PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

AEROPONIC TECHNOLOGY FOR FOOD SECURITY IN INDIA

Dr. Nagma Sona[1] Harish D. N.[2]

ABSTRACT

After India takes over from China for the rest of this and the following century as the most populous country in the world from 2030 with 152 crore people and 170 crore by 2050, the gargantuan task ahead would be to secure food for this estimated populace which by no standards could be considered a trivial issue. While India can certainly lay claim to the availability of most arable land area in the world, that fact alone cannot satiate the food requirements of its citizenry particularly when seen in the context of the undernourished children across the diverse sections of the society. All the same, what is needed is to go beyond the traditional geoponics and embrace the modern aeroponics (from Greek aer, "air" and ponos "labour"), which is the process of growing plants in multiple layers (also called vertical farming) without soil and/or sunlight in an enclosed environment utilising sophisticated LED lighting controlled by fully-automated and/or programmable technology. This research paper describes a novel approach to plant cultivation under soilless culture while delving at reviewing the current and projected population growth of India, conceptual evolution of aeroponics, the strength of state-of-the-art technology, and concludes by suggesting the domains where aeroponic technology could be implemented supported by judicious policy- making.

KEYWORDS

Aeroponics, Agriculture, Food Security, Population, Nutrition, Inclusiveness etc.

POPULATION DYNAMICS: A PRIMER

The world experienced its first ever 10-digit population in 1800, took another 127 years to double it in 1927, just 33 years for the third billion in 1960, whereas it mattered only 14 years for the fourth billion in 1974, thereafter humanity was on a set course to add a billion people every 12 years like a clockwork i.e. 1987, 1999, 2011, 2023 (anticipated). The current world population of 7.6 billion is expected to reach 8.6 billion in 2030, 9.8 billion in 2050, and 11.2 billion in 2100, according to UN Department of Economic and Social Affairs which provides a comprehensive review of global demographic trends and prospects for the future. The information is essential to guide policies aimed at achieving the new Sustainable Development Goals (SDGs). Although, Indian economist Sanjeev Sanyal disputes the UN's figures and argues that birth rates will fall below replacement rates in the 2020s and based on his projections, population growth will be only sustained till the 2040s by rising longevity, but will peak below 9 billion by 2050.

China (with 1.42 billion inhabitants) and India (1.33 billion inhabitants) remain the two most populous countries, comprising 19 and 18% of the total global population. In roughly six years, or around 2024, the population of India is expected to surpass that of China. Among the ten largest countries worldwide, Nigeria is growing the most rapidly. Consequently, the population of Nigeria, currently the world's seventh largest, is projected to surpass that of the United States and become the third largest country in the world shortly before 2050. Between 2017 and 2050, it is expected that half of the world's population growth will be concentrated in just nine countries: India, Nigeria, the Democratic Republic of the Congo, Pakistan, Ethiopia, the United Republic of Tanzania, the United States of America, Uganda, and Indonesia (ordered by their expected contribution to total growth). The increased level and reduced variability in life expectancy have been due to many factors, including a lower under-five mortality rate, which fell by more than 30% in 89 countries between 2000-2005 and 2010-2015. Other factors include continuing reductions in fatalities due to HIV/AIDS and progress in combating other infectious as well as non-communicable diseases (UN-DESA, 2017). With roughly 83 million people (1.1%) being added to the world's population every year, the upward trend in population size is expected to continue, even assuming that fertility levels will continue to decline. Many nations with rapid population growth have low standards of living, whereas many nations with low rates of population growth have high standards of living. All the same, when we focus specifically about the elements of Indian population, we are presented with the facts in the following graphs.

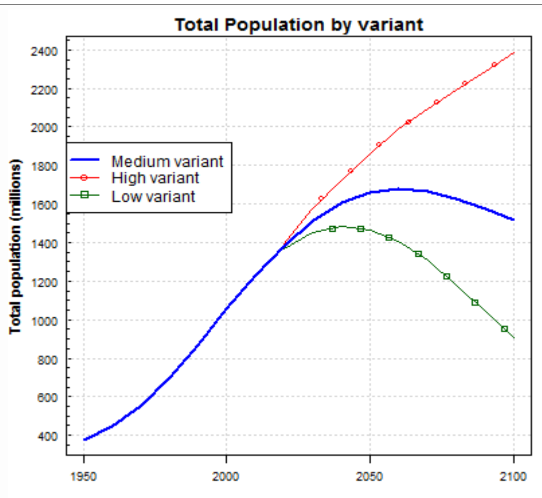
Explanation: The demographic profiles display key demographic indicators for periods between 1950-2100. In all the graphs, values for 1950-2015 are estimates and those thereafter are projections (medium variant). The population projections are based on the probabilistic projections of total fertility and life expectancy at birth (carried out with a Bayesian Hierarchical Model), based

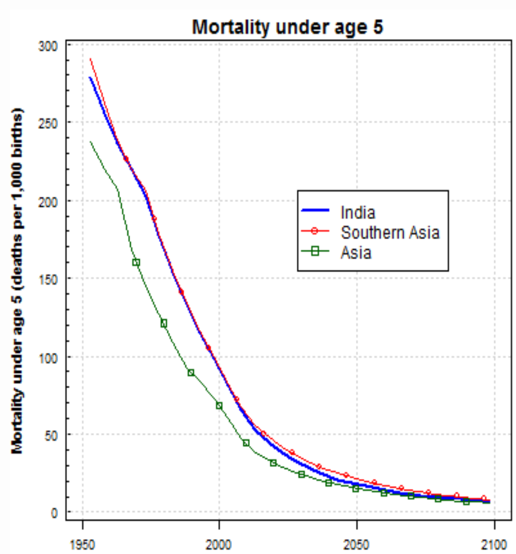
[1]Assistant Professor in Commerce, Government First Grade College, Periyapatna, Karnataka, India, nagmasona@gmail.com
[2]Associate Professor in Management, Visvesvaraya Technological University, Postgraduate Centre Mysuru, Karnataka, India, haricarpediem@yahoo.com

