state transfer of stocks will add cost in terms of cash flow management. But, a bigger worry of businesses is valuation - whether administrations will be flexible on this aspect since the transaction is tax neutral. Current provision, to the effect that value declared by tax payer for such supplies will be accepted if the taxable person is eligible for "full" input tax credit or that, the value could be 90% of the sale price at the time of supply to third parties, is met with skepticism.

The inclusion of such provision for services though is

puzzling. Valuation of services for transfers within an organisation will be a challenge and, it appears that the department's perspective is that even employee cost must be included to arrive at open market value of services. This means, taxing employee services which are specifically excluded from charge of GST. There is provision for input service distribution and that could have been used for transfer of input tax credits in case of services. Some rethink is required on this aspect. Hopefully, sooner than later !

Our GST adopts same basic principles of value addition - which we had adopted for Central Excise Duty, State VAT and Service tax. The chain for taxation starts from origin and ends when it reaches the ultimate consumer. Taxes paid at each of the earlier stages are rebated through mechanism of input tax credit. Ideally, therefore, no tax cost should stick to businesses, they being mere pass - through entities. Practically, that does not happen due to non-allowance of input tax credit on several grounds like exempt supplies with taxable supplies, supplies used for personal purposes or those, where input tax credit is specifically restricted like motor vehicles.

A provision not to allow input tax credit when no tax is payable on output is a reasonable one as the chain of input tax credit stops there. The difficulty arises when the list of disallowable input tax credit becomes large. The items on which input tax credit is not allowable under our GST include expenses like outdoor catering, rent-a-cab, free samples, health insurance of employees and others. These have been subject matter of significant litigation in the past and attempt appears to be to clarify intent and avoid litigation; provide certainty. However, it is desirable that tax paid on all inputs, goods and services, used for purpose of business ought to be eligible for input tax credit to minimise tax cost and cascading.

Exports will be zero rated and imports will be charged to IGST, collected, at the time of clearance of import consignments, with the Customs duties. There is a feature in export of services that appears to be different from current regime of service taxation. A

supply of service where supplier is in India and place of supply is outside India is an interstate transaction. Where the recipient is also outside India, consideration is received in convertible foreign exchange and the supplier and recipient are not establishments of distinct persons (different establishment of the same legal entity), the transaction is "export of service"<sup>6</sup> and will be zero-rated. The difference is, if these three conditions are not fulfilled, supply will be subjected to IGST though the place of supply is outside India.

The rates and exemptions under GST are more or less maintained at the current level to ensure that the current overall tax burden does not increase in GST. There are four rate bands, 5% and 12% (merit rate), 18% (standard rate) and 28% (demerit rate). There is also Compensation Cess which varies significantly and is fairly steep for luxury/sin goods like tobacco and tobacco products. It ranges from 1% to 15% for motor vehicles depending on specifications. Special rate of 0.25% is prescribed for rough diamonds and 3% for gold, gold jewellery, silver and processed diamonds<sup>7</sup>. The exercise of rate fitment is currently ongoing.

The varied rate structure is different from other countries and a question often asked, in the backdrop of one of the objectives of GST of simplification of current complex indirect tax structure, is: is this simplification ? While there could be no two arguments that ideally, one ought to have only two rates, merit and standard, given the diversity and need for consideration of all strata of society, variable rate was a must for our country. Over a period of time, this too will be modified and we too will move to two or three rate structure.

Several areas where there was litigation and department has accepted the position or there are decisions of higher courts, have been incorporated in the law and will hopefully, reduce litigation. For example, a specific provision is made as regards amalgamation or merger of companies<sup>8</sup>. Not all issues are addressed though and, hopefully, will be

addressed as we go along.

There are a few pain points too like paying tax on reverse charge basis on purchases from unregistered persons, generating self invoice and the like. This specific provision will, no doubt, increase cost of compliance and will lead to the threshold losing its relevance. Reverse charge is also continued for few services like that of legal services provided by individual advocate or firm of advocates to business entity. This too is not compatible with GST concept and ought to have been avoided.

Need for pan India service providers to register in each state and work out tax liability state wise as also requirement for providing information about each branch together with name and address of the person in charge, besides proof of address, is a time consuming exercise. Maybe, going forward, the IT system will soften this burden.

There is significant unease among pan India suppliers of goods and services about possibility of differing views/approaches that could be adopted by different authorities and likely multiple demands on identical transactions. A centralised audit system for such suppliers by a group comprising officers representing Central Government and State Governments (these could be rotated from State to State depending on the volume of activities in a State and can be done electronically without human intervention) is a solution, referred to in the passing, and may be adopted as the tax authorities across different States gain experience.

Requirement of quoting detailed HSN Code or Service Accounting Code at the time of registration on GSTN portal itself is causing huge anxiety especially for non-manufacturing sector. Asking this information, at this early stage of GST implementation, could be done away with. Broad industry classification could meet the objective; facilitating government in collating industry-wise data and simplifying process for tax payers from compliance perspective. There are very detailed and exhaustive transition

provisions which have envisaged various situations and dealt with them. Yet, there are areas that need to be addressed. Leasing industry is an example where transition provision is missing.

A provision that is causing significant apprehension during transition is that of “anti-profiteering”; up to what level should one go and how to determine it? There are mixed reports from Australia and more recently, Malaysia, as to effectiveness of such provisions in controlling prices post GST implementation. Some sectors like consumer goods or fast moving capital goods, where there is intense competition, will self-adjust prices and the likelihood of price increase is less. Monopolies and monopolistic sectors are the ones where Government will have to focus. This will certainly be an area of intense interest for all, especially, the consumer groups.

Entirely digital administration is a super feature of our GST system facilitating several processes like enabling businesses to comply with laws of all the States from one location; complete one to one matching of invoices to avoid disputes and demands at a later date. But, this feature has its own challenges, connectivity issues, comparability and so on. Here again, as we gain experience, systems and processes will be streamlined. Technology platform will significantly ease verification of input tax credits and overall compliances as is the experience with TDS under Income tax.

The Constitutional Amendment seems to have been enacted without the provision of any safeguard, or effective redressal mechanisms addressing deviations from the recommendations of GST Council, thereby defeating the very principles underlying the GST reform.

### **“Supply” under GST - Some International Issues**

Under any taxation legislation, the levy of tax depends on undertaking of an event. Levy of Excise Duty is on 'manufacture or production of goods', while for levy of

Service Tax, there has to be a 'provision of service' and levy of Sales Tax/VAT triggers on 'sale of goods'. According to Article 366(12A) of the Constitution of India, 'Goods and Service Tax' means "a tax on supply of goods or services, or both, except ....." The definition of "supply" contained in the new GST legal framework, is central to the ambit of its applicability. Therefore, for GST to be levied on a transaction, it must satisfy the ingredients of definition of 'supply'.

### **Section 7 of the CGST Act defines 'Supply' as under "...the expression "supply" includes -**

- (a) all forms of supply of goods or services or both such as sale, transfer, barter, exchange, licence, rental, lease or disposal made or agreed to be made for a consideration by a person in the course or furtherance of business;
- (b) import of services for a consideration whether or not in the course or furtherance of business;
- (c) the activities specified in Schedule I, made or agreed to be made without a consideration; and
- (d) the activities to be treated as supply of goods or supply or services as referred to in Schedule II."

Whether use of the word 'includes' has enlarged the scope of "supply" to include all transactions even if these are not covered in Clauses (a) to (d) or the word "includes" is to be construed as equivalent to "means and includes".

### **Consideration in kind and Barter/Exchange Transactions -**

- Barter/ exchange transactions were not liable to VAT, as these were considered as transaction without a valuable consideration. However, GST law specifically includes these transactions in the definition of supply. Provision of architect/construction services for which consideration is paid by way of transfer of flat by a builder or exchange of old phones/cars for new ones, etc. are illustration of non-monetary

consideration and liable to GST as covered by definition of "supply".

- In case of redevelopment projects where a developer may agree to construct a new building for existing flat owners, the service of construction provided by builder would be considered as provided in lieu of additional FSI received by him. This activity would come in the category of barter transaction and liable to GST. It is interesting to note that in barter transactions, both person are making supply to each other and GST is leviable on both persons, if the transactions satisfy other requirements of the definition. In such transactions, valuation of each of the supplies will be governed by the Valuation Rule. Rule 1, provides for considering the open market value of the goods supplied by the supplier in such cases. Therefore, despite the consideration for both the supplies being same in commercial sense, the valuation for taxability under GST may differ.

Whether issuing bills payable to a creditor results in Exchange liable to GST? The exchange is of one form of payment to another, therefore, the transaction is in money and neither party receives goods or services. Therefore, despite being an exchange in common parlance, it will not be liable to GST.

### **Destination Based Taxation - The Concept of 'Place of Supply', Its Philosophy and Significance**

#### **'Place of Supply' Provisions - Current Tax Regime vis-à-vis GST Regime**

As GST is 'destination based consumption tax', it is essential that an elaborate set of principles governing 'Place of Supply' (POS) for goods or services is provided. The federal character of Indian Republic also poses another challenge when one contemplates the POS provisions. (Please refer the discussion in the ensuing paragraphs). The provisions for determining 'Place of Supply', therefore, are critical to the whole design of GST.

The POS provisions - which are distinct for goods and services - are contained in the Integrated Goods and Services Act, 2017 ('IGST Act'). The POS provisions are largely based upon the 'International VAT/GST Guidelines' ('Guidelines') issued by OECD in November, 2015. These important Guidelines merit a brief discussion here.

The Guidelines are based on certain generally accepted principles of tax policy applicable to consumption taxes and also recognised by the Ottawa Taxation Framework Conditions (1998). These principles are as follows:

- **Neutrality** : Taxation should seek to be neutral and equitable between forms of electronic commerce and between conventional and electronic forms of commerce. Business decisions should be motivated by economic rather than tax considerations. Taxpayers in similar situations carrying out similar transactions, should be subject to similar levels of taxation.
- **Efficiency** : Compliance costs for businesses and administrative costs for the tax authorities should be minimised as far as possible.
- **Certainty and Simplicity**: The tax rules should be clear and simple to understand so that taxpayers can anticipate the tax consequences in advance of a transaction, including knowing when, where, and how the tax is to be accounted.
- **Effectiveness and Fairness**: Taxation should produce the right amount of tax at the right time. The potential for tax evasion and avoidance should be minimised while keeping counteracting measures proportionate to risks involved.
- **Flexibility**: The systems for taxation should be flexible and dynamic to ensure that they keep pace with technological and commercial developments.

POS Provisions will certainly be an unknown and uncharted area for the distributive trade though a section of the manufacturers and service providers may have some familiarity with the concept in view of the 'Place of Provision of Services Rules' currently in vogue under Service Tax Regime. POS Provisions are like veins of the GST body, carrying both tax and corresponding credit throughout the body. It is, therefore, not only essential but also inevitable for all the stakeholders, whether taxpayers or tax administrators or tax professionals, to gain sufficient understanding of these provisions so as to be able to comply with the GST law correctly.

### Place of Supply of Goods under GST

“Place of supply of goods” is a very important aspect of GST. Payment under correct Act i.e. CGST/SGST or IGST will depend upon the correct determination of place of supply. It will be better if ambiguities discussed above are clarified by the authorities at the earliest time. I hope the above discussion will be useful for initiating further thought process on the topic.

### Classification of Goods and Services Principles of Classification

The various principles are summarised below:

- (a) Commercial/Trade Parlance
- (b) Definition given in statute or chapter note/section note etc.
- (c) Description in HSN has persuasive value
- (d) Most specific description to be preferred over general description
- (e) Functional use of the product
- (f) Essential characteristics of goods or service
- (g) Importance of expert opinion and other evidentiary value

- (h) Importance of ISI specification
- (l) Importance of Finance Ministers speech
- (j) Importance of trade notice, circulars etc.
- (k) Chemical examination only provides content and not classification
- (l) Provision of relevant time
- (m) Burden to prove classification on department
- (n) Exemption notification cannot interpret tariff heading or sub heading
- (o) Beneficial classification
- (p) Jurisdiction to decide classification

Given the complexities in real life situations of supply of goods/services and related matters like conditions precedent, nature of payments, need for outsourcing, nature of concessions/incentives given, actual conduct of parties, technological advancements etc., area of valuation of supplies liable to GST will pose several challenges as well as opportunities for small, medium and large businesses.

All decision makers will have to be cautious, methodical and process oriented for being fully GST compliant on one hand and simultaneously achieving tax optimisation, for not only sustaining in the increasingly competitive and disruptive business environment but also increasing one's market share in the world's fastest growing economy.

Revisiting existing arrangements, contracts, processes and technology and re-imagining the entire eco system with proper involvement of all stakeholders is the best way to successfully navigate the transition into GST, which will completely transform the socio, political and economic environment of India.

### **Reverse Charge Mechanism Under Goods and Services Tax (GST) (Suspended till 31st March, 2018) basics of RCM**

Reverse charge applies only when there is a charge on supply. If supply is exempted, nil rated or non-taxable, RCM does not apply in such a case.

Recipient of goods or services discharges GST under RCM as if he is the person liable for paying the tax on supply procured by him. All provisions of the Act including the collection, recoveries and penal provisions apply to the recipient and he is required to pay applicable tax i.e. CGST and SGST/ UTGST, or IGST depending on location of supplier and place of supply. The tax liability needs to be discharged under RCM at applicable rate of tax.

Recipient makes payment on his own account under the recipient's GSTIN number and is declared in his GST Returns as taxable supplies on which tax liability is discharged.

Payment made under RCM is not a Tax Deducted at Source ('TDS') paid by recipient on behalf of supplier and hence, the supplier does not get credit of tax paid under RCM by the recipient.

Once the tax is paid under RCM by the recipient, it becomes an input tax and the recipient (payer of tax under RCM) is entitled to avail Input Tax Credit ('ITC') thereof, subject to other provisions contained in Chapter V of CGST Act and Input Tax Credit Rules.

The person paying tax under RCM is entitled to tax credit in most of the cases. The Government may not be getting substantial revenue from RCM. In the past, most of the State legislations for sales tax was having concept of 'purchase tax' to be paid by registered dealer on purchases from unregistered dealers. However, it was found to be a futile exercise (not resulting into any substantial revenue to the Government), and therefore, in most of the State VAT legislations, the concept of URD tax (purchase tax) was scrapped.

RCM has inherent disadvantage of being an obstacle in the free flow of tax credits across the businesses and the nation. It also raises the question whether it is fair on the part of government to put more burden of compliance on law abiding organised sector of the economy.

It would be too cumbersome for a majority of the assesseees to comply with such a rigid compliance requirement. Moreover, it is difficult for an assessee to reconcile their expenses as per financial statements with tax paid under RCM as per returns. It is indeed a pain for any organisation to reconcile such figures and satisfy the authorities in course of scrutiny, assessment, audit and investigations, etc.

RCM provisions, as stated in the CGST Act as on today, may be described as totally against the concept of ease of doing business. One may feel that Government should not have brought the concept of RCM (in this manner) under GST. The GST legislation, without RCM, would be much more taxpayer-friendly law.

The assesseees who were not paying any taxes will find it too difficult to maintain records eg textile industry and those industries whose majority trade was undeclared or unofficial and pay the GST on supply and also pay Income Tax on the official profits made.

This would bring in a lot of taxes newly collected and the burden on the minority tax payers would reduce as the taxes would be shared and borne by greater number of people.

### **Conclusion :**

In the brief and one can easily say that there would be teething problems during implementation of the said law.

The government and the central council is in constant touch with the practical difficulties faced by the assessee's and has been changing the rates and the due dates of filing returns. It has also suspended the levy of penalties.

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## **Foreign Direct Investment in Infrastructure: Evidences from Indian Economy**

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### **Trend, Issues and determinants of Foreign Direct Investment in Infrastructure: Evidences from Indian Economy**

This study explores recent trends, issues and determinants in foreign direct investments in Infrastructure in India data for a period of ten years (2006-2015). This study also examines the infrastructure scenario in India and its global comparison and tries to evaluate the impact of FDI on Infrastructure development. This study uses secondary data from various sources like, World Bank, Global Competitiveness Report, Department of Industrial Policy and Promotion to identify various factors to attract more FDI in Indian Infrastructure Sector.

The overall results explain that infrastructure development in India is not adequate. Thus government needs to undertake proactive policy reforms to develop infrastructure quality in India. It is evident from the data that there exists a wide inter sectoral variation in FDI inflows in Infrastructure in India that have made the distribution highly skewed towards construction development and telecommunications but sectors like port, power, airport development and roads are not able to attract more FDI hence government needs to undertake policy reforms to attract more FDI in these sectors. The findings from FDI determinants analysis indicate that Market size, Macroeconomic stability, Exchange Rate, Governance has significant impact on determinants of total FDI inflow in Infrastructure sector in India.

Keywords: FDI, Infrastructure, Policy, India JEL Classification Numbers: F21, F23

### **Introduction:**

Infrastructure plays crucial role in Economic Development and Growth of the country as better infrastructure increases productivity and reduces the overall production cost. It is apparent that availability of good quality physical infrastructure can also improve the investment climate by subsidizing the cost of total investment and thereby raising the rate of return. In other words, quality of physical infrastructure can be an important factor in making choices for investment location by the foreign investors particularly for efficiency-seeking production. Similarly, social infrastructure viewed in terms of education and health related facilities

contribute significantly to human capital formation and hence influence FDI inflows through several mechanisms. On the one hand, healthy and educated workforce enhances productivity of the workers. On the other hand, lack of health and education infrastructure facilities can raise health-related costs when the foreign investors want to develop or significantly subsidize healthcare and education system for their employees. Such increasing costs of education and health are likely to affect investors' return adversely. (Chatterjee et al. 2013)

Infrastructure is an important element in judging a country's regional development. When it comes to development in infrastructure sector, the Government

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of India has always been very proactive. Being a rapidly growing nation with various regions, India has always given higher importance to the infrastructure sector and it has received considerable attention from the government as well as private players. A large focus has always been given on execution of associated projects via Public Private Partnerships (PPPs), fiscal incentives, tariff policies, budgetary allocations and participation of private companies. Indian infrastructure sector mainly includes development of roads, airports, shipping and ports which have contributed greatly to the economy of India over the last decade. But India is not able to create significant development in Infrastructure sector.

According to India Brand Equity foundation India needs Rs 31 trillion (US\$ 454.83 billion) to be spent on infrastructure development over the next five years, with 70 per cent of funds needed for power, roads and urban infrastructure segments. FDI can play important role in Infrastructure development in India as there is deficiency of capital with government.

In this context the present paper tries to analyses trend, issues and role of FDI in infrastructure development. The main objective of the paper is to find out various factors which can attract more FDI inflow in Indian Infrastructure. This study uses panel data techniques to find out determinates of the FDI in Indian Infrastructure. The remainder of the paper is organized as follow. The next section reviews the theoretical and empirical literature related to determinants of FDI, followed by Infrastructure scenario in India with its global comparison and trends of FDI inflows to Indian Infrastructure. This will be followed by discussion on the data and methodology applied to identify the determinants of the FDI. The results are presented in the following section. The conclusion and policy implication are presented at the end.

### **Literature Review :**

The significance of FDI in economic development is

well recognized. FDI inflows bridge the gap between the desired and the actual level of investment, particularly when domestic investment is not adequate enough to push the actual capital stock up to the desired level (Noorbakhsh et.al, 2001; Hayami, 2001). There are a large number of research studies which empirically investigate the positive relationship between FDI and Economic Growth. FDI not only brings non-debt creating capital flows but also transfers the technology, generates employment opportunities in host economy, and has spin off effects through backward and forward linkages within the host economy by Greenfield investment (Javorcik 2004; Alfaro and Rodriguez-Clare 2004; Ho and Rashid 2011, NCAER 2009). There is a belief among policymakers that FDI enhances productivity of host countries by promoting competition in to the market. (Caves, 1974).

In addition, FDI also brings in better technology (in both disembodied and embodied forms) and management practices to the host country, which make the economy more competitive through spillover effects<sup>1</sup>. Besides, FDI can also substitute international trade and hedge the risks of exposure to foreign exchange. It is observed that inflows of foreign investment in natural gas sector and subsequent improvements in production efficiency and the terms of trade have made many of the Central Asian countries better off (Barry, 2009). Similarly, foreign investment appears to have significant positive impact on export performance of Turkey (Vural and Zortuk, 2011). A number of studies (e.g., Wheeler and Mody, 1992; Chen, 1996; Noorbakhsh, Paloni and Youssef, 2001; Kumar, 2002; Banga, 2003; Moosa and Cardak, 2006; Quazi, 2007 and Rozas and Vadlamannati, 2009 etc.) find infrastructure as an important determinant of FDI inflows.

Some studies found weak relationship between FDI inflows and infrastructure. For instance, Chakravorty (2003) finds little significance of infrastructure in determining the location or quantity of new industrial investment, whereas Kirkpatrick, Parker and Zhang (2006) and Pradhan (2008) find negative impact of the

same on FDI inflows.

According to a working group appointed by the Planning Commission of India in 2012, India required a trillion US dollars or almost 10 percent of India's GDP to be spent on infrastructure by 2017. Given the country's strained public finances, addressing the infrastructure gap will require very strong participation on the part of private and foreign investors through public-private partnerships. FDI can be one of the important sources of investment which can accelerate process of infrastructure development by bringing non-debt capital flows, modern technology and best management practices in India. FDI inflows in Infrastructure sector in India will develop overall quality of Infrastructure in India which can lead to more economic growth and development for economy.