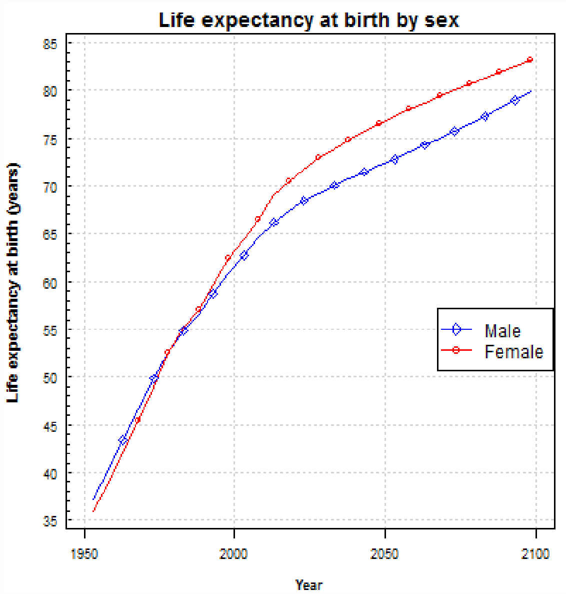
on estimates of the 2017 Revision of the World Population Prospects. The figures display the probabilistic median, and the 80 and 95 per cent prediction intervals of the probabilistic population projections, as well as the (deterministic) high and low variant (+/− 0.5 child) of the 2017 Revision of the World Population Prospects.

The graphs above make it crystal clear that the rate of population growth of India is not going to get slowed down any time soon and we should take every possible measure to ensure that the basic requirements of the populace do not get affected by the same. This explosive growth streak is attributed to several factors, but predominantly it is the enhanced life expectancy at birth owing to decreased child mortality below five years which, in turn, owes to advancements in medical technologies. Furthermore, this observation gains momentum by the fact that the working population in the age bracket of 15-64 years is projected to touch one billion around 2035 and is expected to grow till 2050 pronouncing the need to secure the food requirements of this people in particular and the residual populace in general. Nevertheless, the phenomenal fall in the fertility level results not only in a slower pace of population growth post 2065, but also in an older/ageing population.

Graph-1







Sources: UN-DESA, Population Division (2017). World Population Prospects: The 2017 Revision.

REVIEW OF LITERATURE

Aeroponics, as a method of soilless culture, has been in intermittent use since the 1950s. Early Russian and Italian research suggested that productivity and use of space was optimised with this technique.

The aeroponics – a total system providing for the growth and development of detached plants – is basically an air water culture wherein the nutrients are supplied in a water mist directly to the bare root system. Thus, oxygen and water are adequately supplied. It is composed of modular units controlled electronically, so as to ensure the predetermined needs of the particular growing plant resulting in higher yields; permits economic use of fertilizers and water; allows the operation of the system in regions where water quality is poor and/or supply scarce. Installations may be operated on a continuous basis without regarding seasonal type of crop, and order of growth, etc. Also, the system permits space saving owing to the additional dimension, i.e., height. Aeroponics fits in very well with industrialised agriculture (Nir, 1982).

Peterson & Krueger, (1988) propose a plant growth system that provides the benefits of easy access to the root system and control of the misting solution composition as related to elemental concentration or to an application of a plant growth regulator at different stages in the developing root. It may also provide a system for testing short-term water stress in relation to plant development. The system as described has been running continuously for 32 wk without an operational problem.

Whether or not plants will be grown on the Moon has not been answered; however, it is a possible scenario that will continue to be discussed by the planetary community. Bugbee & Salisbury (1989) discuss two aspects of controlled-environment crop production in a lunar colony. *First*, it reports findings about the effects of optimal aerial and root-zone environments on plant growth. *Second*, liquid hydroponic systems are compared with lunar regolith as substrates for plant growth. Control of the root- zone environment is as important as the foliar environment. Although hydroponic culture is widely used to grow high-input specialty crops on the Earth, the vast majority of the world food supply is grown in field soil. Large amounts of food will be required to support a lunar colony, and it has been suggested that the lunar regolith could be modified to provide a better root-zone environment than flowing hydroponic systems.

Initial results with commercially available ultrasonic aeroponic equipment are not just very promising, but also tend to be far less energy and manpower intensive than any other method of plant culture. Lettuce, corn, tomato, soybean, dry bean, and geraniums have all been cultured with this method (Zobel & Matthews, 1992).

The problems of soil-borne diseases, the low plant density in hydroponics, and the relatively high water consumption in both soil and hydroponic cultures led to the popularity of aeroponics and, as a system, was found to be an efficient way for maximising plant density/m^2. In addition, water consumptive use was as efficient as that of the hydroponics. Abou-Hadid et al. (1994) discuss a simple construction for the use of "A, Shape" aeroponic in vegetable production along with the occurrence of some problems and suggestions for overcoming the same.

Eshel & Waisel (1997) argue that it is well accepted that plant shoots form specific shapes and develop, at maturation, into predicted contours and sizes. This was thoroughly studied and amply reported in the literature. Certain aspects of the functional significance of these shapes with regard to their ability to sustain mechanical strains and to capture light were analysed in detail (Niklas, 1992). However, when the plants' "Hidden Half," is discussed, rather little is known, regarding the regulation of root architecture and its functional significance (Lynch and Nielsen, 1996).

Luo et al. (2009) developed a very successful method of producing hearted lettuce in the tropics using aeroponics and root cooling. It was also found that the effects of elevated root zone CO2 and air temperature on photosynthetic gas exchange, nitrate uptake and total reduced nitrogen content in aeroponically grown lettuce plants (Johnstone et al. 2011). A comparison of the product yield, total phenolics, total flavonoids, and antioxidant properties was done in different leafy vegetables/herbs and fruit crops grown in aeroponics growing systems and in the field. The antioxidant properties of those crops were evaluated using 2,2- diphenyl-1-picrylhydrazyl (DDPH) and cellular antioxidant (CAA) assays. In general, the study shows that the plants grown in the aeroponics system had a higher yield and comparable phenolics, flavonoids, and antioxidant properties as compared to those grown in the soil (Chandra et al. 2014). The use of aeroponics for plant cultivation is very recent in Europe. The system is highly accepted and recommended for plant cultivation in many countries including India (Buckseth, 2016).

A cursory glance of the existing mass of literature on the aeroponic technology unearths the fact that very rare studies have been carried out on the topic, more so in the Indian context. This paper attempts to bridge this gap.

FOOD SECURITY: THE SCENARIO

Defined by the United Nations' Committee on World Food Security, food security is the condition in which all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Nevertheless, food security analysts look at the combination of the following three main elements (WFP, 2018):

> **Food Availability:** Food must be available in sufficient quantities and on a consistent basis. It considers stock and production in a given area and the capacity to bring in food from elsewhere, through trade or aid.
> **Food Access:** People must be able to regularly acquire adequate quantities of food, through purchase, home production, barter, gifts, borrowing, or food aid.
> **Food Utilisation:** Consumed food must have a positive nutritional impact on people. It entails cooking, storage and hygiene practices, individual's health, water and sanitation, feeding and sharing practices within the household.

Economic growth is only sustainable if all countries have food security. Without country-owned and country-driven food security strategies, there will be obstacles and additional costs to global-, regional-, and country-level economic growth. Food security needs to encompass women and other vulnerable and disadvantaged groups.

The challenges to food security are growing due to increasing global population, changing climate, rising food prices, and environmental stressors all of which have significant yet highly uncertain impacts on food security. To counter the above what is urgently needed are alternative agricultural practices, including options for handling water allocation, land use patterns, food trade, post-harvest food processing, and food prices and safety. These policy responses will be vital to inclusive growth by way of improving the living conditions of farmers and rural populations across the globe.

FACETS OF HUNGER AND NUTRITION

Another major challenge embedded within the problem of ensuring food security is that of providing wholesome nutrition to the public facing hunger issues. The gamut of hunger encompasses the following (IFPRI, 2014):

> **Hunger** is usually understood to refer to the distress associated with lack of food. The UN Food and Agriculture Organisation (FAO) defines food deprivation, or undernourishment, as the consumption of fewer than about 1,800 kilocalories a day – the minimum that most people require to live a healthy and productive life.
>
> **Undernutrition** goes beyond calories and signifies deficiencies in any or all of the following: energy, protein, or essential vitamins and minerals. It is the result of inadequate intake of food in terms of either quantity or quality, poor utilisation of nutrients due to infections or other illnesses, or a combination of these factors. These, in turn, are caused

by a range of factors including household food insecurity; inadequate maternal health or childcare practices; or inadequate access to health services, safe water, and sanitation.

Malnutrition refers more broadly to both undernutrition (problems of deficiencies) and overnutrition (problems of unbalanced diets, which include consuming too many calories in relation to energy requirements, with or without low intake of micronutrient-rich foods).

Given the volume of current and the projected population of the young and the perennial problem of food security and the associated issues of nutrition, Scott et al. (2018), in their peer-reviewed paper, set out with the objective of determining the efficacy of iron-biofortified pearl millet in improving attention and memory in Indian school-going adolescents. Based on an observation period of six months, the results were found affirmative that consuming iron-biofortified pearl millet improves iron status and some measures of cognitive performance in Indian adolescents.

The above study, among many other such cases in point, effectively deduces the fact that the difficulties associated with food security could be scientifically addressed by switching over to modern technology-based agricultural techniques which, given a chance, would script a new chapter in food security in the Indian agricultural context. The bottom line, here, is to enhance agricultural technologies by multiple means to build resiliency to shocks. One such central theme in agricultural research is the emergence of aeroponics as a formidable force to satiate global hunger and to ensure food security while also balancing the nutritional benefits of meat against the ecological costs of its production and empowering the growers in the process.