Several empirical studies on determinants of FDI found that Market Size, Relative production cost, Government FDI policy, Openness of the country, Relative labor cost, Inflation Rate, Exchange Rate, Political and institutional quality are important determinants of FDI. It is anticipated that greater market size has a positive effect on FDI (Asiedu 2006; Cleeve 2008; Dunning 1988; Mohamed and Sidiropoulos 2010). Market size has been extensively recognized determinant of FDI flows in the most of the empirical studies. Most of the Studies used Real GDP or GNP per capita for the market size of a country or income within the country. (Bhavan et.al 2011 ; Leitao 2010; Lv et.al 2010 ;Hailu 2010;Schneier & Matei 2010). Most of the FDI literature used share of trade in GDP as a proxy of openness (Cleeve 2008; Mhlanga et.al 2010; Bhavan et.al 2011; Leitao 2010). The positive relationship between FDI and trade volumes implies that countries that wish to attract more FDI should increase trade. Most of the studies find that trade openness is positively related to FDI in host country but the impact of openness on FDI depends on whether the investment is market seeking or export-oriented. (Cleeve 2008; Mhlanga et.al 2010).

According to “tariff jumping” hypothesis, less open

economy with trade restrictions can have a positive effect on FDI (Market-Seeking). Export-oriented MNC's prefer to locate to a more open economy because trade protection generally states higher transaction cost associated with exporting. A higher wage corresponds to a lower level of FDI. Higher wage reflects more production cost hence it leads to less competitive MNCs both at home and in foreign markets.. Several papers have shown that inefficient institutions as measured by corruption, political instability and weak enforcement of contracts deter foreign investment (Wei 2000; Asiedu 2006).

### **Infrastructure Scenario in India: Cross-country comparison**

According to Global Competitiveness Index 2016-17, infrastructure is the one of the important pillars of competitiveness of any country. Extensive and efficient infrastructure is important for ensuring the effective functioning of the economy, as it is an important factor in determining the location of economic activity and the kinds of activities or sectors that can develop within a country. Well-developed infrastructure reduces the effect of distance between regions, integrating the national market and connecting it at low cost to markets in other countries and regions. In addition, the quality and extensiveness of infrastructure networks significantly impact economic growth and reduce income inequalities and poverty in a variety of ways. A well-developed transport and communications infrastructure network is a prerequisite for the access of less-developed communities to core economic activities and services. Effective modes of transport—including quality roads, railroads, ports, and air transport—enable entrepreneurs to get their goods and services to market in a secure and timely manner and facilitate the movement of workers to the most suitable jobs. Economies also depend on electricity supplies that are free from interruptions and shortages so that businesses and factories can work unimpeded. Finally, a solid and extensive telecommunications network allows for a rapid and free flow of information, which increases overall

economic efficiency by helping to ensure that businesses can communicate and decisions are made by economic actors taking into account all available relevant information.

According to Global Competitiveness Index (GCI), 2016-17 which measures the competitiveness landscape of 138 economies and provides insight into the drivers of their productivity and prosperity, one of the critical factors that contribute negatively for doing business in India is the inadequate supply of infrastructure. According to GCI, India ranks 39 on the GCI out of 138 countries into global competitiveness landscape and India is ranking 68 out of 138 countries in Infrastructure development. Overall score of infrastructure in India is 4.0 out of total 7 which indicate that infrastructure development in India is stagnant in Median. This indicates that overall quality of infrastructure is not good in India hence government needs to undertake proactive policy reforms to develop infrastructure quality in India.

India is ranking 51 out of 138 countries in the overall quality of infrastructure with the value of 4.5(scale 1-7) according to global competitiveness index 2016-17 (Table 1). In terms of quality of roads, railroad, Port and air transport Infrastructure India is ranking 51, 23, 48 and 63 respectively out of 138 countries. Railway and Air Transport infrastructure is comparatively better in India compare to Road and Port infrastructure. Available airline seat km per week is 4324.2 million and India is ranking 8 out 138 countries. With respect to quality of electric supply India is ranking 88 which are far behind than other emerging economies like Brazil, China and Russia. Availability of communication infrastructure is also not adequate in India as it ranks 123 and 114 with respect to mobile telephone subscription and fixed telephone line per 100 populations.

### **Trend in FDI inflows to India: Where does Infrastructure Stand?**

The substantial upsurge in FDI inflows to India redirected the impact of liberalization of the economy

in 1991, as well as gradual opening up of the capital account. As part of the capital account liberalization, FDI was gradually allowed in almost all sectors, except a few on grounds of strategic importance, subject to compliance of sector specific rules and regulations (RBI). During the recent global crisis, when there was a significant deceleration in global FDI flows during 2009-10, the decline in FDI flows to India was relatively moderate reflecting robust equity flows on the back of strong rebound in domestic growth ahead of global recovery and steady reinvested earnings (with a share of almost 25 per cent) reflecting better profitability of foreign companies in India. FDI inflow in India was 289,315 US \$ million between January 2000 to March 2016.

FDI inflow in major infrastructure related sectors from 2006 to 2015 indicates that telecommunication sector is attracting most of the FDI in India followed by Construction activities, Power, Sea Transport, Ports, Railways and Air Transport. Telecommunication sector attracted Rs. 839.64 billion of FDI from the year 2006 to 2015. Construction sector attracted around 785.50 billion Rs and Power & Ports are attracted around 470.9 and 60.54 billion of Rs respectively. Construction development, Telecommunication, Power and Port are ranking two, four, nine and thirty two respectively in sector wise inflow in India from January 2000 to March 2016.

FDI inflows in Infrastructure in India is mostly attracted by construction development and telecommunications but sectors like port, power, airport development and roads are not able to attract more FDI hence government needs to undertake policy reforms to attract more FDI in these sectors.

### **Government Initiatives to Encourage Foreign Investment in India:**

There has been a significant change in India's approach to foreign investment from the early 1990s when it began structural economic reforms encompassing almost all the sectors of the economy. Currently government allows 100% FDI in most of the

infrastructure sector in India. Government allowed 100 percent FDI in Construction Development: Townships, Housing, Built-up infrastructure. With respect to Power Sector government allowed 100 percent FDI under automatic route for infrastructure development in power sector. Foreign Direct investment of 100% is permitted under automatic route in infrastructure related to petroleum products, natural gas pipelines and petroleum refining by private sector. 49 per cent FDI is allowed under Government route in any petroleum refining in Public Sector Undertaking (PSU). However, dilution or divestment of domestic equity is now allowed in existing PSUs. 100 per cent FDI is permitted under automatic route in setting up new and established industrial park. Recently government allowed 100% foreign direct investment under automatic route for Construction, operation and maintenance of specified activities of Railway sector.

### Methodology and Data:

#### Model Specification and Estimation

In order to find out determinants of FDI in Infrastructure, the following panel data model is specified:

$$Y_{it} = \alpha_{it} + \sum_{k=1}^k \beta_{kit} X_{kit} + u_{it}$$

Where,

$i=1,2,\dots,N$  (refers to cross-sectional units)

$t=1,2,\dots,T$  (refers to a given time period)

$k=1,2,\dots,K$  (refers to number of explanatory variables)

Thus, represent the FDI inflow in the sector  $i$  at time period  $t$  and  $X_{kit}$  is the values of such determinants as market size, trade openness, for the individual  $i$  at time  $t$ . The analysis begins by estimating pooled regression model assuming that there is no significant country or temporal effects then this study estimate fixed effects model (FEM) and the random effects model (REM) to control country-specific and temporal effects, if any. This study performs F test, LM test and Hausman test for Selection of Appropriate Model.

Accordingly, equation is estimated as :

$$FDI_{it} = \alpha + \beta_1(EconomicVariables)_{it} + \phi(PolicyVariables)_{it} + \mu(InstitutionalVariables)_{it} + u_{it}$$

$$FDI_{i,t} = \alpha + \beta_1 ms_{i,t} + \beta_2 to_{i,t} + \beta_3 mas + \beta_4 tax_{i,t} + \beta_5 reer_{i,t} + \beta_6 be_{i,t} + \beta_7 GI_{i,t} + \varepsilon_{i,t}$$

Where,

$ms$  is Market Size,  $to$  is trade openness,  $mas$  is macroeconomic stability,  $tax$  is tax rate,  $reer$  is real effective exchange rate,  $be$  is business environment,  $GI$  is government index. The explanatory variables with its indicator, data sources and its expected sign are presented in table 2.

Data: The data used for sector level analysis are annual FDI data with observations from 2006 to 2015 for 7 important sectors of Infrastructure, but most results focus on the last 09 years due to limits on data availability for Sectoral FDI inflow and institutional/qualitative variables. The analysis focuses on 7 important sector of Infrastructure, accounting for the majority of FDI flows in Infrastructure. Data on FDI flows broken down telecommunication, construction, power, port, air transport, sea transport and railways are collected from Department of Industrial Policy and Promotion. The dependent variable in the specifications below is the inflow of FDI broken down into 7 different sectors of infrastructure.

The independent variables in our estimation include (Table 2) Real GDP for market size, Trade to GDP ratio for trade openness, Inflation rate for Macroeconomic stability, Total tax rate as a percentage of commercial profits for tax rate, Real Effective exchange rate for Exchange rate, Business Environment This study also incorporates Governance index including six variables of Governance i.e Voice & Accountability, Political Stability and Lack of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption to evaluate the impact of good governance of FDI inflow in Infrastructure.

The empirical results (Table 3) obtained from Fixed Effect model indicates that the regression model explains 64 percent (R<sup>2</sup>) of the variation in FDI inflows in Infrastructure. This result indicates that the explanatory variables included in the equation explain most of the variation in the dependent variable. The F-statistic is 7.75, and the probability of the F-statistic is 0.0000, which shows that the results are statistically significant and the null hypothesis of the independent variables having no effect on FDI inflow is rejected.

The result further indicates that at macro level Market size, Macroeconomic stability, Exchange Rate, Governance have significant impact on determinants of total FDI inflow. Market Size measured by Real GDP indicates that it is positively related to FDI inflows in Infrastructure. The main reason for this is higher Real GDP leading to more production within economy which requires more infrastructure facilities. Higher inflation rate has negative influence on FDI inflow in infrastructure. Main reason for this is that higher inflation increases the cost of raw material and overall project cost. Real effective exchange rate is negatively associated with FDI in infrastructure; it indicates that when local currency devaluates, it increases the FDI inflow as devaluation of currency make infrastructure projects profitable.

Governance/Institutional quality is measured by effective Rule of Law, Political Stability & No Violence, Government Effectiveness and Regulatory Quality are negatively associated with FDI; it indicates that governance quality is not relatively important variable in India for attracting more FDI in infrastructure.

### **Conclusion and Policy Implication:**

The availability of adequate infrastructure amenities is crucial for the acceleration of economic development of a country. Hence governments give high priority to investment in sectors such as railways, roads, power, telecommunications, ports, airports, water supply, sanitation and sewerage, education and training, health and empowerment to increase the quality of infrastructure.

The overall results indicate that infrastructure quality is not adequate in India as India ranking 87 out of 144 countries in infrastructure quality. Thus government needs to undertake proactive policy reforms to develop infrastructure quality in India. Overall score of infrastructure in India is 3.8 out of total 7 score which means infrastructure development in India is stagnant in Median.

FDI inflows in Infrastructure in India is mostly attracted by construction development and telecommunications but sectors like port, power, airport development and roads are not able to attract more FDI. These sectors which are attracting more FDI do not require road or railway related infrastructure. Instead, foreign investment in telecommunication results in expansion and development of communication infrastructure. Therefore, government needs to undertake policy reforms to attract more FDI in these sectors.

The findings from FDI determinants analysis yield a number of insights about attracting foreign direct investment in Infrastructure sector. Market size measured by Real GDP, Macroeconomic stability, Exchange Rate, Governance has significant impact on determinants of total FDI inflow. Macroeconomic stability and exchange rate have significant impact on determinants of total FDI inflow. This result provides a hint of the significance of monetary policies to attract more FDI keeping lower inflation rate and exchange rate to attract more FDI.

Although overall institutional and governance factor do not impact on FDI inflow in Infrastructure significantly but in the long-run these markets need to improve institutional and governance quality to attract additional inflow of FDI into Infrastructure. Thus, India needs to address various policies in the path of institutional and governance reforms to attract additional inflow of FDI in the long run.

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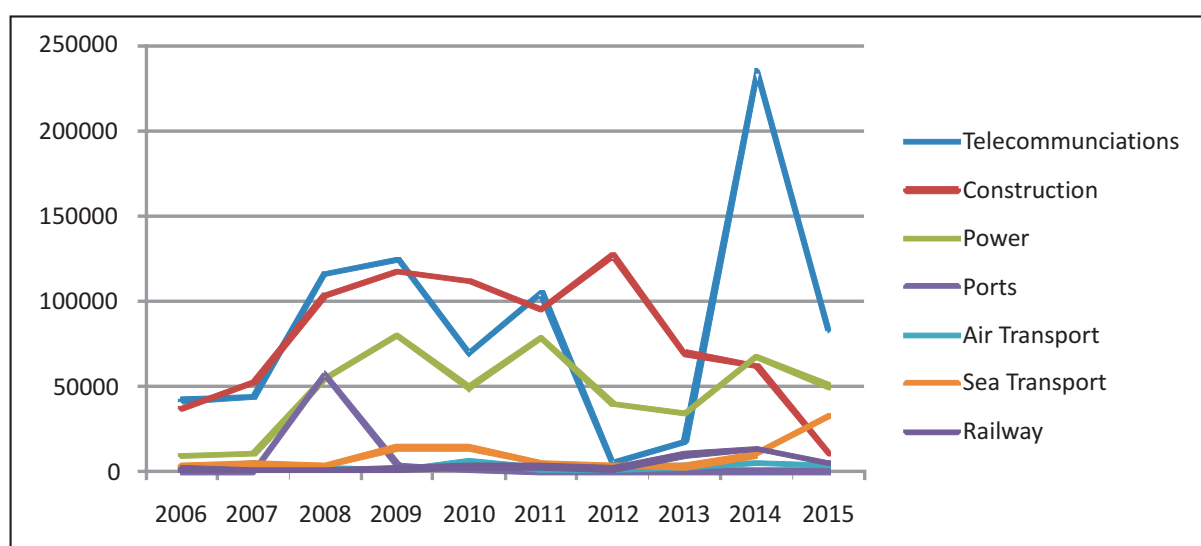
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**Table 1: Quality of Infrastructure in India: A Global Comparison**

S.No	Indicator of Infrastructure	Value (1-7) 2016-17	Rank (Out of 138) 2016-17	Value (1-7) 2015-16	Rank (Out of 144) 2015-16
1	Quality of overall infrastructure	4.5	51	4.0	74
2	Quality of Roads	4.4	51	4.1	61
3	Quality of railroad Infrastructure	4.5	23	4.1	29
4	Quality of Port Infrastructure	4.5	48	4.2	60
5	Quality of Air Transport Infrastructure	4.5	63	4.3	71
6	Available airline seat km/week, millions*	4324.2	8	3726.6	11
7	Quality of electric supply	4.3	88	3.7	98
8	Mobile telephone subscriptions/100 pop*	78.8	123	74.5	121
9	Fixed Telephone lines/100 pop*	2.0	114	2.1	116

Source: Global Competitiveness Index, 2016-17, World Economic Forum

**Figure 1: FDI Inflows in Major Infrastructure Sector from 2006-2015 (Rs. in Billion)**

Source: Department of Industrial Policy and promotion, Ministry of Commerce and Industry

**Table 2: Explanatory Variables**

<b>Explanatory Variables</b>	<b>Indicators</b>	<b>Expected Sign</b>	<b>Data Sources</b>
<b>Economic Variables</b>	Market Size : Real GDP	+	RBI
	Trade Openness : Trade /GDP Ratio	+/-	World Bank
	Macroeconomic Stability : Inflation Rate	-	RBI
	Tax Rate : Total tax rate (% of commercial profits)	-	World Bank
	Exchange Rate : Real Effective Exchange Rate	+/-	RBI
<b>Policy Variables</b>	Business Environment : Overall Indicator of the efficiency of government regulation of business (0=Worst,100= freest Business Environment)	+	Index of Economic Freedom, Heritage Foundation
<b>Governance Index (Institutional quality)</b>	Control on Corruption, Rule of Law, Political Stability & No Violence, Government Effectiveness, Regulatory Quality. (0= Low level of Governance, 100 =Better Governance)	+	World Governance Indicators, World Bank

**Results:**

The selection of appropriate model indicates the superiority of panel model over pooled model confirmed by F test and LM test. Hausman test proves Fixed Effect model to be relatively efficient as compared to Random Effect model. Thus, the economic interpretation of the results is based on the Fixed Effect model only. However, for the sake of comparison, the results of Fixed Effect Model, Random Effect Model and pooled data models are presented. Table 3 illustrates the independent variables and their associated coefficient and their relationship with dependent variable.

Variable	Panel Least Square Model	Fixed Effect Model	Random Effect Model
Market Size	2.05(0.00)***	2.35 (0.00)***	2.06 (0.00)***
Trade Openness	-0.06 (0.03)**	-0.763 (0.5)	
Macroeconomic	-0.09(0.53)	-4.106 (0.06)*	-0.23 (0.11)
Stability	-0.09(0.22)	0.12 (0.5)	0.32 (0.01)***
Tax Rate	-0.04(0.61)	-0.170 (0.01)***	-0.07 (0.29)
Exchange Rate	-1.10 (0.26)	-1.58 (0.06)*	-1.25 (0.04)**
Governance	-0.07(0.43)	-0.28 (0.12)	-0.09 (0.41)
Business Environment	1229.30(0.02)**	131636.8 (0.00)***	7767.41 (0.67)
Constant	R <sup>2</sup> = 0.67	R <sup>2</sup> = 0.64	R <sup>2</sup> = 0.65
	F = 133.88(0.00)	F = 7.75(0.00)	Wald Chi2 =822.25 (0.00)
Nobs, Nvar	70,7	70,7	70,7
F Test : 126.53 (0.000);Fixed Effect Model is appropriate over Pooled OLS Model			
LM Test : 69.58 (0.000) ; Random Effect Model is appropriate over Pooled OLS Model			
Hausman Test : 59.93 (0.000);Fixed Effect Model is appropriate over Random Effect Model			

## **An Exploration of Macroeconomic status of Indian Economy: Impact of Demonetization**

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### **Abstract**

The implementation of demonetization has impacted the Indian economy in many ways. Demonetization implies the rejection of existing legal tender money for serving the objectives like, combating inflation, controlling black money, etc. Demonetization in India has resulted in considerable impact on several macroeconomic factors. This paper aims at examining the impact of demonetization on India's macroeconomic scenario. GVA, CPI inflation rate and monetary indicators are used to study the impact of demonetization. The study shows that demonetization has resulted in harmful effects on growth potential and these results are in contrast with the theoretical framework of monetary transmission through lending channel. The paper concludes that fiscal dominance over monetary policy has resulted in such inconsistent outcome.

Keywords: Demonetization, fiscal dominance, monetary policy.

On 8th November 2016, India's Prime Minister Mr. Narendra Modi announced the historical note ban of Rs. 500 and Rs. 1000 and the decision shook the economy. The move aimed at controlling black money, fake currency circulation and terror financing. India has the highest levels of currency in circulation at 13 per cent of GDP. High denomination currency notes in circulation as of November 4, 2016 were worth of Rs. 17,742 Billion (13 per cent of GDP). Value of Rs. 500 and Rs. 1000 notes in circulation was (86.5 per cent of notes in circulation) i. e. Rs. 15,347 Billion (11 per cent of GDP).

### **History of Demonetization in India**

India has carried out demonetization exercise twice before, in 1946<sup>1</sup> and 1978. In January 1978, high denomination currency worth Rs 1.46 Billion (1.7per cent) of total notes in circulation was demonetized. Of this Rs 1.0 Billion (or 68per cent) was tendered back. In 1978, the value of demonetization was very small (only 0.1per cent of GDP). Hence, no major impact on the economy was seen as high denomination notes which were cancelled only accounted for 0.1per cent of GDP. However, the 2016 demonetization efforts cover 86per cent of the total currency in circulation

<sup>1</sup>Note: 1946 demonetization data is not available with archives.

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(11per cent of GDP). Also, RBI data showed that as of March 2016, 632,926 currency notes were counterfeit-known as an FICN (Fake Indian Currency Note). As a proportion of NIC (Notes in Circulation), the 1,000 rupee and 500 rupee notes were the highest. Nullifying these FICNs was also a part of the demonetization move.

### **Demonetization: Theoretical Facts**

Demonetization is the act of changing the existing currency in another form. The old units should be retired and replaced by new currency. In other words demonetization means either introducing new notes or coins of the same currency or fully replacing the old currency with new currency. There is another important concept in economics, i.e. remonetisation, in which, form of payment is restored as legal tender. There are so many reasons, why governments demonetize their nation's currency. Some reasons are like to resist inflation, to resist corruption, and discourage a cash system in the country.

The Dictionary meaning of the term demonetization is, 'ending something (e.g. gold or silver) that is no longer the legal tender of the country.' But, one needs

to understand that there is much more than the literal meaning to this word. In order to understand the meaning of demonetization, one has to look at the effects of this process as the announcement of dishonouring the existing legal tender is a very rare event in the economy.

### **Implications of Demonetization**

Theoretically, demonetization implies the following things:

- Rejecting the existing monetary base as legal tender
- Filling the gap by printing fresh notes
- Incoming flow of fresh currency which may induce inflation
- Rejected volume of demonetized currency will affect aggregate demand adversely
- Demonetization will result in supply shocks in the short run
- Impact on unorganised sector's employability and consumption demand.

Having enlisted the implications of demonetization process, it is essential to examine the impact of demonetization on different sectors of Indian economy in detail.

### **Review of Literature**

This paper is an attempt to study the impact of demonetization on Indian Economy and its various sectors. Basically, as a policy move demonetization has been a shock to the economy which has resulted in a major impact on the economy in many ways. The literature on this issue suggests that it is a successful move as far as black economy is concerned.

A study by Kapoor Mahimam, (2016), on 'Impact of Demonetization on Banking Sector', shows that

demonetization has affected the banking sector to a great extent and it has disturbed the balance sheets of the banking system by the hike in currency inflow after demonetization.

The RBI's study, (2017), 'Macroeconomic Impact of Demonetisation - a Preliminary Assessment' shows the sector wise impact of demonetization and concludes that the short run impact of demonetization has hampered the growth prospects. In the long run it might be possible to iron out the discrepancies.

A working paper of the Tax Research committee, NIPFP, (2016), has shown the behavioural changes occurred in payment system in the country post the demonetization. Electronic payment system has emerged as an effective alternative.

Overall, demonetization has affected the economy to a great extent and there are behavioural, financial and macroeconomic parameters which are representing this change.

### **Impact of Demonetization on Indian Economy**

The economic performance of a developing country like India heavily depends on its growth potential. But a major decision like, demonetization affects its growth potential itself. The impact of demonetisation can be analysed with the data pertaining to the growth indicators of the economy.

### **Gross Value Added (GVA)**

The growth of gross value added (GVA) is expected to have been impacted primarily by the liquidity shock, i.e., limited access to currency as a medium of exchange for effecting transactions in the economy. This impact is expected to have worked through two channels: (a) decline in demand due to shortage of cash to make payments, mostly on discretionary spending; and (b) disruption in production activity due to man hours lost especially in the unorganised sector.

With the emergence of new statistical method for National Income calculation introduced by CSO, GVA has become the most important growth indicator which has replaced GDPFC. The GVA data for 2016-17 go as follows:

#### GVA Growth Projections for 2016-2017 (in per cent)

Financial Quarters	2016	2017
Q1	7.6	5.6
Q2	6.8	6.1
Q3	6.7	-
Q4	5.6	-

Source: RBI's Preliminary assessment paper, March 2017.

The above data show that the growth trajectory of Indian economy was disturbed by demonetization. Q4 growth rate in 2016 shows a sharp decline in growth rate reflecting the impact of demonetization. Q1 and Q2 growth rate in 2017 is in congruence with 2016 growth pattern. It can be stated from here that the growth projections show modest impact of demonetization.

#### Inflation

The other leading macro indicator is the level of inflation. Since, demonetization has affected the broad monetary base; it has influenced the general price level in many ways. The data is as follows:

Month	CPI
Oct. 2016	4.4
Nov. 2016	3.7
Dec. 2016	3.4
Jan. 2017	3.1
Feb. 2017	3.6
Mar 2017	3.8
Apr 2017	2.9
May 2017	2.1
Jun 2017	1.5
July 2017	2.3
Aug 2017	3.3
Sept. 2017	3.2
Oct. 2017	3.5

Source: CSO estimates, March 2017

The above mentioned inflation indicators remain unaffected post the demonetization as the inflation expectations for consumer durables are pre-set and subject to postponement possibility. Due to the real estate sector distress, the housing rental agreements were unaltered. So, the overall impact of demonetization on headline inflation is minimal. Even the food inflation has been modest during this period. Somewhere, monetary targeting of inflation may have resulted in inflation control.

#### Monetary Indicators

Since demonetization has attacked the broad money base of the economy, it is important to see the impact of demonetization on broad money in circulation (M3), total money in circulation, bank credit, deposit growth.

#### Monetary Indicators

(Y-O-Y in %)

Indicators	April October 2016	October 2016	November 2016	December 2016	January 2017	February 2017
M3	6.4	10.4	8.5	6.6	6.4	6.5
Currency in Circulation	6.9	17.2	-23.6	-39.9	-37.8	-28.2
Bank Credit	1.8	8.4	6.2	4.9	4.7	4.5
Bank Deposit Growth	6.4	9.3	15.7	14.9	13.5	12.6

Source: RBI's Assessment, March 2017 & CMIE, April, 2017.

Considering the comparative impact on various sectors, it is clear that above mentioned monetary indicators show drastic effect of demonetization. Broad money (M3) and currency in circulation were adversely affected due to demonetization, due to which, bank credit growth and deposit growth were hit by this move. Demonetization can be seen as active fiscal intervention in monetary policy framework which has resulted in negative monetary transmission.

Soon after the demonetization, many banks lowered their term lending rates as a result of the upsurge in bank deposits. The increasing volume of bank deposits represented the contraction of the currency in circulation. The sudden increase in deposits created large surplus liquidity conditions in the

banking system. With the theoretical sense, this upsurge in bank deposits should have resulted in positive monetary transmission through lending channel having positive impact on aggregate income.

( **Bank deposits**                      **interest rate**  
**Investment expenditure**      **AD**      **Income**)

But, the GVA data shows that demonetization has actually harmed the output potential, thus making a decrease in growth rate evident. Therefore, the sudden move of demonetization has resulted in negative transmission effect instead of being positive. It can be stated from here that a fiscally motivated decision like Demonetization can affect the monetary policy framework badly. So, the macroeconomic policies today in India are at the crossroads showing the fiscal dominance of the government. Thus, the macroeconomic scenario has become very complex. The impact of this policy complication may not be desirable for the development aspirations of India.

#### **Conclusions :**

To conclude, demonetization was a fiscally motivated decision taken up by the government with several objectives. This move has shaken the economy and its impact will shape the Indian economy in future as well. The policy implications of this move are serious. The present study enables to derive following conclusions :

1. Demonetisation has mainly affected the growth potential of Indian economy.
2. The monetary indicators are showing sharp decline due to demonetization representing the unfolding of monetary management system of the country.
3. Demonetization is nothing but the active fiscal intervention in monetary decision making causing a threat to the autonomy of central bank, i.e. RBI.
4. The resultant change in interest rate and income level as a result of demonetization are in conflict

with the Transmission Effect. It has resulted in negative transmission effect even though the bank deposits have increased.

5. The implementation and impact of demonetization show the policy conflict and complex nature of India's macroeconomic management in the post demonetization period.
6. This kind of fiscal dominance (like, demonetization), is not desirable for development aspirations of the country where the autonomy of central bank is utterly important.

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## Role of Information Technology in Education

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### Abstract

The Impact of IT on education can be felt mainly in the area of faster access to information, MOOC for massive open online courses, information sharing, anywhere and anytime learning, helping children with disabilities through educational tools and software. The Web Accessibility Initiative(WAI) develops resources, guidelines, and strategies to make the web easily accessible to people with disabilities.

Up to date information is provided in the relevant subjects. IT can help to reach out to places where there are no schools or colleges. Smart schools have come up for virtual learning.

This paper highlights the current trends with the use of IT such as microlearning and curate learning. It also gives the feel of IT among students through a survey conducted at St Xavier's College.

Key Words: WAI, mooc, virtual learning, microlearning.

### INTRODUCTION

Earlier to access the lectures of the top institutes like IIT was a distant dream but now they can be accessed easily. Accessing quality lectures quickly has become possible due to the improvement in multimedia and internet technology. Also, one can access information from foreign universities quickly without leaving one's place. So, distance is not the issue in the current scenario. Also, one can give a lecture at one place and the session can be viewed across different branches of the study centre like IGNOU open university. All this is possible through digitization.

One can register in any mooc course and access the study material. Access to certain software language is possible through online compilers which was difficult earlier. A recorded visual demonstration of conducting practicals can be used at remote places where getting practical equipment is difficult or where there is no lab facility. Students and teachers can download study material in the form of pdf/slides and can modify as per need.

Considering children with disabilities, Information Technology in education has improved upon gadgets

that help them learn. Specialized software is used for it. In education, a framework to design a course where the instructor can upload the learning material with features of evaluation and feedback is provided by softwares like moodle. Subject interest is easily created due to the use of animation and 3D simulation. Also the use of the google classroom can help students and teachers to make the teaching learning process effective.

### OBJECTIVE

The objective of this paper is to know which methods of teaching and learning are widely accepted by the students that in turn will help teachers to adapt to a different way of teaching and learning. Also, equip teachers with IT tools for teaching.

This paper also highlights the traditional Bloom's Taxonomy and its application in current scenario.

### CURRENT TRENDS IN LEARNING

#### Combined Learning

Students can form groups, create blogs to post their ideas and the solution by one is shared with other. This helps group learning.

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### Microlearning

Since the attention span is generally less in the current generation, only relevant matter in short presentations videos should be shown. This is possible through using IT Tools.

### Two-way learning

Instead of teaching one way, IT Tools can help to communicate in two ways where the speaker can be ask questions in real time from a distant centre.

### Curate Learning

Curators are people who always seek for new information and add it to a collection.

The study material is updated for new and key information. This is possible through the following steps.

- a) **Know your Learners:** Intermediate or Advanced Level Learners and material should be tuned accordingly.
- b) **Find out the skills required:** Focus on skill development and collect material accordingly which is application based.
- c) **Find Reliable Resources.**
- d) **Follow Content Curation Methodology:** This includes Aggregation, Distillation, Elevation, Merging and Chronological.

### App-based Learning

Making the lecture, notes and slides available on mobile phone can help the student to learn faster as the student accesses the mobile more often.

### Social Learning

A poll can be conducted involving on the quality of teaching and learning material of an online course by using open source software and the information collected can be used to rate the quality of the

teaching learning process. Also, the learner can be asked to express their views on the course taken. This can then be shared on social media and blogs so that more learners can come in.

### Adaptive Learning

Every learner has different learning capabilities. Taking this into account learning materials can be developed based on the learner's pace. A slow learner can improve performance over time while advanced learner can enhance their skill. Thus, adaptive learning suits both slow as well as advanced learners.

### Literature Review

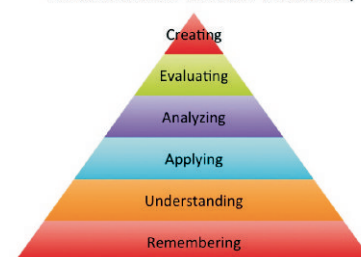
Sampson and Zervas (2011) pointed out that the issue of accessibility in relation to technology-enhanced training by ensuring that learners are not prevented from accessing technology-supported resources, services, and experiences in general due to their disability.

Karami (2003), Information technology is referred to the knowledge process and its applying methods, processing, transferring and making information in progress.

Raees (2002), IT includes gathering, organizing, storing, publishing and using the information in the form of sound, picture graphic etc by using the computer and telecommunication tolls.

Anderson & Krathwohl (2001), From the original taxonomy now verbs are used to re-label the six categories and include "action words" to describe the cognitive processes by which learners encounter and work with knowledge.

The New Version of Bloom's Taxonomy



IT mainly helps in the area of understanding the matter in a better manner through video, ppt animation etc. and applying the knowledge with software simulation. As per Haag (1998), information technology is a “set of tools that can help provide the right people with the right information at the right time.”

### **Research Methodology**

A survey was conducted in St Xavier's college for a sample size of 140 students for studying the role of IT in education. The response received is summarized below.

### **Conclusion**

Information technology facilitates the teaching and learning process. Information Technology helps learners to interact with remote universities, colleges and schools around the globe. Most of the Admission process for universities are online. IT helps to generate this infrastructure. Now distance doesn't matter for learning. Sharing of information is instantly. IT helps in increasing educational efficiency.

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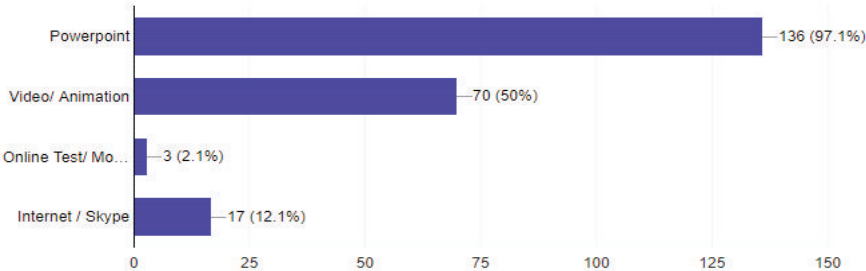
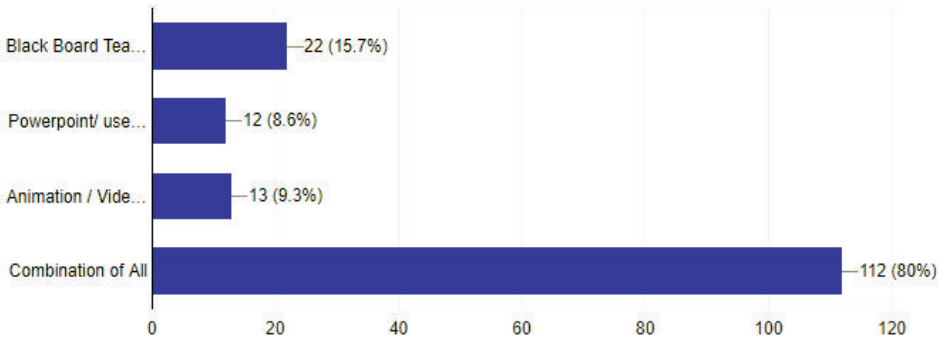
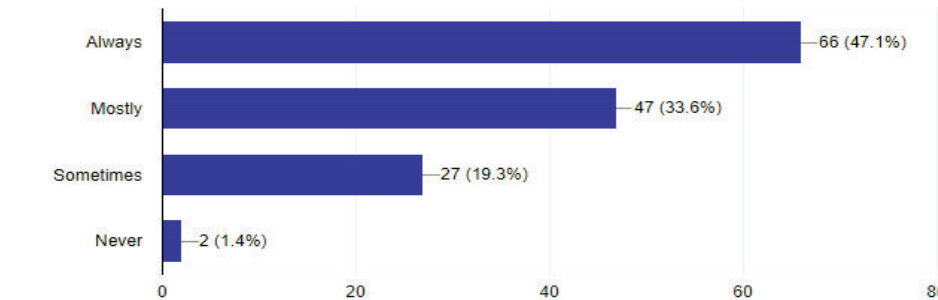
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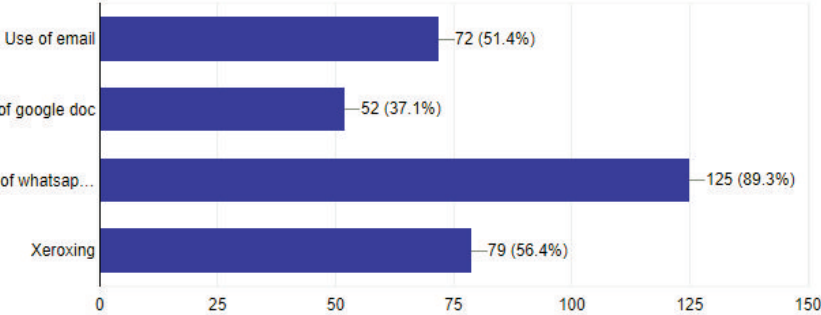
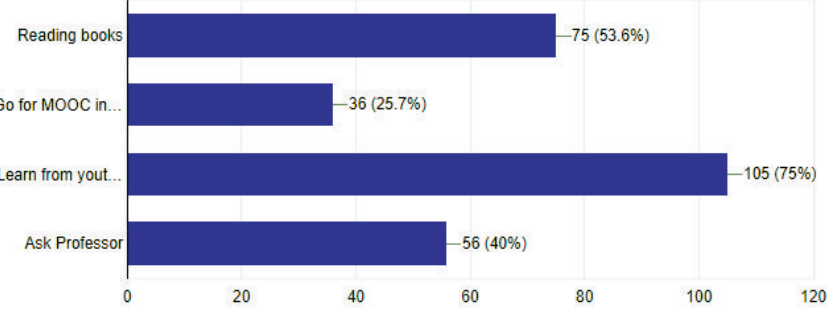
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SNO	GRAPHICAL REPRESENTATION	CONCLUSION															
1.	<p data-bbox="268 333 1054 394">Q1) Which type of ICT tool you have seen being used at St Xavier's college for teaching/Evaluation?</p> <p data-bbox="268 405 384 427">140 responses</p>  <table border="1" data-bbox="279 459 1149 728"> <thead> <tr> <th>ICT Tool</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Powerpoint</td> <td>136</td> <td>97.1%</td> </tr> <tr> <td>Video/ Animation</td> <td>70</td> <td>50%</td> </tr> <tr> <td>Online Test/ Mo...</td> <td>3</td> <td>2.1%</td> </tr> <tr> <td>Internet / Skype</td> <td>17</td> <td>12.1%</td> </tr> </tbody> </table>	ICT Tool	Count	Percentage	Powerpoint	136	97.1%	Video/ Animation	70	50%	Online Test/ Mo...	3	2.1%	Internet / Skype	17	12.1%	Mostly PowerPoint is used as ICT
ICT Tool	Count	Percentage															
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Internet / Skype	17	12.1%															
2.	<p data-bbox="255 763 866 790">Q2) Which is the most effective way of teaching?</p> <p data-bbox="255 808 376 831">140 responses</p>  <table border="1" data-bbox="255 873 1197 1209"> <thead> <tr> <th>Teaching Method</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Black Board Tea...</td> <td>22</td> <td>15.7%</td> </tr> <tr> <td>Powerpoint/ use...</td> <td>12</td> <td>8.6%</td> </tr> <tr> <td>Animation / Vide...</td> <td>13</td> <td>9.3%</td> </tr> <tr> <td>Combination of All</td> <td>112</td> <td>80%</td> </tr> </tbody> </table>	Teaching Method	Count	Percentage	Black Board Tea...	22	15.7%	Powerpoint/ use...	12	8.6%	Animation / Vide...	13	9.3%	Combination of All	112	80%	The Method most for is Blended Teaching that is a combination of all types.
Teaching Method	Count	Percentage															
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3.	<p data-bbox="255 1229 1134 1256">Q3) Do the assignment make you use computer/ internet at home?</p> <p data-bbox="255 1274 384 1296">140 responses</p>  <table border="1" data-bbox="255 1332 1197 1630"> <thead> <tr> <th>Frequency</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Always</td> <td>66</td> <td>47.1%</td> </tr> <tr> <td>Mostly</td> <td>47</td> <td>33.6%</td> </tr> <tr> <td>Sometimes</td> <td>27</td> <td>19.3%</td> </tr> <tr> <td>Never</td> <td>2</td> <td>1.4%</td> </tr> </tbody> </table>	Frequency	Count	Percentage	Always	66	47.1%	Mostly	47	33.6%	Sometimes	27	19.3%	Never	2	1.4%	Assignments are challenging and students use the internet for help.
Frequency	Count	Percentage															
Always	66	47.1%															
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SNO	GRAPHICAL REPRESENTATION	CONCLUSION															
4	<p data-bbox="268 342 900 365">Q5) For notes sharing which methods do you apply?</p> <p data-bbox="268 387 387 409">140 responses</p>  <table border="1" data-bbox="316 450 1141 763"> <thead> <tr> <th>Method</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Use of whatsapp...</td> <td>125</td> <td>89.3%</td> </tr> <tr> <td>Use of email</td> <td>72</td> <td>51.4%</td> </tr> <tr> <td>Xeroxing</td> <td>79</td> <td>56.4%</td> </tr> <tr> <td>Use of google doc</td> <td>52</td> <td>37.1%</td> </tr> </tbody> </table>	Method	Count	Percentage	Use of whatsapp...	125	89.3%	Use of email	72	51.4%	Xeroxing	79	56.4%	Use of google doc	52	37.1%	<p data-bbox="1241 342 1414 477">Students prefer the use of software for sharing notes quickly.</p>
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5	<p data-bbox="268 808 818 831">Q6) How do you update the subject Knowledge?</p> <p data-bbox="268 853 371 875">140 responses</p>  <table border="1" data-bbox="268 916 1098 1229"> <thead> <tr> <th>Method</th> <th>Count</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Learn from youtube...</td> <td>105</td> <td>75%</td> </tr> <tr> <td>Reading books</td> <td>75</td> <td>53.6%</td> </tr> <tr> <td>Ask Professor</td> <td>56</td> <td>40%</td> </tr> <tr> <td>Go for MOOC in...</td> <td>36</td> <td>25.7%</td> </tr> </tbody> </table>	Method	Count	Percentage	Learn from youtube...	105	75%	Reading books	75	53.6%	Ask Professor	56	40%	Go for MOOC in...	36	25.7%	<p data-bbox="1241 808 1414 909">YouTube is the main resource for updating knowledge.</p>
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## Out Migration for Education in Niti Valley - Uttarakhand

**Pratiba Naitthani**

Head of Department of Political Science, St. Xavier's College (Autonomus), Mumbai.

### Abstract

Out migration has become a serious issue in Uttarakhand. Migration has been a phenomenon in this state. However, the out migration especially for primary education is new to the state. Niti valley, in the Indo Tibetan border region is also impacted by this trend.

With little options of livelihood, and also due to the influence of the urban areas, it is now common for the families to migrate for the education of their young children. Out migration is not only turning the villages into ghost villages but is also creating national security concerns as the borders are gradually losing their population. The paper is a brief description of the existing conditions and the concerns related to out migration, especially for school education.

Keywords: Such as out Migration, Niti valley, Uttarakhand, education

Uttarakhand was created as a separate state in the year 2000 after bifurcation of Uttar Pradesh. It is strategically an important state because it is a border state, as it shares the borders with Nepal and China. The Niti Valley is located in the Indo Tibetan border region, named after the last border village Niti. It is in Chamoli district. The closest town is Joshimath, at a distance of about 90 KM from Niti village. The altitude within Niti valley varies between 2100 and 7817 msl. Upstream of Reni village there are 24 villages. Except for one village all the villages are inhabited by the Bhotiyas, with two main sub-tribes Marchha and Tolchha.