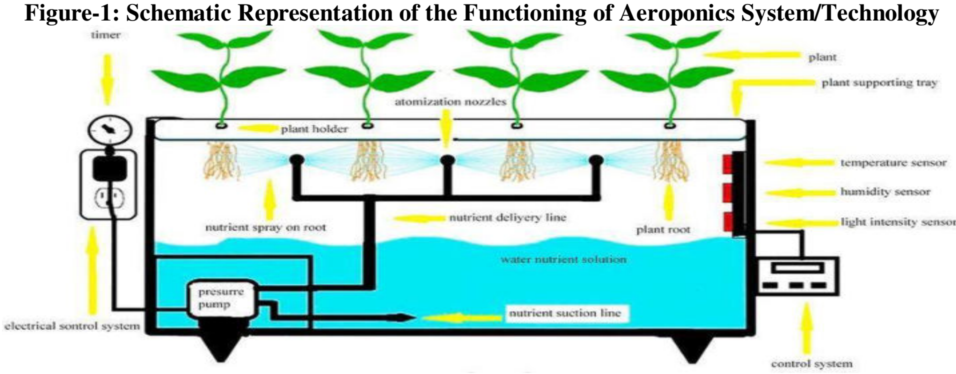
MODERN AEROPONICS SYSTEM: VAGARIES OF PRACTICE

"India is a country about which one cannot make a 'general remark' and, certainly, with regard to Indian agriculture, this is strictly true" (Kishore, A., 2018) exhorted John Augustus Voelcker, British agricultural scientist through his Report on the Improvement of Indian Agriculture. Exactly 125 years thus, these words of Voelcker are just as relevant as they were in 1893 when he first published them. All the same, there is no denying the fact that Indian farmers are selectively progressive when it comes to innovative agricultural practices and aeroponics is the most happening agrotechnology right now.

Hydroponic systems/gardening is a method of growing plants by feeding them through water as opposed to depending of breakdown of ingredients in soil. There are six basic types of hydroponic systems that have been defined simply by the method the water is delivered to the plant: Aeroponic, Nutrient Film Technique, Drip, Ebb and Flow, Deep Water Culture, and Wick. Each type of system has its advantages and disadvantages and will work better for different cultivators based on ease, cost, space, plant requirements, and personal preference. Most of these systems will require a water pump to deliver the nutrient rich water to the plant, however, some systems are setup where the plants will wick the water or gravity will feed the plant as they need. Systems with no active pump are called passive systems.

Edward "Ed" Harwood (born 04 February 1950), former professor at Cornell and one of the pioneers of aeroponics is the chief inventor of "Method and Apparatus for Aeroponic Farming" (United States Patent No. 8,782,948) and an entrepreneur – founder of Aero Farm Systems, L.L.C. (AeroFarms). Harwood became familiar with aeroponics while researching cutting-edge technologies in agriculture for the Cornell University Cooperative Extension. He discovered aeroponics is the most efficient means of growing leafy greens which, he observed, are the best things to eat in our diet. But they have a very short shelf life out of all of the veggies which could be overcome by growing them locally and without sunlight and soil, there's little chance for contamination or disease (see Figure-1 and 2).

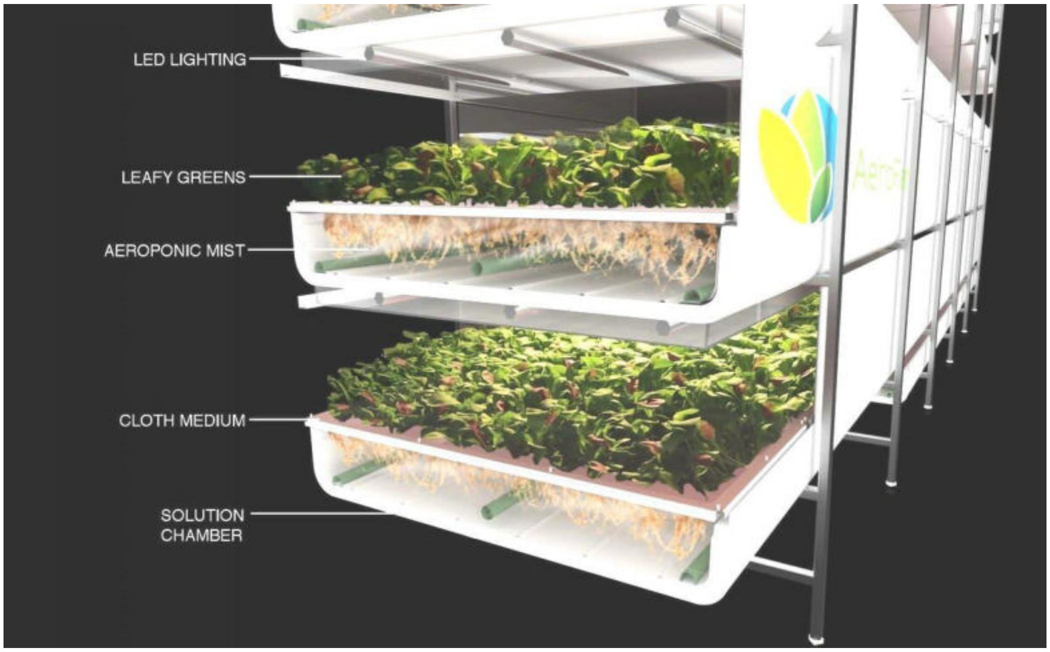
Figure-1: Schematic Representation of the Functioning of Aeroponics System/Technology



Sources: Lakhiar, Imran & Gao, Jianmin & Syed, Tabinda & Chandio, Farman Ali & Buttar, Noman. (2018). Modern plant cultivation technologies in agriculture under controlled environment: A review on aeroponics. *Journal of Plant Interactions*.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Figure-2: Fully Functional Equipment of AeroFarms Growing Leafy Greens



Sources: https://aerofarms.com/technology/

Aeroponic system is the most high-tech and complex system, but also yields the biggest and fastest growth (295×). In this soil-free method in which nutrients are dissolved in water and circulated into a plant's bare roots, plants are placed in a plastic mesh basket filled with growing medium. Here, the plant's roots grow from the mesh basket and are constantly misted with nutrient solution. This allows the plant to grow in near perfect growing conditions – the roots are always exposed to oxygen, nutrients, and water – because of which they will yield the greatest results in the least amount of time. Being indoors, they aren't subject to seasons and can produce year-round and also being locked off from the outside world means that they typically use zero pesticides.

The Technology: It is a type of hydroponic technology that sprays a mist directly onto the roots with the nutrients, hydration, and oxygen the plants need, allowing the plants to be grown in buildings without soil or sunlight throughout the year. It uses a cloth conveyor instead of soil as the growing medium. Because one piece of cloth made from recycled plastic that can last up to five years, the cloth is cost-effective and environmentally friendly. Nutrients are applied directly to the plants' roots, which require 95% less water compared to soil-based methods. LED lighting provides the plants with the most ideal amount and variety of lighting (AeroFarms, LLC, 2017). Designed for old or vacant warehouse-type buildings – and therefore doesn't waste land space – it is modular and vertically stackable, which can turn 10,000 square feet of facility floor space into nearly 30,000 square feet of growing space.

Aeroponics has a couple of drawbacks: hard to engineer; little expensive; and labour intensive. The drawbacks could be overcome by the built-in facts and features like coming up with state-of-the-art technology by entering into long-term contract(s) through appropriate memorandum(s) of understanding. Au contraire, aeroponics has a host of advantages over traditional soil farming:

295x more food/acre;
Uses 5% of the water normally needed;
Up to 50% less time required for crops to go from start to final product; and
No fertilizers, pesticides, or herbicides and the resultant disease-free cultivation.

The next generation needs to be thought about in terms of better health and better food and aeroponics could deliver the same by growing good food. In sum, it is the bounden duty of mature democracies like India particularly with its size of population in the context of enabling food security to take aeroponics technology to the mainstream to set up businesses and provide better foods for people.

INCLUSIVE ECONOMICS

Indian employment in agriculture (% of total employment), although receding, stands at 43% in 2017 – down from 64% in 1991 – (ILO, 2017). Ironically, agriculture which is the primary source of livelihood for about 58% of India's population, contributes a meagre 17.32% to GDP (CIA Factbook, 2017). Set with a target to double the farmers' income by 2022, India can certainly count on aeroponics to be a significant contributor to achieve this ambitious goal. Transforming the lives of the farmers by including the farming community in the process of wealth creation through their participation and direct, active involvement in technology-based agriculture would go a long way in taking their standard of living to the next level as the degree of tradability of the food that experiences the increase in productivity is an important consideration in determining the reduction of poverty from growth in that sector. Agricultural growth appears as a priority for poverty reduction in landlocked and coastal economies alike.

There is substantial heterogeneity in the poverty reducing effects of non-agriculture across its different subsectors. Trade and transport services have poverty to growth elasticities closer to those of agriculture, and those for manufacturing, especially agro-processing, can at times even exceed them. Contrarily, the poverty-reducing effects of mining, finance, and business and government services are much more limited. Productivity growth in trade and transport services can have both direct linkages to the poor, but also indirect ones, for example, by reducing the transaction costs for the marketed products. This is particularly beneficial in higher margin sectors of agriculture and food.

This original measure is anticipated to: (a) bring improved technologies for modernising food value chains; (b) increase investment in the backend to improve delivery systems; (c) improve marketing efficiency and better integrate markets; (d) reduce problems of adulteration and bring about increased compliance with food safety standards; and (e) promote agroprocessing and generate employment opportunities for rural youth.

CONCLUSION

Agriculture is in a phase of major change around the world and dealing with serious problems. At present, global climate change is expected to raise the risk of frequent drought. In future, it would be a difficult task to provide a fresh and clean food supply for the fast-growing population using traditional agriculture. Under such circumstances, the soilless cultivation is the alternative technology to adapt effectively.

Innovation is the way forward once India creates a top niche for itself in the world economy. Recent reports seem to indicate a downward trend in child malnutrition in India, but the battle is far from won. The polar opposites of undernutrition and obesity harm billions of people across the globe and are totally preventable. By taking action, we could help young and old alike live longer and healthier lives. The single most important intervention one can support to help build human capital in any country is to support better nutrition. From the first 1,000 days of a person's life and throughout their life span, we now understand how ending malnutrition will help address myriad other issues, including health, education, and the ability to sustain a livelihood. Everyone's involvement is required, especially political commitment from the ruling dispensation.

The shocking fact about malnutrition is that it affects one in three people in the world. Therefore, good nutrition is important for children to reach their full potential, whether they want to be teachers, nurses, entrepreneurs, or cricketers. Leaders everywhere – in government, communities, business, and families – should pay close attention to the nutrition of the people in their care, because *poor nutrition is invisible and dangerous*. Countries that understand the real structural transformation of their economies know such wonderful aims will not be met if they do not address the nutrition deficits of their population, particularly the irreparable damage malnutrition can have on their future workforce if they do not look after their children. As such, nutrition cannot be dealt with in isolation: rather, it should be placed at the heart of the policies pursued in health and education, trade and investment, social protection, and agriculture.

In order to implement the 2030 SDGs: end poverty and hunger, expand and update health and education systems, achieve gender equality and women's empowerment, reduce inequality and ensure that no one is left behind (un.org, 2015), there exists an empirical need to address the political, policy, financing, and capacity challenges. The conclusion is clear: without improving nutrition, the world will fail to achieve many of the SDGs. There is an urgent moral and practical imperative for the world to make ambitious, measurable, and time-bound commitments to equitably improve nutrition.