The Bhotiyas practiced transhumant system following seasonal migration, some migrated within the valley and some went up to Nand Prayag about 150 km far. A number of villages still practice transhumance. For centuries the Bhotiyas were engaged in cross border trade with Tibet. This cross-border trade came to an abrupt end after the Indo-China war in 1962. To compensate the Bhotiyas, in 1967, the government of India notified them as the Scheduled Tribe. This would help them get jobs in government. However, since not many had higher education they focused on other alternative livelihood opportunities. The Bhotiyas used to have herds and the average size of herd each family owned was about 1000 to 1500 sheep and

goats. This was a major woolen handicraft and source of income. Besides the expeditions to climb Nanda Devi also provided good employment opportunities within the valley. It was the declaration of Nanda Devi Biosphere Reserve which imposed a complete ban on human intervention in the reserve in 1982, resulting in a complete ban on grazing and mountaineering also. With no sources of livelihood opportunities, Bhotiyas gradually shifted to emphasize on education.

Access to primary education has not been a problem in Niti Valley as there are primary schools in almost all the villages. The schools also migrated seasonally along with the population during winter season. Since the sources of livelihood was within the villages, few opted for higher education and went outside the villages and the valley. However, after the 1982 ban the life of Bhotiyas changed completely and education became the focus. For many years the children studied in the village schools up to 8th grade and then travelled daily to the nearby village for studying up to class 10. Going to the towns closer to the villages for further education was common and most of the students travelled daily as they could travel alone.

In the recent past, the life style of the Bhotiyas has

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undergone many changes. The villagers feel that the education in the village schools is not good and hence they prefer to enroll their children in the schools in nearby towns. Since the strength of students in the village schools is diminishing the teachers do not come to the schools regularly. And since the teachers are irregular the parents are further discouraged to send their children to the village schools. Now the families with young children from the remote villages, who in the past migrated outside the valley during winter have shifted to the summer villages permanently for the sake of better education and also livelihood. As a result, the schools in the remote border villages have almost shut down.

Those families which do not migrate outside the valley during winter, have shifted to a small town like settlement, Tapovan or the closest town Joshimath. This new development, although for the sake of better education, has led to many negative implications. To begin with this migration is not for higher education but for pre-primary and primary education. The children are prevented by the parents and teachers from talking in their local language. They are on the contrary, forced to talk in Hindi and they now have started abandoning their mother tongues. It is a big financial burden on this community which does not have a regular source of income. Hiring a room on rent in the crowded town is a major shift from village life. In the village the child lived in his own, bigger home, was closer to nature, had access to rivers, mountains and local forest. Life in the village is carefree, and the love and protection of the joint family helps the child grow in a healthy natural as well as emotionally secure environment. In the village all the festivals are celebrated, social life is very active even for children, and outdoor games are part of the daily routine. Along with this the children learn a lot of things effortlessly. Whether about farming or forest produce, they get to know it all.

On the contrary, in the small towns life is spent in one single room. The room is used for sleeping, studying, cooking, playing. The toilets are common and very dirty. There is no access to any playground and the

child is restricted within the four walls of a single room.

The parents shift to the town along with the children. If the family has big farms and many cattle then one parent lives with the child and the other in the village. However, all children are not so fortunate. Often children as young as five years and eight years are left alone in a rented room, relying on the support of some distant relative living in the area around. I have met a girl who was studying in the 11th standard and was living with her three-and-a-half-year-old cousin sister alone, because there were no good schools in the village and hence the two of them had to manage on their own!! The parents cannot accompany them because they have to take care of the cattle and farm in the village. Imagine the plight of these children! They cook on their own, go to school, manage the studies, sometimes also go for tuitions, all by themselves. One of the parent visits once in a fortnight, fills the ration supply, pays the rent and fees etc. and goes back to the village the same day or the next day. The children long to go back home, back to the village and the open surroundings, and they miss the life of village.

As per the collected data from four villages of the border region between the years 2006 and 2016 about 60 percent of the villagers had one or more members of the family living outside the village due to various reasons. Of these about 20 percent mentioned that education was the reason of out migration and for 36 percent education and employment were led to out migration.

Unfortunately, the state govt has not taken cognizance of this problem as no measures have been taken to tackle this problem of out migration, mainly migration for education. There are no studies conducted on the socio-economic impact of the out migration for education, nor are there any studies on psychological impact on the children who are compelled to live away from the villages and families and also forced to live by themselves.

This has also given rise to nuclear families in the villages. The bigger problem is the senior citizens who are left behind in the village. The old are compelled to live alone. In these remote, high altitude mountain villages, life is challenging for the old people. The out migration for education is not only a social and economic problem but it is also a dangerous security problem. As mentioned in the beginning Niti village is the last border village near the Indo-Tibetan border. Tibet, now China is very close from there. Soon after the closure of the cross-border trade, the out migration did start but it was the male population migrating out. The rest of the family remained in the village. However, the new trend of migration for education has taken away children and women also from the villages. Very few senior citizens now live there during summer. Many senior citizens have also settled permanently in the lower, summer villages because they have no one to take care of them in the upper villages. According to a newspaper report in Hindustan Times (Feb 2014) 60% of the population from the valley has migrated permanently and of the remaining 95% of job card holders of MANREGA in Niti Valley are above 55 years of age. The above news shows that it is only the scanty older population which is living in the valley. This out migration is mainly for livelihood opportunities and education. In September 2015, The Times of India carried the news that of 250 families, only 35 families now live in Niti. Thus the uninhabited area lies open to territorial claims by China. The condition now is grimmer with many more families migrating from the valley. The same is reiterated by Claude Arpi in India Defense Review (Oct 2015).

The government may not be in a position to create job opportunities, but it can certainly ensure good primary, secondary and higher secondary education in the villages. It is ironical that many families in the Niti Valley are compelled to shift to Joshimath because though they are not very far from the town, but there are no regular public transportation facilities. The lack of school bus facilities results in dependency on the private taxi services, which are not reliable. The price of indifference of the government is too high for the

villagers in the valley because they have to practically start another house hold in the nearby town. This waste of time, money and energy for the sake of education can certainly be stopped provided there is a political will. If the government does not wake up from its slumber, soon tourists will visit the Niti valley to witness ghost villages and say that once upon a time the Bhotiyas lived here.....



(Image 1-Lata Village in Niti Valley at the altitude of 8000 ft)



(Image 2- Chaulai fields in Lata Village in Niti Valley)



(Image 3 - Children living in a single room in Joshimath)

## **Internationalisation of Education at St. Xavier's College, Mumbai: A Retrospective Review of International Programmes between 2010 And 2017**

**Radiya Pacha-Gupta**

Council for International Programmes, St. Xavier's College, (Autonomous), Mumbai.

### **Abstract**

Internationalisation of education is known to provide not only academic/educational benefits to students, but also opportunities to enhance their interpersonal skills and inter-group tolerance. The Council for International Programmes (CIP) at St. Xavier's College, Mumbai, has greatly impacted the contemporary education system through the introduction of numerous international exchange programmes with its global partner institutions, since 2004. Bilateral exchange programmes are held between St. Xavier's College and institutions from countries in Europe, North America, Australia, and South-East Asia. The present study aims to retrospectively review the international programmes that St. Xavier's College has been engaging in between 2010 and 2017.

Keywords: St. Xavier's exchange programmes; education, international, Memorandum of Understanding.

### **INTRODUCTION**

Student mobility has long been considered an integral component of a holistic university-level education. Hansel and Grove (1986) have scientifically demonstrated that international student exchange programmes are educationally beneficial (Hansel and Grove, 1986). Furthermore, US-based exchange programmes are known to have facilitated the diffusion of liberal values and practices beyond its borders, particularly in authoritarian states (Atkinson, C. 2010)

Different aspects of exchange programmes have varied effects on students. Based on a survey involving German and American students, Bachner and Zeuschel (2009) reported that host family experience and duration of the exchange programme were major contributors to a prolonged impact of the programme (Bachner and Zeuschel, 2009). Furthermore, student exchange programmes have been reported to obliterate stereotypes by increasing student familiarity with exogenous cultures, thereby reducing inter-group conflict (Stroebe et al., 1988).

Numerous international student exchange programmes have stemmed to facilitate student

mobility worldwide. The Erasmus Programme for higher education has contributed to socioeconomic developments in Europe (González et al., 2011). Furthermore, Switzerland, although not a member of the European Union, has participated extensively in the Erasmus Programme (Messer and Wolter, 2007). A study carried out on an exchange programme conducted by Northern Arizona University, USA, reported that participating students learned to appreciate their own culture notwithstanding the acquisition of knowledge of a foreign culture and they learned more about themselves (Van Hoof and Verbeeten, 2005).

St. Xavier's College, Mumbai, a premier institution that received academic autonomy in 2010, engages in numerous international academic exchange programmes which are organised by the Council for International Programmes (CIP) of the college and its partner universities in various countries including Japan, Canada, USA, UK, Spain, France, Germany, South Africa, South Korea, and Australia.

Since 2004, the CIP is aimed at discussing possibilities for student and faculty exchange programmes with its partner institutions abroad, providing a platform for international research

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collaborations for students and members of faculty, providing an enriching experience to the financially weaker students with international exposure through scholarship programmes, exposing students to different models of education and instilling cultural sensitivity in a globalised world, and exposing international students to Xavier's education system and Indian culture.

The present study is a retrospective review of the international exchange programmes held jointly by St. Xavier's College, Mumbai, and its partner universities worldwide. Data on international student exchange programmes from 2010 to 2017 were collected and the number of foreign students visiting St. Xavier's College (hereafter referred to as 'incoming students') and the number of students of St. Xavier's College visiting partner institutions abroad (hereafter referred to as 'outgoing students') was recorded.

### **Programmes for incoming students at St. Xavier's College, Mumbai**

In total, St. Xavier's College has been visited by 457 students between 2010 and 2017. Figure 1 presents a year-wise breakdown of the number of incoming students, and Table 1 summarizes the programmes for which these students visited St. Xavier's College. Programmes are short-term, typically lasting 8 days (In Conversation by the Department of English) to 6 weeks (History of India course), or long-term, typically lasting one semester to one year (bilateral exchange programmes with most European universities, e.g. Sciences Po, Paris, France).

### **Programmes for outgoing students at foreign universities**

In total, 363 outgoing students have participated in various programmes at partner institutions between 2010 and 2017. The year-wise breakdown of the number of outgoing students is provided in Figure 1. Furthermore, Table 2 summarizes the programmes that the outgoing students participate in. Similar to programmes for incoming students, these

programmes may be short-term, typically lasting 1-8 weeks (e.g. Harvard College in Asia Programme [HCAP]) or long-term, typically lasting one semester to one year (bilateral exchange programmes in European partner universities, e.g. IESEG, France). The students receive a complete tuition waiver for bilateral exchange programmes. In addition to the tuition waiver, Erasmus+ scholarships have been awarded to three of our students at Sciences Po, France and for six of our students who studied at School of Oriental and African Studies (SOAS), University of London, UK.

In particular, the true feather in the cap for St. Xavier's College has been their association with St. Catherine's College, University of Oxford (UK), for the Betty and Donald Keating Scholarship programme. This scholarship facilitates economically impaired students to study at St. Catherine's College for a short term, usually their Trinity Term, and covers all their expenses including travel, tuition, and accommodation. Since 2012, St. Xavier's College has been active in providing students with the opportunity to pursue this prestigious programme. Between 2012 and 2017, a total of 10 students of St. Xavier's College have been recipients of this prestigious scholarship.

### **Memoranda of understanding**

As of 2017, St. Xavier's College has signed a total of 28 memoranda of understanding (MoUs) to allow for transparency in the dissemination of information regarding terms of each exchange programme including costs to be incurred, duration of the course, number of students permissible, subjects to be studied by the students, terms of studentship at each participating institution, etc. Table 3 provides a comprehensive list of MoUs that St. Xavier's College has with its foreign partner universities.

### **Xavier's Student Feedback**

Students of St. Xavier's who previously participated in these international exchange programmes expressed

positive opinions regarding their experiences in these programmes; moreover, these programmes have helped several students to gain studentship at universities abroad, e.g. Master's- and Doctoral-level programmes. The students revealed that international exposure encouraged them to broaden their horizon regarding cultural perceptions and provided them novel insights into the subjects they studied in these programmes, which were not taught (either in entirety or partially taught) at St. Xavier's College. Furthermore, in accordance with feedback obtained, a sense of independence and enhanced interpersonal skill development was observed among sixteen students. However, two students expressed that shorter-duration (10 days or less) programmes are only of academic value and do not contribute to attaining employment. This was in contrast with students who studied from six weeks to one academic year (Table 4). A majority of students admitted that these programmes have aided in their decision regarding further studies either in the same or in different institutions. Data acquired from student feedback hence reveal that while employment has not been their ultimate gain through their participation in these programmes, it has surely helped them make informed decisions with regards to pursuing further studies abroad. In future, programmes increasing the employability of fresh graduates could be considered as potential projects to be undertaken at St. Xavier's College.

### Challenges

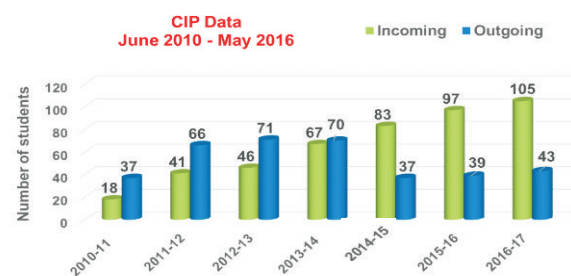
Despite the numerous successfully organised international exchange programmes, the CIP faces certain challenges. For instance, the timing and duration of the semesters at St. Xavier's College do not match those of their partner institutions in the USA and Europe. Furthermore, despite a complete tuition waiver, the overall cost of the programme continues to serve as a deterrent to student participation, thereby resulting in numerous drop-outs. Moreover, owing to the currency exchange rate, incoming students find it more economically viable to visit and study in India; hence, there is a numerical imbalance between the

incoming and outgoing students. While the transfer of credits is not feasible for an entire academic year, efforts have been invested in implementing the transfer of credits for one semester. Owing to the academic autonomy of St. Xavier's College, transfer of credits was successfully implemented in 2016-17 with Erasmus+ Scholarship for Xavier's students to study for one semester at SOAS, UK.

Housing of international students is problematic, since St. Xavier's College is unable to provide a dormitory facility. Furthermore, American students are not as adventurous as their European/Japanese/Australian counterparts for venturing into a completely new country and culture. Establishment of parallels between the design of courses and types of assessments seem problematic among partner institutions in the USA, since they do not recognise and transfer semester credits based on courses taught at St. Xavier's College.

### Conclusion

In conclusion, it has been established that internationalisation of education via student exchange programmes serve as an educational benefit to the participating students. Furthermore, not only academic development, but also overall development of a student's personality and/or tolerance towards foreign cultures is enhanced through student exchange programmes. The CIP at St. Xavier's College has been actively involved in establishing academically viable partnerships with various institutions worldwide, since 2004, to provide a holistic educational experience to both incoming and outgoing students. Notwithstanding numerous challenges, these programmes have indeed resulted in significant growth of students.



## TABLES

**Table 1. Programmes for incoming students at St. Xavier's College, Mumbai, between 2010 and 2017.**

Sr. No.	Programme	Institution (Country)	Years Active
<b>Short-term Programmes</b>			
1.	Summer Session Abroad Programme	Yale University (USA)	2010–
2.	Harvard College in Asia Programme (HCAP)	Harvard University (USA)	2010–
3.	Xavier's-Berkeley Summer Programme	University of California, Berkeley (USA)	2011–
4.	In Conversation	Stuttgart University (Germany); St. Louis University (USA); Stellenbosch University (South Africa)	2011– For Stellenbosch: 2013–
5.	Intensive English Language Course	Soka University (Japan)	2013–
6.	India Studies Programme	Notre Dame University (USA); University of Western Sydney (Australia)	2013– 2015–
7.	History of India Course	University of Sydney (Australia)	2016–
8.	Economics Programme	Regents of the University of California (USA)	2016–
9.	Courses in Humanities (B.A. curriculum)	St. John's College, University of Cambridge (UK)	2016–
10.	Hindi Language Course	Regents of the University of California (USA)	2017-

Sr. No.	Programme	Institution (Country)	Years Active
<b>Long-term Programmes</b>			
11.	1-semester to 1-year exchange programmes	IESEG School of Management (France)	2010–
		Sciences Po (France)	2010–
		Comillas Pontifical University (Spain)	2010–
		E. M. Normandie (France)	
		St. Louis University (USA)	2013–
12.	Ontario-Maharashtra-Goa (OMG)	Universities in Ontario (Canada)	2010–
13.	1-semester exchange programme	School of Oriental and African Studies (SOAS), London (UK)	2012–
14.	1-semester exchange programme	Soka University (Japan)	2014–

**Table 2. Programmes for outgoing students at partner institutions between 2010 and 2017.**

Sr. No.	Programme	Institution (Country)	Years Active
<b>Short-term Programmes</b>			
1.	India Leadership Exchange Programme	Stern Business School, New York University (USA)	2012–2015
2.	Harvard College in Asia Programme (HCAP)	Harvard University (USA)	2010–
3.	Betty and Donald Keating Scholarship Programme, Trinity Semester	St. Catherine's College, University of Oxford (UK)	2011–
4.	In Conversation	Stuttgart University (Germany); St. Louis University (USA); Stellenbosch University (South Africa)	2011– For Stellenbosch: 2013–

Sr. No.	Programme	Institution (Country)	Years Active
5.	Berkeley Summer Session	University of California, Berkeley (USA)	2011–
6.	Bioscience Summer Exposure	University of Bath (UK)	2012–
7.	Yale Summer Programme	Yale University (USA)	2011 –
8.	The Global Next Leaders' Forum	Tokyo University (Japan)	2013–
9.	Research Internship	University of Dundee (Scotland)	2015–
<b>Long-term Programmes</b>			
10.	1-semester to 1-year exchange programmes	IESEG School of Management (France)	2010–
		Sciences Po (France)	2010–
		Comillas Pontifical University (Spain)	2010–
		E. M. Normandie (France)	2015–
		EDHEC Business School	
		St. Louis University (USA)	2012–
11.	1-year exchange programme	Ontario-Maharashtra-Goa (OMG) Universities in Ontario (Canada)	2010–
12.	1-semester exchange programme	School of Oriental and African Studies (SOAS), London (UK)	2012–
13.	1-year exchange programme	Daegu Haany University (South Korea)	2016–

**Table 3. Memoranda of understanding (MoUs) of St. Xavier's College with partner institutions abroad.**

Sr. No.	Institution (Country)
1.	St. Louis University (USA)
2.	University of Notre Dame (USA)
3.	Harvard University (USA)
4.	University of California, Berkeley (USA)
5.	Regents of California Universities (USA)
6.	Santa Clara University (USA)
7.	New Jersey City University (USA)
8.	York University (Canada)
9.	Trinity Western University (Canada)
10.	Ottawa University, Kansas, (USA)
11.	E. M. Normandie (France)
12.	Sciences Po (France)
13.	IESEG School of Management (France)
14.	EDHEC Business School (France)
15.	Trinity College Dublin (Republic of Ireland)
16.	University of Glasgow (Scotland)
17.	Comillas Pontifical University (Spain)
18.	HMKW (Germany)
19.	University of Stuttgart (Germany); St. Louis University (USA); Stellenbosch University (South Africa); St. Petersburg University (Russia) for (Department of English)
20.	University of Sydney (Australia)
21.	University of Sydney (Australia) (Offshore Program)
22.	Western Sydney University (Australia)
23.	St. Catherine's College, University of Oxford (UK)
24.	St. John's College, University of Cambridge (UK)
25.	Daegu Haany University (South Korea)
26.	SOKA University (Japan)
27.	Sophia University (Japan)
28.	ERASMUS + Inter-Institutional Agreement a. Sciences Po (France) b. School of Oriental and African Studies (SOAS), London (UK)

**Table 4. Feedback obtained from students of St. Xavier's College, who participated in international exchange programmes, 2010 to 2017.**

Sr. No	Age (y)	Sex (M/F)	Year	University / Institute	Country	Period	Subjects studied	Benefits		
								Personal gains	Academic gains	Employability
1.	21	F	2017-2018	St. Louis University	USA	2 semesters	Virology; Animal Behaviour; Human Systemic Physiology; Evolutionary Biology; Neuroscience	+	+	N/A
2.	20	F	2016-2017	Harvard University	USA	8 days	Conference on "Mind, Body and Society: Global health challenges of the 21st Century"	+	+	N/A
3.	22	M	2016-2017	Carleton University	Canada	2 semesters	Principles of Biogeography; Evolutionary Ecology; Population Genetics; Animal Behaviour; Moral Psychology; Philosophy of Religion; Natural History of Ontario; Directed Studies (Project course)	+	+	N/A
4.	25	F	2011-2012	University of Oxford	UK	6 weeks (Trinity Term)	Neuroscience; Genetics	+	+	+
5.	20	F	2016-2017	Harvard University	USA	8 days	Conference on "Mind, Body and Society: Global health challenges of the 21st Century"	+	+	N/A
6.	23	F	2014-2015	Sciences Po	France	2 semesters	Economics and Business	+	+	+
7.	23	F	2014-2015	University of California, Berkeley	USA	6 weeks	Medical Parasitology (Theory and Laboratory); Marketing	+	+	+

Sr. No	Age (y)	Sex (M/F)	Year	University / Institute	Country	Period	Subjects studied	Benefits		
								Personal gains	Academic gains	Employability
8.	29	M	2009-2010	York University	Canada	2 semesters	Biochemistry	+	+	N/A
9.	24	F	2014-2015	York University	Canada	2 semesters	Biology of Cancer; Stem cells and therapeutics; Human molecular genetics; Current methods in biology; Neurobiology; Introductory marketing Health and aging; Applied marketing management; Leadership management skills; Methods in cell and molecular biology	+	+	+
10.	21	F	2016-2017	St. Louis University	USA	2 semesters	Physiology; The Process of Composition; Animal Behaviour; Neuroscience; Rhetorical Analysis; Public Speaking; Theatre; Film Culture and Literature; Archaeology; Forensic Science	+	+	N/A
11.	21	F	2016-2017	SOAS, University of London	UK	1 semester	Anthropology; Developmental Studies	+	+	N/A
12.	25	M	2011-2012	University of Oxford	UK	6 weeks (Trinity Term)	Population Genetics; Human Ecology	+	+	-
13.	22	F	2015-2016	Harvard University	USA	10 days	International conference on "Equality, Tolerance and Freedom: The Effect of Culture and Policy on a Globalized World"	+	-	-
14.	21	F	2017-2018	IESEG School of Management	France	2 semesters	Business Studies	+	+	N/A

Sr. No	Age (y)	Sex (M/F)	Year	University / Institute	Country	Period	Subjects studied	Benefits		
								Personal gains	Academic gains	Employability
15.	23	M	2014-2015	Harvard University	USA	10 days	International conference on "Building sustainable cities"	+	+	N/A
16.	21	F	2016-2017	Daegu Haany University	South Korea	1 semester	Meridian System in the human body; English; Taping therapy; Drug delivery systems	+	+	N/A

N/A=not applicable; + = gain; - = no gain.