The rapidity of climate change is becoming not just unpredictable with the passage of every season, but is also worsening necessitating the policymakers to come up with uniquely innovative ways to reduce dependency on open field cultivation. This measure becomes all the more pronounced given the fact that India, with its projected population of 1.639 billion people by 2050 (UN-DESA, 2017), is witnessing a gradual decline of its arable land – the highest in the world – mandating the revolutionising of its agriculture sector. Furthermore, it is high time that the urban Indian populace, despite its acute land constraints, becomes geoponically self-reliant rather than being overtly dependent on countryside for its all/or major nutritional fulfilment since we have to factor in the logistics of supply chain management too. In this direction, aeroponics is a viable solution provided the state-of-the-art technology picks up so as to bring down the cost to make it more affordable by the farming community which could be promoted under various schemes of the disposition at the Union through multiple flagship initiatives/platforms e.g. Make in India, Skill India, etc. In sum, *access to adequate nutritious food is a basic human right*.

REFERENCES

Abou-Hadid, A. F., El-Shinawy, M. Z., and Medany, M. A. (1994). *Preliminary studies on the use of aeroponics for vegetable crops under local conditions*. Acta Horticulturae. 361, 397-402 doi:10.17660/ActaHortic.1994.361.40

AeroFarms (2017). Available at: https://aerofarms.com/2017/01/22/vertical-farming-hydroponics/
https://m-net.dstv.com/player/1168774/

Buckseth T., Sharma, AK., Pande, KK., Singh, BP., and Muthuraj R. (2016). Methods of pre-basic seed potato production with special reference to aeroponic – A review. *Sci Horti*. 204:79–87. http://dx.doi.org/10.1016/j.scienta.2016.03.041.

Bugbee, B. G., & Salisbury, F. B. (1989). Controlled environment crop production: Hydroponic vs. lunar regolith. In D. W. Ming, & D. L. Henninger, *Lunar base agriculture: Soils for plant growth* (pp. 107-129). Madison, WI, USA: American Society of Agronomy, Inc. Crop Science Society of America, Inc. Soil Science Society of America, Inc. doi:10.2134/1989.lunarbaseagriculture

Central Intelligence Agency. (2017). Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/in.html

Chandra, S., Shabana, K., Bharathi, A., Hemant, L., Min, Hye Y., Mahmoud, AE., Ikhlas, AK. (2014). Assessment of total phenolic and flavonoid content, antioxidant properties, and yield of aeroponically and conventionally grown leafy vegetables and fruit crops: a comparative study. *Evid Based Complement Alternat Med*. 2014. Article ID 2538752. http://dx.doi.org/10.1155/2014/253875.

Eshel, A., and Waisel Y. (1997). Aeroponics. In Altman A., Waisel Y., *Biology of root formation and development* (pp. 335-339). Basic Life Sciences, vol 65. Springer, Boston, MA, USA. doi: 10.1007/978-1-4615-5403-5_72

IFPRI (International Food Policy Research Institute)/Welthungerhilfe/Concern. (2014). The Challenge of Hunger 2014: Global Hunger Index: Facts, Determinants, and Trends. Washington, D.C., Bonn, and Dublin. from https://www.ifpri.org/sites/default/files/ghi/2014/feature_1812.html

International Labour Organisation (2017). ILOSTAT database, November https://www.ilo.org/ilostat/faces/oracle/webcenter/portalapp/pagehierarchy/Page3.jspx

Johnstone, PR., Nichols, MA., Fisher, KJ., and Reid, J. (2011). Nutritional studies with processing tomato grown in aeroponics. *Acta Horticult*. 542 (542):143–152.

Kishore, A. (2018, July 03). Why farmers adopt certain technologies but leave out others. Retrieved July 03, 2018, from https://www.hindustantimes.com/analysis/why-farmers-adopt-some-technologies-but-leave-out-others/story-exNEwf9FJRU73TBM9mBOiN.html

Luo, HY., Lee, SK., and He, J. (2009). Integrated effects of root-zone temperatures and phosphorus levels on aeroponically-grown lettuce (Lactuca sativa L.) in the tropics. *The Open Horti J*. 2:6–12.

Lynch. J., and Nielsen, K. L. (1996). Simulation of root system architecture. *In* Y Waisel, A. Eshel, & U. Kafkafi *Plant roots: The hidden half* (pp. 247–257), second edition, revised and expanded, Marcel Dekker, Inc., New York.

Niklas, K. J. (1992). *Plant biomechanics: An engineering approach to plant form and function*. Chicago Univ. Press, Chicago, 607 p.

Nir, I. (1982). Growing plants in aeroponics growth system, 126, In F. Lemaire (Ed.), *Symposium on Substrates in Horticulture other than Soils In Situ. 1*, pp. 435-448. Angers, France: Acta Horticulturae. doi:10.17660/ActaHortic.1982.126.49

Peterson, L. A., & Krueger, A. R. (1988). An intermittent aeroponics system. *Crop Science, 28* (4), 712-713. doi:10.2135/cropsci1988.0011183X002800040033x

Scott, S. P., Murray-Kolb, L. E., Wenger, M. J., Udipi, S. A., Ghugre, P. S., Boy, E., & Haas, J. D. (2018). Cognitive Performance in Indian School-Going Adolescents Is Positively Affected by Consumption of Iron-Biofortified Pearl Millet: A 6-Month Randomized Controlled Efficacy Trial. The Journal of Nutrition, 1-10. doi:10.1093/jn/nxy113

UN-DESA (United Nations Department of Economic and Social Affairs) https://www.un.org/development/desa/publications/world-population-prospects-the-2017-revision.html

United Nations Organisation (2015). https://www.un.org/sustainabledevelopment/sustainable-development-goals/ from https://documents-dds-ny.un.org/doc/UNDOC/GEN/N15/291/89/PDF/N1529189.pdf?OpenElement

WFP (World Food Programme). What is food security? Retrieved July 10, 2018, from https://www.wfp.org/node/359289

Zobel, R. W., & Matthews, L. (1992). Ultrasonic aeroponics – Soilless culture of the future. *HortScience* , *27* (6), 622e–622. doi:10.21273/HORTSCI.27.6.622e

*****

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

A STUDY ON FACTORS INFLUENCING SOFT DRINK BEVERAGE DISTRIBUTOR'S SATISFACTION IN NORTH KARNATAKA

Dr. Krishna Kishore SV.[3] Dr. Sanjeev Padashetty[4]

ABSTRACT

In marketing, everything boils down to customer value. The competition is not merely between competitors, but it is how best your company is having supply chain system, as compared to the other competitors. Customer value is delivered through integration of supply chain system. The manufacturer needs a good co-ordination with supply chain partners in the execution of distribution strategies. Any changes in the variables of business environment might rise in friction between the manufacturer and the distributors. The manufacturer needs to be sensitive to the in understanding the supply chain partners, who form to be there business customers. The study explores to determine the effect of factors viz., communication, customer support and supply chain consistency on business customer satisfaction. Multiple regression analysis is carried out to arrive at objectives.

KEYWORDS

Business Customer, Satisfaction, Supply Chain, Distributor, Beverages etc.

INTRODUCTION

An efficient supply of goods to end customer means an effective partnership in the supply chain. Manufacturers obviously have to depend on distributors and sub-contractors. Competition forces put pressure on manufacturers to take care of parties involved in supply chain to deliver the goods to retail stores so that sales gets stimulated. External stakeholders (NGOs, customers, regulators) would constantly monitor the supply chain activities. Compared to other industries, soft drink beverage supply chain retains a distinct nature due to varied product and package characteristics. There are important nodes supply chain players need to take precautions especially weather conditions and pest control. For product safety, addressing environmental and social issues, tracking and tracing of consignments need to be undertaken. This is possible when agreed parties in supply chain have a standard procedure and good electronic documentation. In 2003, EU had already asked all manufacturing companies to monitor the ingredients sourcing from their suppliers so that any damage could be contained and reinvestigated.

Soft drink supply chain normally has large clusters of various parties operating at levels of retailers, wholesalers/distributors, market storage operators and farmers in farms. This complex structure gives less space for transparency. Earlier wholesalers and distributors were evaluated based on availability, quality and price that were satisfying basic business objectives. Performance based metrics were not used. Performance points vary in industries. However, if a manufacturer evaluates distributors on a regular basis, alternatives would open for manufacturers to select distributors and collaborate with other supply chain partners observing the market situations and requirement of abilities. It can be upstream or downstream depending strategic priority. Collaboration helps supply chain partners to plan, forecast and timely replenishment by information sharing. If collaborations turn out extremely profitable, certainly, resource sharing and incentive sharing is also possible (Muyldermans 2010).

Companies like Wal-Mart, P&G have been benefited by reduced cost with increased sales. Sales forecast accuracy improves with learning curve. Fighting market share battle in 21st century requires proactive steps by companies to operationalize competitive strategies for a constant growth. Business, economic and political environment have been most important and unstable environments that can give opportunities or even wipe out a firm. Globalization has brought continuous changes in the set of priorities companies consider to outsmart competitors.

Manufacturers are focus on responding to customer demand curves. There is also a need to have meaningful collaboration with distributors in the long term and work as team towards a motto of "reaching the product to the right customer at right time". Competitions are understood on time and quality perspective. Supply chain partners fail to spot the dynamic business environment. In order to supply products in time to customers, close understanding with distributors and suppliers is very essential. The various business management aspects that needs to be touched upon in a supply chain like new product handling, operations management, distribution, managing and follow up with customers is vital apart from just being centric with only

[3] Assistant Professor, Institute of Management, Christ (Deemed to be University), Karnataka, India, krishnakishore_sv@yahoo.com
[4]Professor, Alliance University, Karnataka, India, drsanjeevshetty@gmail.com

receiving orders and filling the orders. To manage these management functions efficiently in supply chain, exchange of data and funds supply in many vital stages of product lifecycle.

Though the sole purpose of supply chain building of manufacturers is to satisfy customers, and gain profits, supply chain needs a distinct focus as the satisfaction delivery as the process begins with order and ends with payment for the product. As the materials are sourced from various suppliers, the products are supplied to various distributors resulting in conflicts that can be avoided with clarity and understanding. Managing supply chain networks calls for optimization of logistics. In these learning phases, the supply chain partners need to master ordering right quantity of a product at right time in order to respond for the market situations. The nature of understanding manufacturer maintains with distributors takes them through troubled times and the partnership/ collaborations would be successful.

After right time, right price stands a strategic priority. The backend economics to reduce cost is not easy. All parties in supply chain would be interested to maximize their margin on every goods they get from various front. A company needs to communicate its interest to all distributors. That means, it's not enough if a company tells that end customer satisfaction is important or even a company cannot go on giving directions to distributors exercising expert and brand power on distributors. The communication should have strategy that considers all parties interests and welfare into consideration. The strengthening of relationship is possible when periodic meet with distributors to understand and promote interaction between stakeholders. It is necessary to chalk out distribution strategies that fall in synch with marketing strategies and plan of the manufacturer. Information networks provide key access to improving data accuracy. The depth of data exchanges between the stakeholders are presently contributing to growth.