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## **Political Organizations and Feudalism During the Rashtrakuta Period : A Key to Understanding the Extent of Art in the Empire**

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### **Abstract**

The following research paper deals with epigraphical evidences which indicate the extent of the Rashtrakuta rule from (8th- to 10th C.E) in Maharashtra, Andhra Pradesh, Karnataka and Goa. Due to the destruction of archaeological sites these inscriptions would help in locating new sites of the Rashtrakutas and shed light on their political administration, organization and religious cults. This paper will help in carrying out further research and excavations in unknown areas.

Keywords : Rashtrakutas, Political divisions, epigraphical evidences, numerical appellations.

### **Introduction:**

The imperial Rashtrakutas were the successors of the Chalukyas of Badami in the Deccan. They ruled from 740 AD to 973 AD. The Inscriptions of the Rashtrakutas reflect feudal monarchy. Though the earlier rulers of this dynasty such as Dantidurga, Krishna I, Govinda II, Dhruva, Dharavarsha and Govinda III were ambitious rulers this feudal monarchy created out of the existing traditional political system in the Deccan continued to be followed by the Mauryas, Satavahanas and the Chalukyas of Badami.

The Rashtrakuta inscriptions in Maharashtra reveal provincial divisions of their kingdom into Mandala, Desa, Visaya, Bhukti and divisions with numerals.

**1. Mandala:** The term Mandala was used to denote a territory given to a feudal chief, hence, the designation of a feudal chief as Mandalikas or Mahamandalesvaras. The Mandalas gave rise to a large number of feudatory states that increased when the senior positions of Divisional or Provincial governors became hereditary and their mandatories were being invested with feudatory titles like Maharaja, Samanta, Mahasamanta or Mandalesvara.

During the Rashtrakuta reign in Deccan, it became very difficult to state whether a particular

Mahamandalesvara was a real feudatory or a provincial viceroy with a feudatory title. In several localities defeated feudatories had been appointed as provincial officers in the empire of the conqueror.

Thus in 813 AD, Govinda III was the Rashtrakuta emperor, while his nephew Karkka was his feudatory, ruling over Southern Gujarat, and Sri-Buddhavarsha of Salukika family was governing Siharika 12 as a sub feudatory, to which position he was raised by the younger brother of Karkka.<sup>1</sup> This indicates that feudatories could create their own sub feudatories with the permission of the Emperor.

**2. Visaya :** The geographical term "Visaya" can be traced to antiquity, indeed to Panini's Ashtadhyayi, which was used between the 8th to 6th century BC".<sup>2</sup> According to Dr. A. S. Altekar, "The Visaya of our ancient records usually corresponded to the district of the modern administration, consisting of about a thousand to two thousand villages."<sup>3</sup> It has also been mentioned in one of the pillar inscriptions of Asoka.<sup>4</sup> "From this it appears that this geographical division was prevalent in North India during the Mauryan period. Thus, Visaya as a territorial division was prevalent from the times of the Satavahanas in South India."<sup>5</sup>

The Rashtrakuta era has only one inscription, which mentions a larger political division as a Desha, which

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was further, divided into Visayas and Bhuktis. According to the Vani - Dindori plates of Govinda III the gift of a village known as Ambakagrama was situated in the Vatarangora Visaya as a part of Nasika Desa<sup>6</sup>.

The inscriptions of the Chalukyas of Badami, Chalukyas of Kalyana and the Silaharas do mention Desa as an administrative division.<sup>7</sup>

However, Punaka Desa in the Rashtrakuta records is identified as Punya Visaya in the Pune<sup>8</sup> and Talegaon<sup>9</sup> copper plates of Rashtrakuta King Krishna I. So also Nasik has been identified as a desa in Vani Dindori plates of Govinda III,<sup>10</sup> and as a Visaya in the Dhule copper plate grant of Rashtrakuta King Karkaraja.<sup>11</sup> Hence Desa and Visaya could almost mean the same provincial administrative division under the Rashtrakutas. Perhaps the Chalukyas of Kalyana renewed their tradition of the Desa kind of provincial administration after the fall of the Rashtrakutas.

Under the Rashtrakutas, Mandala and Desa were larger divisions, which were subdivided into Visayas. A Visaya approximately included seven hundred to one thousand villages. The Visayas were further subdivided into Bhuktis, which consisted of three hundred to five hundred villages. This is indicated in the Samangad plate of Dantidurga<sup>12</sup>, which refers to 'koppara' as the division of Bhukti that has five hundred villages in it, while the Andhar plates of Rashtrakuta King Govinda III mentions Vadanera as a unit of three hundred villages.<sup>13</sup>

Divisions with numeric appellations also occur in the Rashtrakuta inscriptions. An administration unit comprise of three hundred villages to a unit of twelve villages have been observed. The Andhra plates of Rashtrakuta King Govinda VI, mentions Vadnera as the headquarters of three hundred villages.<sup>14</sup>

As the Rashtrakuta emperors were rapidly annexing territories the policy of centralized administration was abandoned, and a need was felt to appoint feudal chiefs who would assist them by rendering military

services. In return they were awarded fiefs for their loyalty and services. Often the old feudal chiefs who opposed them were forced to give up their lordship and make way for new chiefs to maintain the imperial structure.

From centralized administration a kind of decentralization of administration was evolving as in the case of North and South Konkan where Silaharas were appointed as feudal chiefs during the reign of Amoghavarsha I (814 – 880 AD). The province was also maintained by the feudatories under their suzerainty and assurance of their domain over the territory also continued. Rashtrakuta King Krishna III (939 - 967 AD) followed this policy. There is a verse in the Karhad plates of Krishna III dated saka 880, which describes this policy of creating new feudal elements in the imperial structure.

Further, the translation confirms the policy- “He (Krishna III), a powerful master of the science of politics, desirous of obtaining a lofty position, deprived some of the subordinate chiefs of their place and established others who were deserving, separated some from each other by producing disunion and united others and thus arranged them in a high and low position.”<sup>15</sup>

Perhaps the Rashtrakutas applied the four upayas of Sama, dāna, bheda and danda in their political administration. Nonetheless, an attempt has been made in the following chart to highlight the various sites in Maharashtra where the system of political divisions as mentioned in the Rashtrakuta inscriptions under the domain of the ruling kings under Mandala, Desa, Visaya, Bhuktis and centers with numerical appellations existed.

Such a system of decentralization and the appointment of feudal chiefs permitted access to the artisans from various parts of the empire. The feudatories and the merchant class patronized these artisans to build religious shrines.

Thus, these political divisions show the sway the

Rashtrakutas had over Maharashtra and Sanjan in Gujarat. The Manor copper plate which depicts a grant of Dantidurga mentions Sripura, which has been identified with Puri or Elephanta, which at one time, was a royal seat of North Konkan up to 1000 AD, indicating that the Kalachuris were the feudatories of the Rashtrakutas.

Some stray Jain shrines have also been found in Goa and the Konkan region which was ruled by the Silaharas of North Konkan who were the feudal lords under the Rashtrakutas.

Inevitably, these inscriptions that mention the political divisions show the dominion of the Rashtrakutas and even though non of them sacred or secular architecture has been found of the Rashtrakutas, future possibility of a discovery cannot be ruled out. For example - the Kandhar inscription displays the existence of structural monuments like Rajgriha, Shiva temples, a mandapa named Sarvalokasraj, an embankment named after Jagatunga, installation of water centers during summer and fire places in winter for the poor, market for Gujjaras (Gurjjara - apara), a much frequented market plate (Kshunna - hattika), courtesan's quarters (Pradnararaja - vilasinipataka), feeding houses and vidyasthanas on the river Nandi.<sup>16</sup>

The following table shows the administrative divisions during the Rashtrakuta period in Marathwada region, based on inscriptions which have revealed archaeological evidences of several Rashtrakuta sites.

But the study of the inscriptions has certain limitations. By the same measure in Andhra Pradesh and Karnataka, villages can be identified on the basis of these evidences. Hence new sites can be located to prove the feudal system under the Rashtrakutas. Undoubtedly, it will also indicate the consistency at which structural temples were built in the following states.

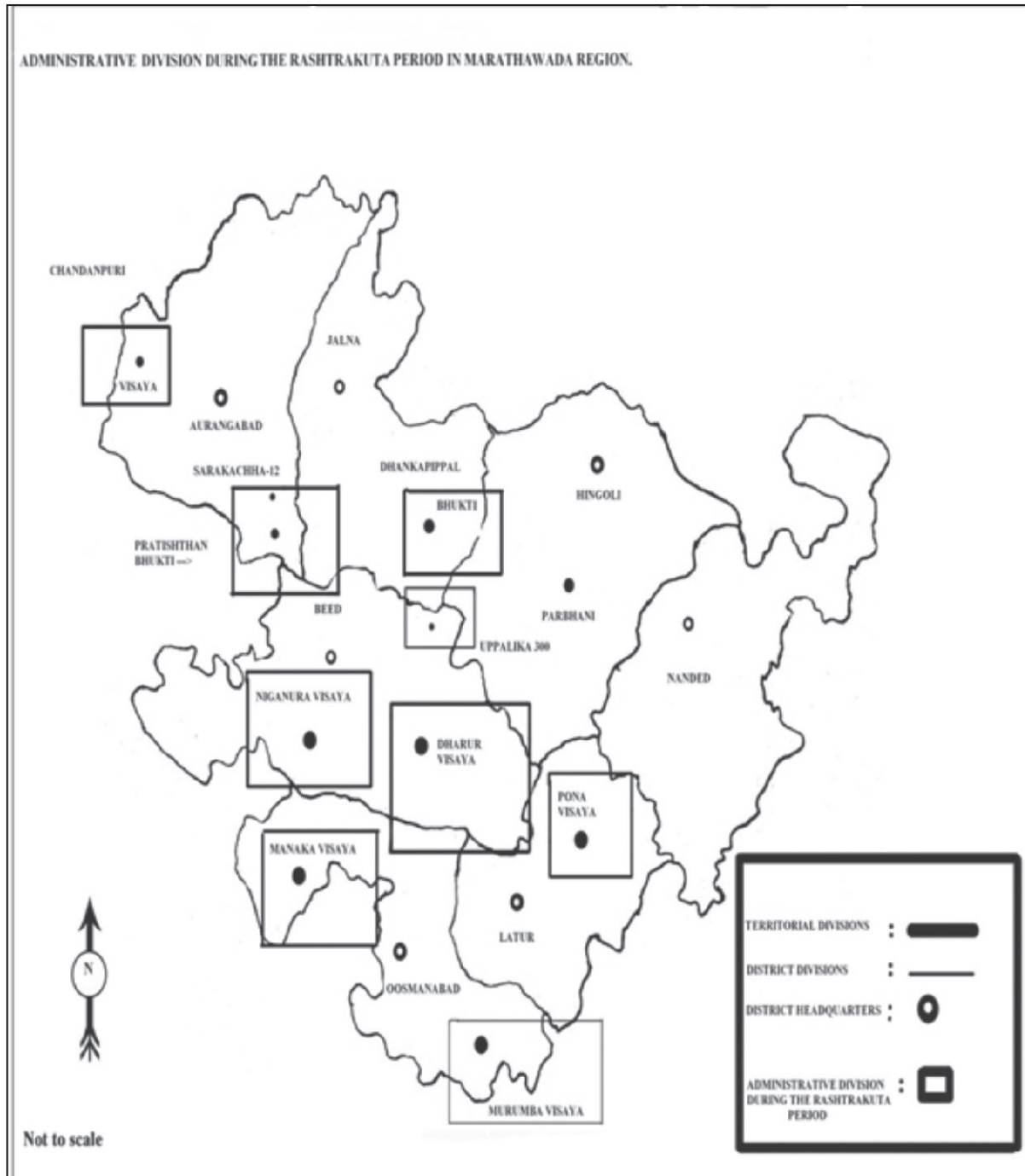
N.S. Ramachandra Murthy has identified numerical appellations occurring in the Rashtrakuta inscriptions

in Andhra Pradesh. He concurs that "epigraphs like Kanneluru inscription of Govinda II, the Halebidu inscription of Govinda III, the Manchala and Kummarapalli inscription of Krishna II, the Kamalapuram and Danavulapadu inscriptions of the time of the Nityavarsha Indra III, the Doddinakkola epigraph of Govinda IV and the Rameswaram inscription of Krishna III attest of the existence of Rashtrakuta power in Cuddapah and Kurnool districts<sup>17</sup>." The ancient territorial divisions to which they correspond are Sindavadi - 1000 in Kurnool district, and the Renadu - 7000 in Cuddapah district. Renadu corresponds to Jammalamadugu and Proddaturu talukas in Cuddapah district.

Inscriptions point out that, not only do the numerical appellations indicate places but also the names of the feudatories who governed these territories.

In the case of the Mahasamantas and Mahamandakesvaras "we find in inscriptions, attest that they ruled over the territories of Sindavadi - 1000, in Kurnool district. Renadu - 7000 in Cuddapah district, Turumora - Vishaya corresponding to Giddalur district like the Gooty Taluka, Kollipaka - 2000 in Nalgonda district, Sabbi - 2000 in Karimnagar district, the Vemulavada region, Koravi in Warangal district, Alampur in Mahboobnagar district and Hanumanakonda in Warangal district."<sup>18</sup>

**Figure No.1**  
**Administrative division during the Rashtrakuta period in Marathawada region**



These names help us further in locating the religious structures of the Rashtrakuta region in Andhra Pradesh and Karnataka.

**Inscriptional evidences of construction of Temples in Villages and mention of Political Divisions in Karnataka and Andhra Pradesh.**

**Table No. 1**

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God / Goddess Secular
1.	Dharavarsha (Dhruva I)	782 AD	Brahma Vira Vallabha	Talavanapura	Talkad in Mysore District	Rajasela - image of Bhagawati <sup>19</sup>
2.	Dharavarsha (Dhruva I)	782 AD	Mara of Madevur Governor of Banavasi	Banavasi 12,000	Kachavi (Hirekerur Tk., Haveri dist)	Goddess Maribbe of Kachchavi. <sup>20</sup>
3.	Prabhutavarsha	790 AD	Paramesvara Pallavahiraja Governor of Nolambage - 1000	Nolambage - 1000 Chikka Madhure	Challikere TK., Chitradurga dt.	Siva Temple <sup>21</sup> at Madarikal Gavaneshwar
4.	Prabhutavarsha	790 AD	Lokabbe?	Nolambage-1000 Nurgunda 300	ChallikereTk. Chitradurga Dt.	Siva Temple <sup>22</sup> Isvara
5.	Govinda III		Maharajas of Elupunuse and the administrators of Elamvalli	Javali	Hirekerur Tk.	Beladeva <sup>23</sup>
6.	Amoghavarsha I	865 AD	Kuppeyarasa ?	Shiggaon Elamvalli	Haveri Dt.	Aditya Bhatara <sup>24</sup> (Surya Temple)
7.	Amoghavarsha I		Bankeya the Governor of Banavasi	Shiggaon	Haveri Dt.	Kalkerati - Bhatri <sup>25</sup>
8.		859 AD	Bankeya	Banavasi 12,000	Arisina Hangal Tk. Dt. Haveri	Jalagarala <sup>26</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
9.	Amoghavarsha I Nripatunga		Amoghavarsha (Nripatunga) had a son by name Duddhaya who served as a Mandaliga (Mandalik)	Indavali Modalage Panneradu Mandalige	Ramdurg (Bellary Dt). <sup>27</sup>	
10.	Amoghavarsha I	860 AD	Bankeya	Konnuru	Konnur Nargunda Tk. Dt. Gadag	Basadi <sup>28</sup> record found in the Parameshwara Temple
11.	Amoghavarsha I		Bankeya, the administrator of Banavasi and Kupanna, the pergade of Nidugundage 12.	Nidugundage 12, Banavasi 12,000	Haveri Dt.	Mahadeva <sup>29</sup>
12.	Krishna II	875 - 76 AD	Mahasamant Prithviraja	Bastigudi Savadatti	Savadatti Tk. Belgaum Dt.	Jinendra Bhavan <sup>30</sup>
13.	Krishna II	897 AD	Mahasamants	Kogali 500 Maseyavadi 140 Meluvidu	Mevundi Mundrigi Tk. Gadag dt.	Koyagesvara <sup>31</sup>
14.	Krishna II	902 AD	Pargade Bittayya, Mahasamanta Lokateyarasa, the governor of Banavasi 12000	Bandalike	Bandalike Shikrapur tk. Shimoga dt.	Basadi <sup>32</sup>
15.	Krishna II	902 - 903 AD	Palasige 12000	Nandawadige	Hunugunda Tk Bagalkot Dt.	Temple of Mukkabasavanna <sup>33</sup>
16.	Akalavarsha		Nelliga, the nalgamunda of Basavur, when Lokate was administering Banavasi	Masalige, Banavasi	Masanagi (Byadgi Tk.) Haveri Dt.	Temple <sup>34</sup>
17.		904 AD	Vatsayya in charge of Sumka of Belvola 300	Belvola 300	Chinchili Gadag Tk. Gadag Dt.	Grant of a land temple of Isvara <sup>35</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
18.			Kuppedevarasa, an administrator	Purigere 300 Kogali 500 Maseyavadi 140	Mevundi Mundragi Tk Gadag Dt.	Land grant to temple of Kuppessvara <sup>36</sup>
19.	Krishna II	903 AD	Mahasrimanta Governor	Ponnugenda Belvola 300	Nandavdigi Hunugunda TkBagalkot Dt	Mahasrimanta Basadi <sup>37</sup>
20.	Krishna II			Masangi	Galpogi (Byadgi Tk) Haveri Dt.	Land to God Mahadeva <sup>38</sup>
21.	Krishna II		Lokate, a governor was the son of Pankeya, an officer.	Banavasi	Anaji (Hirekerur Tk) Haveri Dt.	Shrine? <sup>39</sup>
22.	Indra III	916 AD		Hiremaganurar Benuru Haveri		Tank and a temple to Isvara <sup>40</sup>
23.	Indra III	916-917 AD	Oilmen Jayasingayyasetti, Jummisetti (guild)		Hatti Mattur Haveri Dt.	Bhogeshwara <sup>41</sup>
24.		925 AD	Nagayya(?) Chandraprabha Bhattaraka administrator of Pasandi and Nagapuligavunda a village headman	Asundi	Asundi, Gadag Tk Gadag Dt.	Dhora Jinalaya <sup>42</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
25.		932AD	Kannara – a feudatory	Sindavadi 1000, Nandavara	Inscription found on the borders of the Bellary Dt. At Halharavi in Alur tk. Kurnool Dt. Andhra Pradesh	Basadi <sup>43</sup>
26.		918 AD	Chandiga (?)	Moraghe	Mogha (Chincholi Tk Gulbarga Dt)	Adityadeva Temple <sup>44</sup>
27.	Indra IV	918 AD	Kamarasa, the sunkaveggade of Edevolal 70 governed by Mahasamanta Bankeya	Edevolal 70	Havanagi, Hangal Tk. Haveri Dt.	God Kalideva <sup>45</sup>
28	Govinda IV	933 AD	Village headman of Kavujageri	Kavujageri Belvanike Evamgal	Kavageri, Ron Tk. Dt. Gadag	Temples and Mathas a. Ganesha b. Bhatari c. Kesava Degula d. Siddheshwara Degula <sup>46</sup>
29.	Govinda IV	931-932 AD	Kannaha Maharaja was governor (Krishna III)	Palasige 12,000 Tammavura	Tamburu	Hero Stone <sup>47</sup>
30.	Krishna III	939 AD	Mahasamanta Buddha	Edadore, Nalgamunda of Sagaranadu Srivolala	Sirivala (Shahapur Tk., Gulbarga Dt.)	Isvara Temple <sup>48</sup>
31.	Amoghavarsaha III	940 AD	Mahasamanta Kannarasa	Kadambalige 1000, Isamudra	Melghana Tk. Chitradurga Dt	Bhogeshwara <sup>49</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
32.	Krishna III	945 AD	Chakrayudha of Pavittage	Pavittage	Salotigi Indi Tk. Bijapur Dt.	Traipurusha Deva <sup>50</sup>
33.		946 AD	Nanniya Genga Bhutuga governed over Belvola 300 and Purigere 300	a. Kuritakamte b. Belvola 300 c. Purigere 300	Kurta kote Gadag Tk. Gadag Dt.	a. Adityadeva b. Mulasthanadeva <sup>51</sup>
34.	Krishna III	947 AD	Maharajas of Kurumgedu	Kurumgodu	Kudatini Bellary Tk. Bellary Dt.	Dekamma <sup>52</sup>
35.		947 AD		Kallambunase	Lakshmisagara Chitradura Dt. / Tk	Somanatha <sup>53</sup>
36.	Krishna III	958 - 950 AD		Atakuru	Athnura Bellary Tk Bellary Dt	Challesvara <sup>54</sup>
37.		950 AD	Ganga Bhutuga II, the governor of Gangavadi	Governor of Gangavadi	Naregal (Ron Tk. Gadag Dt.)	Basadi <sup>55</sup> Danasale
38.		951 AD	Pergade Achappayya and GavundaSannakatt eyamma	Soratavura	Suratura Gadag Tk Gadag Dt.	Matha <sup>56</sup>
39.		962 AD		Chitradurga	Ramasagara on the Jatinga Rameshwara Hill, Chitradurga Tk, Chitradurga Dt.	Brick Temple Lingaśivijaya <sup>57</sup>
40.		964 AD	Kannaya, an officer	Kodambalige 1000	Isvara temple at Adanura K Ondesvam	Kartesvara (Shiva) <sup>58</sup>
41.		964 AD	Mahasamantadhipati Sankaragandarasa	Kupana	Belageri Koppal Tk Koppal Dt.	Basadi <sup>59</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
42.	Krishna III	965 AD	Krishna III conferred Tardavadi 1000 divisions on Taila parasa or Taila II, the founder of the dynasty of the Chalukyas of Kalyan	Narasalage in Muttage 30, Tardavadi 1000	Narsalgi in Bagewadu <sup>60</sup> Bijapur Dt. <sup>61</sup>	
43.	Krishna III			Nidagunda	Nidagunda Gulbarga Dt.	Navakoti <sup>62</sup> Narayana Temple
44.	Krishna III	943 AD	Mahasamantadhipati Ekkalavira, Bhimaparasa, governor of Banavasi	Banavasi 12,000	Badamalli Haveri Dt. <sup>63</sup>	
45	Krishna III	946 AD	Jagadekamalla Marasimha feudatories Ganga Marasimha II		Ichchangi <sup>64</sup>	
46	Krishna III	947 - 48 AD	Mahasamanta Kalivitta Feudatory	Banavasi, Kuppaturmadu	Dhundasi, Sorab Tk., Kuppatur, Shimoga Dt. <sup>65</sup>	
47.	Akalavarsha	968 AD	Sudrakayya governor of Kadambalige 1000	Gunderu, Kadambalige 1000, Karavadi 300	Gunderi (Holalkeri Tk) Chitradurga Dt.	Sidilesvara Temple <sup>66</sup>
48.	Khottiga	958 AD	Mahasamanta Padiga	Kakmbal	Kyasapura, Chitradurga Tk, Chitradurga Dt.	Basadi <sup>67</sup>
49.	Khottiga	969 AD		Nagavi	Nagavi (Gadag Tk.) Gadag Dt	Rameshwara Temple <sup>68</sup>
50.	Khottiga	970 AD	Gangara Vatsyya		Savadi Ron. Tk. Gadag Dt.	Sivalinga and Goddess Bhagavati <sup>69</sup>
51.	Khottiga	971 AD	Santa Gavunda	Aihole	Aihole	Temple <sup>70</sup>
52.	Khottiga	971 Ad	Gadsdhara of Bhattatala Village	Kottitone	Kuditini Bellary Tk. Bellary Dt.	Skanda known as Kumaraswami <sup>71</sup>

Sr. No	Rashtrakuta King	Date	Names of Feudatories or Offices	Village / Political Division	Identification of Talukas / Districts	God /Goddess Secular
53.	Khottiga	967 AD	Gadadhara from Gaud (Bengal)	Kolgal	Kolgal Bellary Tk, Bellary DT <sup>73</sup>	Tanks & installed images of Maheswara, Surya, Vishnu, Parvati and Vinayak. <sup>74</sup>
54.		971 - 72 AD	Feudatory Permanadi Marasimha, governor Panchala, the administrator of Sebbi	a. Gangavadi b. Belvola 300 c. Purigere 300 d. Sebbi 300	a. Adargunchi Hubli Tk Dharwad Dt. b. Chabbbi, South of Adargunchi	Malligesvara <sup>75</sup>
55.		973 - 74 AD		Kadakeri	Haveri Dt. Hanagal Dt.	Mahadeva <sup>76</sup>
56.		974 AD	Permmnadi Marasinghadeva governor of Eradarunuru	Eradarunuru	Gudur Hanagal Tk. Haveri Dt.	Mahadeva <sup>77</sup>
57.	Krishna II	975 AD			Hebbala Shirahatti Tk Haveri Dt	Siva Temple <sup>78</sup>
58.		859 AD	Gift of land by several gamundas constructed by Pollabbe	Kadarla - mandlagi	Kadarlaman dlagi Ranibennur Tk. Haveri Dt.	Nagulavasadi (Jalagarala Basadi) <sup>79</sup>

This detailed table provides epigraphical evidences of the construction of temples, Basadis, tanks and Rajasale in different villages. These constructions were patronized by Mahasamantas, Mahasrimanta Paragade or an officer, village headman, by oil guilds, governors, Nalagamunda or higher administrators.

In the table, numerical appellations of the places as mentioned in the inscriptions are also given. "Banavasi 12,000, Nolambage 1000, Nirgunda 300, Kogali 500, Maseyavadi 140, Palasige 12,000, Purigere 300, Kogali 500, Belvoal 300, Sindavadi 1000, Edevolal 70, Kadambalige 1000, Belvola 300, Muttage 30, Kravadi 300, Sebbi 300, Taradavadi 1000 have been mentioned. Sindavadi 1000 is an area,

which falls in the Bellary District in Karnataka and Kurnul district of Andhra Pradesh. Sumka may have been a smaller division under a political division with a higher numerical appellation. The officer-in-charge of the Sumka may have been referred to as sunkaveggade who may have governed a Mahasamanta. Hence, a record of Rashtrakuta Indra IV dated 918 AD at Havanagi (Haangal Tk.) registers a gift of lamp to god Kalideva by Kamarasa, and the sunkaveggade of Edevolal 70, which was governed by Mahasamanta Bankeya".<sup>72</sup>

An attempt has been made to locate the districts in which these villages or political divisions have been mentioned. One can also understand the worship of

**Conclusion:**

The dynasty which had such a large empire distinguished itself further by issuing well over 100 copper-plates. These records are in Sanskrit and some in Kanarese. This inscriptional data is important not only for understanding the political history of the dynasty, but also of the material culture of that period. There are various references to various villages and administrative units. The researcher has tried to segregate and identify a few locations in Maharashtra. Grants to temples in these administrative units will help identify new Rashtrakuta temples and sites in Maharashtra and Karnataka. However the researcher expresses her inability to translate Rashtrakuta inscriptions from Kannada to English and hence tracing site in Karnataka and Andhra Pradesh was not possible. However, few tables have been created for further research in this field. The administrative division referred to in the Rashtrakuta records comprised mainly of mandala, deśa, nadu, rashtra, vishaya, bhukti and grama and divisions with numerals. A philosophical study has helped in relocating a few places on the basis of these inscriptions.

Through these sources one can understand the extent of Rashtrakuta art, an example of which would be the administrative division on the Marathawada region. Such provincial divisions show the evolution of the administrative system during the Rashtrakuta period and shows that in spite of introducing a centralized system the decentralization led to the introduction of feudal chiefs like the Silaharas of North and South Konkan who apparently promoted art and architecture in the Rashtrakuta territory occupied by them. This concept helps understand the activity of the Rashtrakutas as feudal lords at Ellora under the Chalukyas of Badami before they gained the imperial status. It also helps us solve the misconception of the creation of art at Elephanta by the Kalachuris which then leads us to the factor of economic development and activities during the Rashtrakuta phase. Political alliances and diplomatic relations with the neighbouring kingdoms created an open avenue for

Śrenis or guilds which travelled freely from different states, which then resulted in the exchange of art styles, traditions and religious ideologies. It also led to the improvement of arts.

Hence the feudal chiefs may have been responsible for promoting the art during the Rashtrakuta period. For example the inscription from Mulgund dated 880AD which was referred to, records a gift by four heads of a guild belonging to 360 towns. With the administrative setup of a guild and its extension in 360 towns and villages. Evidence of such guilds could indicate their manipulation in creating and influencing art of the Rashtrakuta period. This further proves the fact that the existence of Jain Basadis in Konkan, which the researcher found were a result of such transactions and interactions of guilds. The sculptures found here had a Rashtrakuta Karnata stylistic feature and may have been brought from Karnataka region into Sindhudurga.

This study of the inscriptions has certain limitations. Only the records of the Rashtrakutas have been examined in Maharashtra, Karnataka and Andhra Pradesh. The records of the feudatories of the Rashtrakutas like the Silaharas, Kalachuris in Maharashtra, the Ganga records, the Nolamba inscriptions and the Jantara epigraphs have not been looked into. Being contemporaneous with the Rashtrakutas, they occupied a feudatory status. Perhaps temples were being built at the same consistent rate, which in effect would mean that throughout these three states, temple construction activity had become a regular phenomenon during the Rashtrakuta era. Thus by conducting an archaeological survey with the help of these epigraphical records more Rashtrakuta monuments can be discovered in future.

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## **An Analysis of Cotton Crop Insurance in India with Special reference to Maharashtra: Causes and Concerns**

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### **Abstract :**

Crop Insurance is a crucial incentive and safeguard for farmers. Crop Insurance is also a part of Green Box Subsidy as per WTO notifications. However, it has been observed that Indian farmers are not sufficiently covered under the insurance provision.

In this paper, an attempt has been made to understand the reason for the poor insurance cover offered to Indian farmers specifically cotton growers. The data on Cost of Cultivation, Minimum Support Price(MSP) also collected to discover the reasons for farmers slowly moving from cotton cultivation to other crop cultivation.

Maharashtra being the largest area under cotton production faces altogether different problems. The primary survey of 5 villages in Marathwada and Vidarbha revealed that more than 80 percent of the farmers are not aware of insurance schemes. The Indian Government and specifically Maharashtra Government need to frame policies by considering the core issues of the cotton growers.

Key words: Cotton, Crop Insurance, Cost of Cultivation, Minimum Support Price

### **Introduction**

Crop Insurance is a very important safeguard as well as incentive for farmers. There are basically two insurance policies viz. Weather Based and Price Based. The Indian government has come with Pradhan Mantri Fasal Bima Yojana in February 2016. It envisages a uniform premium of only 2 per cent to be paid by farmers for Kharif crops, and 1.5 per cent for Rabi crops. The premium for annual commercial and horticultural crops will be 5 per cent. It has been observed that with a higher premium on cash crop, the extent of insurance for cash crop is relatively lower than other than crops (Table 4). Previously, the Central Government formulated the Farm Income Insurance Scheme (FIIS) during 2003-04. The two critical components of a farmer's income are yield and price. FIIS targeted these two components through a single insurance policy so that the insured farmer could get a guaranteed income. The scheme provided income protection to the farmers by insuring production and market risks. The insured farmers were ensured

minimum guaranteed income (that is, average yield multiplied by the Minimum Support Price). If the actual income was less than the guaranteed income, the insured would be compensated to the extent of the shortfall by the Agriculture Insurance Company of India. The FIIS was withdrawn in 2004. It is also found though a primary survey in Maharashtra that farmers who have taken crop insurance linked with the Minimum Support Price (MSP) hardly benefitted as the price hardly falls below MSP and the cost of production is much higher than the MSP. In another scheme, the Government of India experimented with a comprehensive crop insurance scheme which failed. It is also found during the primary survey by the authors that during a spate of natural calamities, all farmers, insured as well as non-insured are benefitted as the government is considerate enough to make good their losses. Secondly, it is also pointed by farmers that the corruption level is so high that rich farmers manipulate the data easily and manage to get all the benefits from the government even though they are not making losses. Because of all these reasons,

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the crop insurance schemes failed in India.

Private insurance companies are also reluctant to venture into this area, considering the risk, high cost of production and unsatisfactory profit. It is observed that in India the crop insurance schemes failed badly previously due to many factors such as very high risk, high cost and low profit. In this paper an attempt has been made to focus primarily on cotton in Maharashtra.

### **Literature Review of Crop Insurance at the International Level**

Glauber (2013) stated in the research article that as farm prices have risen, crop revenue insurance coverage based on expected prices has offered more protection compared to fixed-price supports in more traditional farm programs such as counter-cyclical payments and marketing assistance loans. This has also meant a change in the distribution of benefits among commodity groups, and helps explain why insurance supplements are more popular with corn, wheat and soybean producers than with rice and cotton producers.

Hazell (1992) researched on crop insurance programmes in developing countries and designed a scheme that would prove to be effective in rural low income areas as well. Hazell suggested a simple lottery scheme which would provide insurance against catastrophic weather events. Hazell critiqued the multiple-risk crop insurance programmes that in turn has proven to be least pocket friendly. If the government would only liberalise the sector and enable more private sectors to take over and provide financial soundness, schemes that would insure farm assets, the well-being and health of rural people and other such often perils could be provided by the private sector. He even brings out another element where he states that the farmer can grow cash crops that can maximise his profits in spite of the risks, he can adopt new and alien technologies as long as he is assured of any losses too in order to increase the value added from agriculture.

Smith (2017) examined the initiatives of the US government over the past years. There were mainly three major initiatives, the 1980 Federal Crop Insurance Act, 1994 Federal Crop Insurance Reform Act and the 2000 Agricultural Risk Protection Act. He also comments on the efficiency of each of these programmes and how one is better than the other. He brings in the concept of 'systemic risks' and how insurance providers are often unable to meet the crop failure and casualties. He concludes by stating that farmers are encouraged to take more risky production techniques and business methodologies; and how insurance providers benefit out of the subsidized insurance provided. He says that for every dollar of insurance paid, 40 cents are provided to the insurance companies.

### **Literature Review of Crop insurance at India Level**

Mosley and Krishnamurthy (1995) in their article assessed the performance of the Indian Comprehensive Crop Insurance Scheme from 1985 to 1993 in relation to a recent critical hence of literature which argues that comprehensive agricultural insurance is subject to insuperable moral hazard obstacles. The Indian scheme has made heavy financial losses; on the benefit side, sample data from Andhra Pradesh suggest that some farmers have converted to yield-raising techniques as a result of the presence of the insurance scheme, but that the scheme has not brought about any improvement in loan repayment performance, even though that was the scheme's explicit objective. They concluded that, to work properly, the scheme requires an increase in premiums and a reduction in the range of risks covered.

Sarangi (2016) in his research studied the insurance covers through time lines and discussed new insurance instruments and how insurance acts as a key component in risk management strategies. He discussed the two pronged insurance in India, one of these prongs of insurance being a government objective. He studied the various schemes that were

designed, the total sum that was insured. Along with this, he discussed the various issues related to crop insurance in India and concluded by drawing solutions like ensuring the legality of insurance providing companies, strong relations with insurance companies, and adequate financial base of the insurer.

This paper reviews the Weather Based Crop Insurance Scheme and its theoretical benefits by critiquing why it failed to achieve the envisaged numbers in India. The paper also explains how, along with pricing being one of the key determinants, financial literacy also plays a major role to educate the farmer so that he becomes more aware of the framework of the schemes. And then he goes on to discuss the various schemes that were ever introduced, analyses the current situation of where India stands and why a change is essential. A global trend has also been discussed that includes an in depth study of East African countries like Ethiopia and Senegal; Brazil and from these arrived at the 'Best Global Crop Insurance Practices'.

### Objectives:

1. To understand the reasons for low and insufficient insurance cover for cotton in India.
2. To understand the role of cost of cultivation and MSP in determining Crop Insurance coverage.

### Data and Methodology

The secondary data on Crop Insurance, cost of production, MSP for the empirical analysis is collected from the Ministry of Agriculture & Farmers Welfare, Govt. of India and Directorate of Economics and Statistics, DAC&FW. The primary data on Crop Insurance, cost of production is collected from five villages in Marathwada and Nanded districts in Maharashtra, primarily cotton growing regions during May to July 2016.

Table 1: Crop-wise Gross Area Sown and Insured under All Insurance Schemes in India

(2012-2013 to 2015-2016)

(Area in Lakh Hectare)%age of Area Insured				
Crops	2012-13	2013-14	2014-15	2015-16
Paddy	24.57	21.97	23.5	25.84
Wheat	21.18	26.13	25.46	27.98
Coarse Grains	20.37	17.66	23.67	23.38
Sugarcane	5.85	5.6	2.67	4.14
<b>Cotton</b>	<b>11.32</b>	<b>10.7</b>	<b>12.92</b>	<b>12.17</b>
Jute and Mesta	0.63	0.46	8.18	0.43
Oilseeds	33.8	38.53	35.96	44.01
Pulses	30.09	29.46	26.27	29.94
Vegetables	13.33	18.61	37.92	36.62
Fruits**	14.88	3.31	40.08	9.54
Others	-	-	-	9.73
<b>Area under All Crops</b>	<b>22.84</b>	<b>21.98</b>	<b>22.51</b>	<b>26.11</b>

Source: Ministry of Agriculture & Farmers Welfare, Govt. of India. (ON1162) & (ON1367)

Note : \* : Using latest available data for Gross Cropped Area for 2012-13.

\*\* : Area Insured Under Fruits doesn't Include Data Pertaining to HDFC ERGO.

From Table 1, it is evident that the insured area under cotton has not increased from 2012 to 2016 so is the case with other cash crops. On the contrary, the area under insurance for other crops has increased significantly for the same period.

It is observed from Table 2 that cotton despite having maximum production cost doesnot have relatively comparable crop insurance. For example, although the crop insurance for Sugar cane is less, so is the cost of production. Similarly, for oilseeds, the cost of production is high but the percentage of insurance is also high in such cases. It shows that market price, profit margin, perishability and dependency on nature all these factors play a very important role in determining insurance.

From Table 3, it is evident that cotton production has declined over a period of time. But the cost has increased and the insurance is relatively less.

From Table 4, it is evident that although Maharashtra is having maximum land under cotton cultivation, the yield is much lower compared to other states. The reason could be very low percentage of area under irrigation only 2.7 percent in Maharashtra. Cotton cultivation in Maharashtra is confined to relatively arid land of Maharashtra viz. Marathwada and Vidarbha. Very less as well as erratic rain fall has caused heavy damage to cotton growers in Maharashtra till date.

**Table 2: Cost of Crop Production**

Season/Crop-wise C2 Cost and Rate of Increase (%) in Cost (C2) in India									
(2007-2008 to 2015-2016)									
Crops	(Rs. Per Quintal)								
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
<b>Kharif Crops*</b>									
Arhar (Tur)	1513.82	1609.08	2197.00	2422.00	2702.00	4167.00	3958.00	4214.00	4272.00
Bajra	598.27	642.93	658.00	768.00	840.00	1059.00	1003.00	1075.00	1154.00
Cotton	2110.53	2087.72	2111.00	2129.00	2528.00	2772.00	3533.00	3480.00	3767.00
Groundnut	1483.62	1659.10	1879.00	2100.00	2633.00	3714.00	3398.00	3880.00	4195.00
Jowar (Hybrid)	724.27	764.63	804.00	965.00	1141.00	1612.00	1648.00	1788.00	1929.00
Maize	601.33	679.64	738.00	790.00	921.00	1070.00	1112.00	1165.00	1223.00
Moong	1981.03	2293.13	2705.00	3109.00	3373.00	4699.00	4759.00	4971.00	5025.00
Nigerseed	-	-	2368.00	2264.00	2945.00	4555.00	3628.00	3480.00	4068.00
Paddy (Common)	594.63	618.76	645.00	742.00	888.00	1152.00	1234.00	1267.00	1324.00
Ragi	805.10	832.17	861.00	1107.00	1271.00	1884.00	1687.00	1794.00	2069.00
Sesamum	2176.13	2497.78	3035.00	2847.00	3393.00	4186.00	4134.00	4812.00	5189.00
Soyabean (Black)	-	-	1200.00	1298.00	1560.00	2343.00	2216.00	2226.00	2418.00
Soyabean (Yellow)	1058.39	1180.88	-	-	-	-	-	-	
Sunflower Seed	2004.32	2010.93	1915.00	2257.00	2795.00	3698.00	3679.00	3863.00	4114.00
Urad	1740.68	1994.33	2257.00	2490.00	2799.00	4334.00	4112.00	4317.00	4483.00
<b>Rabi Crops**</b>							-	-	
Barley	524.75	554.51	608.00	677.00	734.00	862.00	1035.00	1065.00	1089.00
Gram	1281.70	1386.69	1641.00	1902.00	2121.00	2328.00	2865.00	2981.00	3102.00
Lentil (Masur)	1270.80	1333.51	1626.00	2191.00	2592.00	3162.00	2760.00	2952.00	3098.00
Rapeseed and Mustard	1200.98	1197.54	1276.00	1520.00	1786.00	1987.00	2368.00	2455.00	2605.00
Safflower	1486.13	1605.21	1884.00	2038.00	3322.00	3338.00	3501.00	3685.00	3734.00
Wheat	573.58	624.46	701.00	826.00	927.00	1066.00	1109.00	1147.00	1163.00
<b>Others***</b>							-	-	
Jute	1052.08	1090.82	1193.00	1301.00	1496.00	1808.00	2160.00	2251.00	2632.00
Sugarcane	75.59	75.86	81.00	90.00	102.00	148.00	185.00	193.13*	203#

Source: Indiatat

**Table 3: Production of Commercial Crops**

Season-wise Production of Commercial Crops in India						
(2014-2015 to 2016-2017-2nd Advance Estimates)						
(In Lakh Tonne)						
Crops	Season	2014-2015	2015-2016		2016-2017	
			2nd Advance	Final	Targets	2nd Advance
			Estimates			
Groundnut	Kharif	59.30	57.29	53.68	64.30	70.54
	Rabi	14.71	14.52	13.66	20.70	14.18
	Total	74.02	71.81	67.33	85.00	84.72
Castorseed	Kharif	18.70	17.27	17.52	22.00	17.38
Sesamum	Kharif	8.28	8.32	8.50	9.00	8.21
Nigerseed	Kharif	0.76	0.79	0.74	1.15	0.85
Rapeseed & Mustard	Rabi	62.82	68.35	67.97	85.00	79.12
Linseed	Rabi	1.55	1.38	1.25	1.60	1.42
Safflower	Rabi	0.90	0.78	0.53	1.60	0.59
Sunflower	Kharif	1.11	0.67	0.66	2.40	0.87
	Rabi	3.23	2.68	2.30	6.10	1.54
	Total	4.34	3.35	2.96	8.50	2.41
Soyabean	Kharif	103.74	91.34	85.70	136.15	141.25
Total Nine Oilseeds	Kharif	191.89	175.68	166.80	235.00	239.10
	Rabi	83.21	87.70	85.71	115.00	96.86
	Total	275.11	263.39	252.51	350.00	335.96
Cotton \$	Total	348.05	306.92	300.05	360.00	325.07
Jute #	Total	106.18	98.92	99.40	110.00	96.21
Mesta #	Total	5.08	5.10	5.83	7.00	4.43
Jute & Mesta #	Total	111.26	104.02	105.24	117.00	100.63
Sugarcane	Total	3623.33	3463.85	3484.48	3550.00	3099.84

Note : \$ : Lakh bales of 170 Kgs. each.  
# : Lakh bales of 180 Kgs. each.

Source : Ministry of Agriculture and Farmers Welfare, Govt. of India.

**Table 4: Cotton: Area, Production and Yield during 2014-15 and 2015-16 in major Producing States alongwith coverage under irrigation**

Area		Million Hectares									
Production		Million Bales(170kg.each)									
Yield		Kg./Hectar									
	2015-16#					2014-15					Area under irrigation (%) <sup>*</sup> 2013-14
	Area	% to All-India	Production	% to All-India	Yield	Area	% to All-India	Production	% to All-India	Yield	
Maharashtra	3.83	32.24	6.50	21.56	289	4.19	32.69	7.00	20.11	284	2.7
Gujarat	2.72	22.91	9.70	32.18	606	2.77	21.63	10.50	30.17	644	58.7
Telangana	1.77	14.94	3.86	12.80	370	1.71	13.36	3.80	10.92	377	12.6

Source: Directorate of Economics and statistics, DAC&FW

# Forth Advance Estimate

\*Provisional

**Table 5: Minimum Support Price (MSP) of Cotton (According to Crop Year)**

(As on 15.11.2016)(Rs. per quintal)

Sl. No.	Commodity	Variety	2012-13	2013-14	2014-15	2015-16	2016-17
1	Cotton	Medium Staple	3600	3700	3750	3800	3860

Source: Directorate of Economics and Statistics, DAC&FW

From the Table 5, it is clear that the MSP for cotton has not increased significantly.

**Table 6: Cost Estimates of Cotton 2013-14**

Crop	State	Cost of Cultivation (Rs/Hectare)		Cost of Production (Rs / Quintal)	Yield (Quintal/Hactare)
		A2+FL	C2		
Cotton		A2+FL	C2	C2	
	Maharashtra	55242.69	73232.07	4036.48	17.93
	Gujarat	50667.14	70673.49	3344.53	20.82
	Andhra Pradesh	56853.57	83491.53	4252.82	19.63

Source: Directorate of Economics & Statistics, DAC & FW

It is evident from the Table 6 that the cost of cultivation is much higher in Maharashtra and Andhra Pradesh than the MSP in 2013-14. The difference between the cost of cultivation and MSP has widened further as per the primary survey done by the authors.

### Analysis of the primary survey

For the primary survey, we covered around 5 villages from Amravati District in Vidarbha and 5 villages in Nanded District in Marathwada which is a neighboring district. Nanded has a Cotton Research Centre as well as Agriculture University. The primary questions focused on areas pertaining to land; usage of fertilizers, chemicals, pesticides, hybrid seeds and irrigation; cost and revenue analysis of cotton business; and awareness about government schemes and subsidies.

It is surprising to know that a majority of the farmers are not aware of the subsidies and various schemes of the government. The major problems mentioned by farmers are input subsidy, loan disbursement and lack of control by the government on dubious agriculture

products such as low quality fertilizers, pesticides in the market.

### Some of the other observations are as follows:

- While 82 percent of the farmers are of the opinion that insurance from theft, fire and natural calamity is necessary, 83 percent of the farmers were found to have not availed of any insurance services that are available.
- 86 percent of the farmers said that usage of water, pesticide and fertilizer had increased after using hybrid seeds for cotton cultivation.
- Upto 43 percent of the farmers have not availed of any training or informative services.
- The cost of cotton production per quintal was

7000-8000 Rs/- in Vidarbha and the market price was in the range of 3500-3900 Rs/- per quintal which is half of the cost of production.

- Farmers have already switched over to other crops such as Sugarcane, Tur dal and Soya beans.

### Observations:

1. It is evident that the insured area under cotton has not increased from 2012 to 2016 as is the case with other cash crops. On the contrary, the area under insurance for other crops has increased significantly for the same period.
2. Cotton despite having maximum production cost does not have relatively comparable crop insurance. It shows that the market price, profit margin, perishability of the crop and dependency on nature all these factors play a very important role in determining insurance.
3. Cotton production as well as the area under cotton has declined over a period of time. But the cost has increased and the insurance is relatively less.
4. Though Maharashtra is having maximum land under cotton cultivation, the yield is much lower compared to other states. The reason could be that a very low percentage of area is under irrigation only 2.7 percent in Maharashtra.
5. MSP for cotton has not increased significantly
6. The cost of cultivation is much higher in Maharashtra and Andhra Pradesh than the MSP in 2013-14 which contributed to the maximum suicide cases of cotton farmers occurring in Maharashtra and Telangana.
7. The primary survey of Maharashtra reveals that 82 percent of the farmers are of the opinion that insurance from theft, fire and natural calamity is necessary but 83 percent of the farmers were

found to have not availed of any insurance services that are available.

8. It is also found during the primary survey that due to extremely high production cost and insufficient MSP and market rate, farmers have already switched over to other cash crops such as Sugarcane.
9. In Telangana, the state government has requested farmers not to produce cotton.

### Conclusion:

In a nutshell, the crop insurance can not be the sole saviour of farmers. The Government of India needs to study the problems of cotton growers thoroughly to come up with a concrete solution.

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## Aarey Milk Colony Mumbai as Forest Territory - A Status Report

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### Abstract

The flora of the Aarey Milk Colony area was studied to verify whether it falls in the category of "Forest". The flora and fauna were studied. The literature survey followed by the Field survey reveals that the Aarey colony area once upon a time was an extension of Sanjay Gandhi National Park, Mumbai and can be very well put into the category of forest objectives of Data Collection.

Key words: Aarey Colony, Vegetation, Forest.

### Introduction

In the month of June 2017, the author was approached by The Aarey Conservation group. They requested the Botany Department, St. Xavier's Mumbai to conduct the survey of the Aarey area and give their opinion on the Status of Aarey vegetation and comment on whether this vegetation could be classified as "Forest" or not.

### The research was carried out with the following objectives

1. To study the status of Aarey Vegetation
2. To find out the correlation between Aarey vegetation and Sanjay Gandhi National Park (SGNP) vegetation, if any.

Aarey Milk Colony (AMC), established in 1949, is situated in Goregaon East, a suburb of Mumbai, and covers an area of about 12.8 sq. km. The AMC consists of more than 30 cattle production units with a total capacity of over 15,000 heads of cattle. This area has a grassland and scrub environ with a few hillocks, possessing two perennial and one seasonal pond as well as many seasonal streams. The maximum elevation recorded in the area is about 100 m. The vast pastures of the Marutian Para grass (*Brachiaria mutica*) are maintained and harvested as fodder for cattle. Film City is located to the north of Aarey Colony and at the southern border of the Sanjay Gandhi

National Park. (Mirza & Sanap, 2010).

### Research Methodology

The survey of vegetation was carried out by conducting field visits at Aarey Colony during the monsoons of the year 2017. Three field visits were conducted. Plant samples were recorded, collected, identified and processed as per standard Herbarium Procedure (Bridson & Forman, 1999). The Literature survey was carried out at the Blatter Herbarium library. Satellite images were downloaded and studied in order to verify the existence of vegetation at Aarey in the past.

### Discussion and Analysis

The Aarey Colony area is contiguous with Sanjay Gandhi National Park (SGNP) to its north. The floral and faunal composition of this area is therefore similar to that of the Sanjay Gandhi National Park (SGNP), but, in the absence of protection afforded to the National Park, the vegetation here is largely degraded and highly disturbed due to human activities. The various habitats in the Colony include scrub forest, seasonal freshwater marshes, hillocks with various degrees of plant cover, rocky outcrops, grassland and scrub interrupted by human settlements and these are host to a variety of life forms, thus making this area a biodiversity rich in Mumbai. (Mirza & Sanap, 2010).

The forest here is of mixed moist deciduous type and

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is dominated by *Tectona grandis* (Saag), *Bombax ceiba* (Lal-kate savar), *Butea monosperma* (Palash), *Pongamia pinnata* (Karanj), *Cassia fistula* (Bahava), *Ziziphus mauritiana* (Bor), heavily intermixed with exotic species such as *Eucalyptus* (Nilgiri), *Gliricidia sepium* (Undir-mar, Rat Poison tree), *Delonix regia* (Gulmohar) and *Lantana camera* (Ghaneri). The area experiences a maximum temperature of 36°C in summer and a minimum of about 11°C in winter with maximum recorded rainfall of about 950 mm. (Mirza, 2014)

### Aarey Colony Vegetation - Forest?

The term “forest” is rather ambiguous; it is used to describe vegetation types ranging from the dense, impenetrable “tropical forests” to the scanty vegetation of “scrub forests” which cover large tracts in our country.

The Oxford Dictionary defines the term “Forest” as a “Large tract covered chiefly with trees & undergrowth”; or “unenclosed woodland district kept for hunting”. Going by this definition, the vegetation at the entire Aarey Colony falls under the category of “FOREST”.

### Implementation of Forest (Conservation) Act, 1980

#### 1. Definition.

(i) The term 'Forest land' mentioned in Section 2 of the Act refers to reserved forest, protected forest or any area recorded as forest in the government records. Lands which are notified under Section 4 of the Indian Forest Act would also come within the purview of the Act. (Supreme Court Judgment in case of National Thermal Power Corporation Ltd. It would also include “Forest” as understood in the dictionary sense (Supreme Court order dated 12.12.1996 in WP No.202/1995-Annexure-I). All proposals for diversions of such areas to any non- forest purpose, irrespective of its ownership, would require the prior approval of the Central Government.

The Blatter Herbarium at St. Xavier's College, (Autonomus), Mumbai has been involved in the study of the Aarey Colony and SGNP area almost since its inception in the early 1949. Under the guidance of Late Dr. Rev. Fr Santapau S.J., the first Director of the Botanical Survey of India, Calcutta after Independence and Director of the Blatter Herbarium, a number of students have worked for their masters or doctoral thesis on the Sanjay Gandhi National Park, which is the only National Park in the world situated within the city limits of a metropolis. In 1963, a research student of Fr. H. Santapau S.J., Mr. S.C. Tavakari submitted a thesis entitled, 'Flora of Aarey Milk Colony' for his M.Sc. degree. Tavakari's studies show that Aarey has 530 species of flowering plants including trees (97 species); shrubs (97 species); herbs (270 species); climbers (46 species); twinners (19 species) and one epiphyte (Tavakari, 1963).

Recently Mirza and Sanap (2010), Mirza (2014) have surveyed the Aarey Milk Colony and Film City Area and their report has been submitted to the Government of Maharashtra and Forest Department. The Students and Faculty of the Botany Department, St. Xavier's College, Mumbai of their own interest and love for plants, conducted three field trips to Aarey Colony during July-August 2017 and recorded around 200 species and the following observations (list appended at the end).

1) In the Aarey Milk Colony, vegetation includes species like *Careya arborea* (Kumbhi), *Bridelia retusa* (Asana), *Casearia tomentosa* (Modgi), *Combretum ovalifolium*, *Getonia floribunda* (Ukshi), *Helicteres isora* (Murud sheng), *Holarrhena pubescens* (safed Kuda), *Schleichera oleosa* (Kusum), *Wrightia tinctoria* (Kala Kuda) and about 100 other species which are recognized by botanists and foresters as being “forest species”. These indigenous species have survived by self-propagation and have not been planted but for a few exceptions where nature-lovers have planted indigenous varieties.

2) We have observed species like *Butea superba* (Palas Vel) a *liana* (woody climber) which does not

occur outside forests. The presence of epiphytic orchids species and lichens also an indicator of natural vegetation.

3) A survey of the leopard population of SNGP by Nikit Surve, Research Student of the Wildlife Institute of India has reported at least two leopards in the area. [‘Ecology of leopards in SGNP with special reference to its abundance’]. Besides SNGP, the Aarey Colony-Film City area frequently witnesses human-leopard conflict. (Surve, N., 2015)

4) At least five new species of spiders have been described from Aarey colony in the last decade. Two new species of jumping spider, *Langelurillus onyx* and *Langelurillus lacteus*, discovered in 2016 (Sanap et al., 2017); the second species, *L. lacteus* known to occur only in this locality. The discovery is also significant in terms of biogeography as a first for any African genus spider species found in Asia. Another new species of trapdoor spider, *Idiops rubrolimbatus* Mirza & Sanap and a species, *Idiops bombayensis* Siliwal et al., known only from three locations in Maharashtra, have been reported from the area in 2012. The genus *Haploclostus* (trapdoor tarantulas) is endemic to India and one of the species *H. validus* Pocock has been reported from Aarey in 2011. *Dictis mumbaiensis* Ahmed et al., and *Peuceitia phantasma* Ahmed et al., were described in 2015. The discovery of these species in a crowded metropolis like Mumbai showcases the unique ability of spiders to hold on to any and every available niche for survival, while emphasizing the need for localized biodiversity documentation efforts, so as to better understand the number of species inhabiting the region, before attempting any conservation action plan. (Mirza & Sanap, 2012; Ahmed, J. et al., 2015a & 2015b).

5) A new species of scorpion, *Lychasa areyensis*, was reported from the area in 2010 and another species, *Orthochirus bastawadei*, which is endemic to Maharashtra, was reported from the area in 2011. (Mirza & Sanap, 2010).

6) The satellite image of the Aarey Milk colony area

which is not under construction or is cultivated, is similar to that of SNGP; the Aarey Colony in fact was once an extension of SNGP. (Google Earth, Aarey, 1984).

Moreover, the area provides invaluable environmental benefits:

The Aarey Colony area, pastures as well as forests, serve to absorb excess rainwater, thus reducing flooding and raising the ground water level.

The dust layer on leaves of trees and shrubs in Aarey Colony, except those along the roads with heavy traffic, is much less as compared to trees in Mumbai city. The dust on leaves reduces the rate of photosynthesis and hence lowers the intake of carbon dioxide and the output of oxygen. This means that in the non-monsoon months (approx. Oct.-June) a tree in Aarey Colony therefore gives out more oxygen during daytime than the same tree growing along Mumbai's roadside. The area therefore is an important “green lung” for the metropolis which is already reeling under heavy air pollution.

### Conclusion:

Our observations clearly indicate that the vegetation of Aarey Milk Colony is a continuation of SGNP and is an ecologically sensitive zone. The presence of forest tree species, lianas, the presence of predator species like leopard along with spiders, scorpions and other invertebrates reported from this area, confirm and support our conclusion. Supreme Court's decision on the definition of forest further supports our remarks.

Looking at the level of pollution in the city of Mumbai and health problems related to this pollution, the only solution is to increase the green cover of the city. If we cannot increase the green cover due to lack of space, then it is all the more urgent and necessary that we preserve the existing green cover.

Hence, we urge the concerned authorities to help preserve this pristine Forest area of Aarey Milk Colony, and to look at other alternatives for developmental

purpose.

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**List of Plant species recorded at Aarey Colony area during July-August 2017 by the Blatter Herbarium Team (R. Chaudhari, S. Gupta, M. Dabak. M. Mistry & R. D. Shinde)**

Sr. No.	Botanical Name of the plant ( <i>Genus species</i> author)	Family	Common name	Medicinal
1	<i>Abelmoschus manihot</i> (L.) Medic.	Malvaceae	Ranbhendi	Toothache cure
2	<i>Abutilon indicum</i> (L.) Sweet.	Malvaceae	Atibala	Dysentery and urinary treatment
3	<i>Acacia catechu</i> (L.f.) Willd.	Mimosaceae	Khair	Anti-fungal and anti-viral, leprosy treatment
4	<i>Acampe praemorsa</i> (Roxb) Blatter & McCann	Orchidaceae	Kanphoden	Anti-rheumatism
5	<i>Achras sapota</i> L.	Sapotaceae	Chickoo	Laxative, anti-inflammatory
6	<i>Achyranthus aspera</i> L.	Amaranthaceae	Chirchita	Cure from bite of mad dog
7	<i>Adansonia digitata</i> L.	Malvaceae	Baobab	Astringent, demulcent and diaphoretic
8	<i>Aegle marmelos</i> (L.) Correa.	Rutiaceae	Bel	Anti-tumour, abscesses and cytotoxic
9	<i>Allamanda cathartica</i> L.	Apocynaceae	Golden trumpet	Anti-cancer, anti-fungal
10	<i>Alternanthera sessilis</i> (L.) R. Br. ex DC	Amaranthaceae	Garundi	Anti-ulcer, cure from snake-bites
11	<i>Amaranthus blitum</i> L.	Amaranthaceae	Livid amaranthus	Astringent, tumour and warts treatment
12	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Kante bhaji	Diuretic and anti-pyretic
13	<i>Amorphophallus commutatus</i> (Schott) Engl.	Araceae	Mogri kand	Anti-bacterial, scabies
14	<i>Ampelocissus latifolia</i> (Roxb.) Planch.	Vitaceae	Pani-bel	Anti-Dysenteric and cures dental problems
15	<i>Anisomeles heyneana</i> Benth.	Lamiaceae	Gopali	Anti-cancer, astringent, anti-inflammatory
16	<i>Anisomeles indica</i> (L.) Kuntze	Lamiaceae	Kala bhangra	Natural herbicide, diaphoretic, astringent
17	<i>Antidesma acidum</i> Retz.	Phyllanthaceae	Rohitaka	Dysentery, bile complaints, pneumonia treatment

18	<i>Argemone mexicana</i> L.	Papaveraceae	Mexican poppy	Anti-oxidant, hepato-protective
19	<i>Argyrea nervosa</i> (Burm.f.) Bojer.	Convolvulaceae	Ghav bel	Gangrene treatment, cures wounds
20	<i>Biophytum sensitivum</i> (L.) DC.	Oxalidaceae	Lajalu	Cough, asthma, stomach ache, snake-bite
21	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Gadha-cand	Diuretic, anti-ageing, immunity booster
22	<i>Borassus flabellifer</i> Linn.	Arecaceae	Tad	Cure diarrhea
23	<i>Brassica nigra</i> (L.) K.Koch	Brassicaceae	Rai	Rubefascent, stimulant, vesicant
24	<i>Breynia retusa</i> (L.) A. Juss.	Phyllanthaceae	Cup-saucer	Used in conjunctivitis
25	<i>Bridelia retusa</i> (Dennis.) Alston	Phyllanthaceae	Asana	Anti-rheumatic
26	<i>Butea superba</i> Roxb.	Fabaceae	Palas Vel	Anthelmintic, aphrodisiac
27	<i>Calotropis gigantea</i> (L.) Dryand.	Apocynaceae	Safed aak	Induces vomiting and astringent
28	<i>Canavalia gladiata</i> (Jacq.) DC.	Leguminosae	Badi sem	Anti-oxidant
29	<i>Canna inidica</i> L.	Cannaceae	Kardal	Gonorrhoea treatment, diuretic
30	<i>Canscora diffusa</i> (Wall.) R. Br. ex Roem. & Schult.	Gentianaceae	Kilwar	Nerve tonic, laxative
31	<i>Cansjera rheedei</i> J.F. Gmel.	Opiliaceae		Anti-bacterial
32	<i>Capparis sepiaria</i> L.	Capparaceae	Kanthari	Skin diseases, febrifuge and tonic
33	<i>Capparis zeylanica</i> L.	Capparaceae	Govindi	Treats boils and swellings
34	<i>Careya arborea</i> Roxb.	Lecythidaceae	Kumbhi	Snake bite antidote, CNS depressant, anti-tumour
35	<i>Carrisa spinarum</i> L.	Apocynaceae	Wild karanda	Menstrual complaints and kidney problems
36	<i>Caryota urens</i> L.	Arecaceae	Fish tail palm	Laxative, hemi crania, acid
37	<i>Cascabela thevetia</i> (L.) Lippold	Apocynaceae	Peeli kaner	Emetic, loosens bowel movements
38	<i>Casearia tomentosa</i> Roxb.	Salicaceae	Modgi	Dog-bite and snake-bite cure
39	<i>Casuarina equisetifolia</i> L.	Casuarinaceae	Sura	Sedates mentally ill and aggressive conditions
40	<i>Catheranthus roseus</i> (L.) G. Don.	Apocynaceae	Sadaphuli	Wasp sting, anti-cancer

41	<i>Celosia argentea</i> Linn.	Amaranthaceae	Cockscomb	Anthelmintic
42	<i>Chelocostus speciosus</i> (J. Konig) C. Specht.	Costaceae	Spiral ginger	Treatment of asthma and bronchitis
43	<i>Cissampelos pareira</i> L.	Menispermaceae	Paatha	Anti-epileptic, bronchitis reliever
44	<i>Cissus woodrowii</i> (Stapf ex Cooke) Santapau	Vitaceae	girnul	-
45	<i>Cleome chelidoniif</i>	Cleomaceae	Spider flower	Ear infection, anthelmintic
46	<i>Cleome viscosa</i> L.	Cleomaceae	Baghra	Paratyphoid, gonorrhoea and anti- fungal
47	<i>Cocculus hirsutus</i> (L.) W.Theob	Menispermaceae	Farid buti	Applied externally to relieve burning sensation
48	<i>Coix lacryma-jobi</i> L.	Poaceae	Samkru	Improves Spleen function and promotes urination
49	<i>Coldenia procumbens</i> L.	Boraginaceae	Tirpunkhi	-
50	<i>Combretum albidum</i> Roxb.	Combretaceae	Pewar Wel	Diuretic and CNS depressant
51	<i>Commelina benghalensis</i>	Commelinaceae	Bengal day flower	Snake bite, leprosy, bitter tonic
52	<i>Commelina paleata</i> Hassk.	Commelinaceae	-	-
53	<i>Commelina undulata</i> R. Br.	Commelinaceae	Long leaf day flower	Anti-cancer
54	<i>Corchorus capsularis</i> L.	Malvaceae	Pattasak	Stimulates cardiac insufficiency, paroxysmic tachycardia
55	<i>Cordia dichotoma</i> G. Forst.	Boraginaceae	Lasora	Anti microbial, hypothermic and diuretic, astringent
56	<i>Crinum latifolium</i> L.	Amaryllidaceae	Gadabi kanda	Anti-TB, burns, scalds
57	<i>Crotalaria filipes</i> Benth.	Fabaceae	Phat Phati	-
58	<i>Crotalaria linifolia</i> L. f.	Fabaceae	-	-
59	<i>Curculigo orchioides</i> Gaertn.	Hypoxidaceae	Ran haldi	Anti-cancer, asthma, impotency
60	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Amarvel	Diphtheria
61	<i>Cyanthillium cinerium</i> (L.) H. Rob.	Asteraceae	Sahadevi	Diuretic
62	<i>Cyanthillium cinerium</i> (L.) Less.	Asteraceae	Sadodi	Anthelmintic, dropsy, piles

63	<i>Cyclea peltata</i> (Lam.) Hook.f & Thomson	Menispermaceae	Raj patha	Anti-malarial, vasodilator and hypersensitivity suppressor
64	<i>Cyphostemma auriculatum</i> (Roxb.) P.Singh & B.V. Shetty	Vitaceae	Kali vel	Snake-bite, burns treatment
65	<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Sisau	Dyspepsia, leprosy, obesity, worms
66	<i>Delonix regia</i> Raf.	Caesalpiniaceae	Gulmohar	Anti-inflammatory
67	<i>Dillenia pentagyna</i> Roxb.	Dilleniaceae	Karmal	Scorpion bites, diarrhea and dysentery
68	<i>Dioscoria bulbifera</i> L.	Dioscoreaceae	Zimikand	Hunger suppressant, piles
69	<i>Diospyros melanoxylon</i> Roxb.	Ebenaceae	Coromandel ebony	Astringent, blood purifier, carminative
70	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Bhringraj	Hepatotoxic, anti-viral, antiseptic
71	<i>Ensete superbum</i> (Roxb.) Cheesman	Musaceae	Wild banana	Leucorrhoea, dysuria
72	<i>Eranthemum roseum</i> (Vahl.) R.Br.	Acanthaceae	Gulsham	Antimicrobial
73	<i>Eriocaulon heterolepis</i> Steud.	Eriocaulaceae	Button head pipewort	-
74	<i>Erythrina stricta</i> Roxb.	Fabaceae	Pangara	Anti-inflammatory
75	<i>Euphorbia pulcherrima</i> Willd. ex. Klotzsch	Euphorbiaceae	Poinsettia	Anti-bacterial, emetic, skin disorders
76	<i>Euphorbia thymifolia</i> L.	Euphorbiaceae	Chota dudhi	Bitter diuretic, venereal diseases
77	<i>Evolvulus alsinoides</i> (L.) L.	Convolvulaceae	-	Reducing stress, antipyretic, brain tonic.
78	<i>Exacum tetragonum</i> Roxb.	Gentianaceae	Udi chirayat	antipyretic
79	<i>Ficus amplissima</i> Sm.	Moraceae	Pipali	Anti-cancer, colic, diuretic
80	<i>Ficus benghalensis</i> L.	Moraceae	Banyan	Anti-diabetic, anti-fertility activity, used against cholera
81	<i>Ficus drupacea</i> Thunb.	Moraceae	Burali-wad	Vulnerary, wounds
82	<i>Ficus hispida</i> Linn.	Moraceae	Kala umbar	Anti-cancer, purgative, emetic
83	<i>Ficus religiosa</i> L.	Moraceae	Peepal	CNS stimulant., relaxant, smallpox

84	<i>Ficus tinctoria</i> G. Forst.	Moraceae	Datir	Dressing for broken bones, post-natal immunity
85	<i>Ficus virens</i> Aiton.	Moraceae	White fig	estrogenic
86	<i>Firmiana colorata</i> (Roxb.) R.Br.	Malvaceae	Kaushi	-
87	<i>Firmiana simplex</i> (L.) W.Wight	Malvaceae	Chinese parasole tree	Anti-phlogistic, expectorant and refrigerant
88	<i>Flacourtia india</i> (Burm.f)Merr.	Salicaceae	Athruna	Treatment of snake bites
89	<i>Gardenia resinifera</i> Roth.	Rubiaceae	Dikamali	Antiseptic, astringent, stimulents
90	<i>Garuga pinnata</i> Roxb.	Burseraceae	Kakad	Conjunctival opacities, stomachic
91	<i>Geissaspis cristata</i> Wight & Arn.	Fabaceae	Eyelashes shellbeans	-
92	<i>Getonia floribunda</i> Roxb.	Combretaceae	Uski	Leprosy and antimalarial
93	<i>Gloriosa superba</i> L.	Colchicaceae	Glory lily	Anti-parasitic, skin disease, lice killing in hair
94	<i>Gmelina arborea</i> Roxb.	Lamiaceae	Sivan	Throat swelling, syphilis, urticaria
95	<i>Gomphrena celosoides</i> Mart.	Amaranthaceae	Bachelor's button	Respiratory problems and skin infections
96	<i>Grewia abutifolia</i> Vent. ex Juss.	Malvaceae	Kirmith	-
97	<i>Grewia tiliifolia</i> .Vahl.	Malvaceae	Dhaman	Antibiotic, skin and intestinal infection treatment
98	<i>Haldina cordifolia</i> (Roxb.) Hook. F.	Rubiaceae	Haldu	Night blindness, CNS depressant, cholera
99	<i>Helicteres isora</i> L.	Malvaceae	Murud sheng	Anti dysenteric, astringent, scabies
100	<i>Heliotropium indicum</i> L.	Boraginaceae	Hathajori	Anti-inflammation and anti-tumour
101	<i>Heliotropium marifolium</i> J.Koenigx Retz	Boraginaceae	Seaforth marifolium	Anti-microbial
102	<i>Hemidesmus indicus</i> (L.) R. Br. ex Schult.	Apocynaceae	Anantamul	Antilithic, anti-viral, anti-leucorrhea
103	<i>Hibiscus vitifolius</i> L.	Malvaceae	Van Kapus	Jaundice cure
104	<i>Holarrhena puebscens</i> Wall. ex Don	Apocynaceae	Pandra kuda	Anti-diarrhea, anti-cancer, abdominal tumors

105	<i>Holostema ada-kodien</i> Schult.	Apocynaceae	Chirvell	-
106	<i>Hygrophila auriculata</i> (Schumach.) Heine	Acanthaceae	Bhankari	Dysuria, urinary calculi
107	<i>Hygrophila serpyllum</i> T. Anderson	Acanthaceae	Sarpat	Anti diarrhea and anti-dysenteric
108	<i>Hymenodictyon excelsum</i> (Roxb.) Wall.	Rubiaceae	Latikarma	Smallpox, febrifuge, atropy
109	<i>Hyptis suaveolens</i> (L.) Poit	Lamiaceae	Jungli tulas	Anti-inflammatory and anti-plasmodial
110	<i>Impatiens balsamina</i> L.	Balsaminaceae	Terada	Anti-immuno suppressive, cathartic and diuretic
111	<i>Impatient minor</i> (DC.) Bennnet.	Balsaminaceae	Lesser minor	Insect-bite and bee-bite
112	<i>Iphigenia indica</i> (L.) A. Gray ex Kunth	Colchicaceae	Indian grass lily	Anti-cancer, breast cancer, colic, headache
113	<i>Ipoemea eriocarpa</i> R. Br.	Convolvulaceae	Shankhpushi	Anti-rheumatism, anti-epileptic
114	<i>Ipomea aquatica</i> Forssk.	Convolvulaceae	Water morning glory	Leprosy, fever, eye infection
115	<i>Ipomoea triloba</i> L.	Convolvulaceae	Little bel	-
116	<i>Ixora arborea</i> Rox. ex. Sun	Rubiaceae	Jilpai	-
117	<i>Jasminum malabaricum</i> Wight	Oleaceae	Malabar jasmine	Respiration difficulties
118	<i>Jasminum sambac</i> (L.) Aiton	Oleaceae	Mogra	Ulcer, breast tumour, eye sight
119	<i>Justicia procumbens</i> L.	Acanthaceae	Karambal	Diuretic and anthelmintic
120	<i>Lagerstroemia speciosa</i> Pers.	Lythraceae	Taman	Antidiabetic, edema
121	<i>Leea asiatica</i> (L.) Ridsdale	Leeaceae	Banchalita	Treatment of guinea worms
122	<i>Leea macrophylla</i> Roxb. ex Homen	Leeaceae	Hathikana	Painkiller, ringworms, sores
123	<i>Lepidagathis cuspidata</i> Nees.	Acanthaceae	Spiny lepidagathis	Anti-fungal, antioxidant
124	<i>Lepidium sativum</i> L.	Brassicaceae	Akalam	Asthma and bronchitis cure
125	<i>Lindernia ciliata</i> (Colsm.) Pennell	Linderniaceae	Fringed lindernia	Jaundice, cure for menorrhagia
126	<i>Lindernia crustacea</i> (L.) f. Muell.	Linderniaceae	Brittle false pimpnel	Dysentery, boils, itches
127	<i>Lindernia multiflora</i> (Roxb.) Mukerjee	Linderniaceae		-

128	<i>Lobelia alsinoides</i> Lam.	Campanulaceae	Chickweed lobelia	-
129	<i>Madhuca indica</i> var. <i>latifolia</i> (Roxb.) A. Chev	Sapotaceae	Mahua	Antidiabetic, tonsillitis, skin diseases
130	<i>Malachra capitata</i> (L.) L.	Malvaceae	Van bhendi	Anti-diarrheal
131	<i>Mallotus pallidus</i> (Airy Shaw) Airy Shaw	Euphorbiaceae	-	-
132	<i>Mangifera indica</i> L.	Anacardiaceae	Amba	Anti-bacterial, anti-diarrheal and anti-fungal
133	<i>Manilkara hexandra</i> (Roxb.) Dubard	Sapotaceae	Rhayeni	Dental disorders, odontopathy
134	<i>Melochia corchorifolia</i> L.	Malvaceae	Tiki okra	Abdominal swelling, relieves chest pain and headache
135	<i>Meyna laxiflora</i> Robyns.	Rubiaceae	Pundrika	Diphtheria, abortifacient
136	<i>Miliusa tomentosa</i> (Roxb) J. Sinclair	Annonaceae	Hoom	Cold sore treatment
137	<i>Millingtonia hortensis</i> L.f.	Bignoniaceae	India cork tree	Anti-pyretic, anti-phlogistic
138	<i>Mitragyna parvifolia</i> (Roxb.) Korth.	Rubiaceae	Kaim	Muscular pain, fever, colic
139	<i>Morinda citrifolia</i> L.	Rubiaceae	Noni	High blood pressure, haemorrhage
140	<i>Mucuna pruriens</i> (L.) DC.	Fabaceae	Khaad-khujli	Snake bite, intestinal disorders
141	<i>Murdannia nudiflora</i> (L.) Brenan.	Commelinaceae	Doveweed	Burns, boils and sores treatment
142	<i>Murdannia spirata</i> (L.) G. Bruckn	Commelinaceae	Asiatic dew flower	-
143	<i>Neanotis foetida</i> Hook. f.	Rubiaceae	Foetid star violet	Digestive problems, expectorant, astringent
144	<i>Nelumbo nucifera</i> Gaertn.	Nelumbonaceae	Kamal	Antidote for poisons, cardiac tonic, sedative in uterus
145	<i>Nymphaea pubescens</i> Willd.	Nymphaeaceae	Water lily	Anti-diabetic
146	<i>Operculina turpethum</i> (L.) Silva Manso	Convolvulaceae	Nasotta	Scorpion sting, snake bite, purgative
147	<i>Orthosiphon thymiflorus</i> (Roth) Sleesen	Lamiaceae	Ran- tulsi	Anti-rheumatic, jaundice treatment

148	<i>Passiflora foetida</i> L.	Passifloraceae	Jhumka lata	Anti-microbial
149	<i>Peltophorum pterocarpum</i> (DC.) Backer	Fabaceae	Sonmohar	Cough treatment
150	<i>Peristrophe bicalyculata</i> (Retz.) Nees	Acanthaceae	Kali- anghedi	Bone fracture and anti-bacterial
151	<i>Phoenix sylvestris</i> Roxb.	Arecaceae	Shindi	Tonic, cooling, toothache cure and restorative
152	<i>Physalis minima</i> L.	Solanaceae	Chirboti	Diuretic, ear ache, gonorrhoea
153	<i>Plumeria rubra</i> L.	Apocynaceae	Gulachin	Anti-bacterial, uterine stimulant, hypoglycemic
154	<i>Pogostemon parviflorus</i> Benth.	Lamiaceae	Pangli	Antidermatophytic
155	<i>Polyalthia longifolia</i> (Sonn.) Thwaites	Annonaceae	False ashok	Cytotoxic function and anti-ulcer activity
156	<i>Portulaca oleracea</i> L.	Portulacaceae	Common purslane	Anti-inflammatory
157	<i>Pouzolzia zeylanica</i> (L.) R. Br.	Urticaceae	Graceful puozolz's bush	Cicatrizant for gangrenous ulcers, boils
158	<i>Rhamphicarpa fistulosa</i> (Hochst) Benth	Scrophulareaceae	Tutari	Insect repellent
159	<i>Ruellia tuberosa</i> L.	Acanthaceae	Iron root	-
160	<i>Rungia pectinata</i> (L.) Nees	Acanthaceae	Sut	Small pox treatment, pain reliever, treats swells
161	<i>Salacia chinensis</i> L.	Celastraceae	Chinensis Salacia	Anti-oxidant
162	<i>Schleichera oleosa</i> (Lour.) Merr.	Sapindaceae	Kusum	Ulcer cure, pimples and freckles, hair growth promoter, acne cure
163	<i>Scoparia dulcis</i> L.	Scrophulareaceae	Meethi patti	Ague, emetic
164	<i>Semicarpus anacardium</i> L.f.	Anacardiaceae	Bibba	Leprosy, nervous debility, vesicant
165	<i>Senna tora</i> (L.) Roxb.	Fabaceae	Takla	Laxative and treat arthritis
166	<i>Sida acuta</i> Burm. f.	Malvaceae	Baraira	Diuretic, febrifuge and sexual debility
167	<i>Sida rhombifolia</i> L.	Malvaceae	Sahadeva	Relieves headache
168	<i>Smilax zeylanica</i> L.	Smilacaceae	Kumarika	Gonorrhoea and skin diseases

169	<i>Solanum americanum</i> Mill.	Solanaceae	Glossy nightsade	Cervical cancer, anti-viral
170	<i>Solanum anguivi</i> Lam.	Solanaceae	Amb-keli	Anthelmintic, analgesic, emmenagogue
171	<i>Solanum indicum</i> L.	Solanaceae	Barhanta	Anti-inflammatory
172	<i>Spathodia campanulata</i> P. Beauv.	Bignoniaceae	African tulip tree	Antioxidant, stomach ache, anti-malarial
173	<i>Spermacoce mauritiana</i> O. Gideon	Rubiaceae	-	Anti-malarial and kidney disorder
174	<i>Spermacoce verticillata</i> L.	Rubiaceae	Shrubby false buttonweed	Emetic and abortive
175	<i>Sphaeranthus indicus</i> L.	Asteraceae	Gorakh mundi	Epilepsy and mental illness
176	<i>Sterculia villosa</i> Roxb.	Malvaceae	Hairy sterculia	Anti-inflammatory
177	<i>Streblus asper</i> Lour.	Moraceae	Sand paper tree	Anti-dysenteric, anti-cancer and scurvy
178	<i>Strobilanthes callosa</i> Nees.	Acanthaceae	Karvi	Parotitis and emollient
179	<i>Tacca leontopetaloides</i> (L.) Kuntze	Dioscoreaceae	Deva kand	Stops internal haemorrhage in stomach and colon, relief in body ache
180	<i>Tamarindus indica</i> L.	Caesalpiniaceae	Imli	Carminative, bile problem and laxative
181	<i>Tectona grandis</i> Linn. f.	Verbenaceae	Sag	Laxative and good for piles
182	<i>Thespesia lampas</i> (Cab.) Dalzell	Malvaceae	Van kapas	Treatment of gonorrhoea and syphilis
183	<i>Tinospora sinensis</i> (Lour.) Merr.	Menispermaceae	Malabar gulbel	Anti-diabetic
184	<i>Trema orientalis</i> (L.) Blume.	Cannbaceae	Charcoal tree	Epilepsy
185	<i>Trichodesma indicum</i> (L.) Lehm.	Boraginaceae	Indian Borage	Carminative, anti-inflammatory and anti-dysentery
186	<i>Tricholepis glaberrima</i> DC.	Asteraceae	Dahan	Aphrodisiac, nervine tonic
187	<i>Triumfetta rhomboidea</i> Jacq.	Malvaceae	Burr-Bush	Diuretic and cooling
188	<i>Triumfetta annua</i> L.	Malvaceae	Orange Burr-Bush	-
189	<i>Urena lobata</i> L.	Malvaceae	Bachita	Enteritis, dysentery and rheumatic pain

<b>190</b>	<i>Vigna radiata</i> (L.) R. Wilczek	Fabaceae	Moong	Mind-Refreshing, reduces swelling
<b>191</b>	<i>Viscum urticulatum</i> Burm. f.	Santalaceae	Budu	Aphrodisiac and febrifuge
<b>192</b>	<i>Vitex negundo</i> L.	Lamiaceae	Nirgudi	Anti-fungal, vermifuge, dullness in hearing
<b>193</b>	<i>Wrightia arborea</i> (Dennst.) Mabb.	Apocynaceae	Daira	Renal trouble
<b>194</b>	<i>Wrightia tinctoria</i> Br.	Apocynaceae	Winter cherry tree	Anti-dysenteric
<b>195</b>	<i>Ziziphus jujuba</i> Mill.	Rhamnaceae	Bor	Apetite stimulant, insomnia and anxiety treatment
<b>196</b>	<i>Ziziphus oenopolia</i> (L.) Mill.	Rhamnaceae	Burgi	Stomach-affection and wounds

**Common Plants in Aarey Milk Colony, Mumbai**



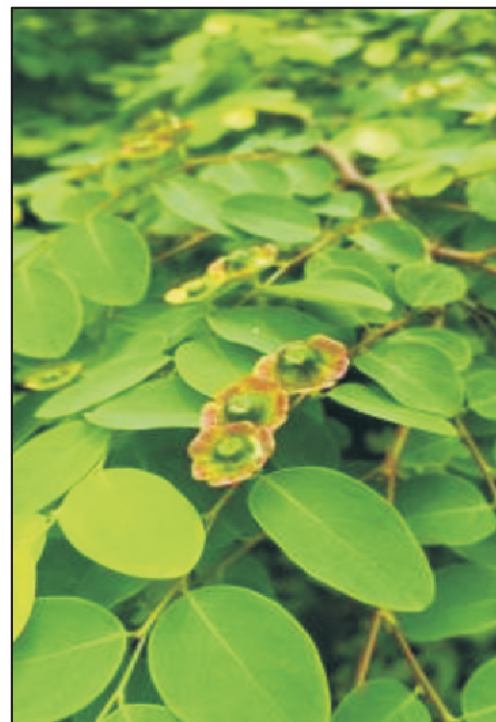
**Image 1. *Impatiens balsamina***



**Image 2. *Trichodesma indicum***



**Image 3. *Ampelocissus latifolia***



**Image 4. *Breynia retusa***

**Common Plants in Aarey Milk Colony, Mumbai**



**Image 5. *Gloriosa superba***



**Image 6. *Evolvulus alsinoides***



**Image 7. *Tacca leontopetaloides***



**Image 8. *Curculigo orchioides***

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