LITERATURE REVIEW

Literature in the area of soft drink beverages supply chain was very limited. According to Mu and Jia (2013), there was a tough time for distributors when food scandals like baby milk formula and pet foods emerged in china. Distributors immediately looked for customer support and protection from a manufacturer that was not available.

According to John (2011) & Hu et al (2011), business process post 2009 has changed in all nature of organizations and drastic changes in organizational working style and process were witnessed in supply chain management. As recent technological shifts have changed the businesses, the theoretical concepts can be observed through studies. Recommendations from studies can be implemented in complicated supply chain models (Giannakis and Louis 2011).

As distributors learn and master their business, they make progress in their learning curves and expect improved service, reduced costs, greater responsiveness and improved decision making from manufacturers (Wong et al 2011). There is a very important need to monitor vendors (front-end) behavior whereas availability of more alternatives have enabled them to switch from one manufacturer to other by eyeing more benefits or profit margin. Supply chain partner satisfaction needs to be studied in the area of supply chain (Bearzotti et al 2012).

Research Gap

Managers in order to respond to various problems of supply chain partners must understand other organizations working style as well (Zhang et al 2011). In order to meet any sudden rise in demand a manufacturer must have access to information by supply chain integration (Prajogo and Lohager 2012). Instant and accurate communication enables fast decision-making and problem solving capability (Ding et al 2011). Therefore, we hypothesized,

H1 (Null): Fast communication in distribution does not influence distributor's satisfaction.
H1A: Fast communication in distribution does influence distributor's satisfaction.

According to Zao et al (2011), there needs to be meaningful integration between supply chain partners that enables clear understanding between them in tough times.

Therefore, we hypothesized

H2 (Null): Customer Support does not result in distributor's satisfaction.
H2A: Customer support result in distributor's satisfaction.

According to Mena et al (2013), in case of arranging supply chain strategies for products that depend on inputs from agricultural sector, it is tough to manage the constant supply of products due to geographical constraints. The product quality depends on fresh supplies of inputs. This restricts the manufacturer within a certain geographical area by denying manufacturer a close location to end customers. The idea of maintaining a constant supply of products is (Tran et al 2013) supported a challenge. This led us to hypothesize.

H3 (Null): Supply chain consistency is not related to distributor's satisfaction.
H3A: Supply chain consistency is related to distributor's satisfaction.

Customer satisfaction attainment among supply chain partners is not an easy task. Businesses would grow only when there is end customer satisfaction that triggers purchase behavior. Manufacturers have to team up with right team of distributors by developing performance standards and quality measures (Machirori and Fatoki, 2011). Service quality would gradually increase with increased customer satisfaction (Zafar et al 2011; Tamayo, 2011).

Communication is possible when there is a complete integration of all partners in supply chain. In case of new product handling by a manufacturer, information exchange is a vital factor of success (Wong et al 2011). This information has to be stored periodically to track and analyze (Zhao et al 2011; Edvardsson et al., 2012).

OBJECTIVES

The main objective of this study is to identify the critical success factors in satisfying distributors need so that manufactures may get a competitive edge. Sub-objectives are,

- To determine influence of supply chain *communication* on distributor's satisfaction in soft drink beverages segment.
- To assess the effect of *customer support* on distributor's satisfaction in soft drink beverage supply chain.
- To evaluate whether *consistent supply chain performance* leads to distributors satisfaction in soft drink beverage supply chain.

Sub objectives focus on observing the nature of relationship the factors in resulting distributor satisfaction.

RESEARCH METHODOLOGY

Research approach that was made to reach objectives in the study was descriptive as the study answers the present problem of distributors. Primary data was collected from 113 distributors across North Karnataka. After scrutiny 101 responses was found eligible for coding and editing the data into SPSS. As literatures in national and international journals were scarce, many business magazines, beverages association of India websites, were referred to find research gaps and arrive at research questions. As obtaining B2B responses were very tough, non-probabilistic convenience sampling was selected for collecting data.

DATA ANALYSIS

The factors communication, customer support and supply consistency were subjected to regression analysis. Communication factor measures the fastness of information sharing between the supply chain partners. Customer support measures responsiveness from manufacturer side in case of any issues put up by distributors. Supply chain consistency measures the consistency in immediate replenishment of goods to distributors whenever needed.

Table-1: Reliability of the Regression Model

Cronbach's Alpha	N of Items
.872	12

Sources: Primary Data

The model's reliability was measured. The Cronbach's alpha was found to be 0.872. As this value was promising, it was decided to further proceed with regression analysis. The data collected on three independent variables supply chain, communication and customer support and dependent variable customer satisfaction were analyzed.

Table-2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.547[a]	.299	.277	1.50584

Note: a. Predictors: (Constant), Supply Chain, Communication, and Customer Support
Sources: Authors Compilation

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-3: ANOVA[b]

	Model	Sum of Squares	d.f.	Mean Square	F	Sig.
1	Regression	92.760	3	30.920	13.636	.000[a]
	Residual	217.684	96	2.268		
	Total	310.444	99			

Note: a. Predictors: (Constant), Supply Chain, Communication, and Customer_Support
b. Dependent Variable: Satisfaction
Sources: Authors Compilation

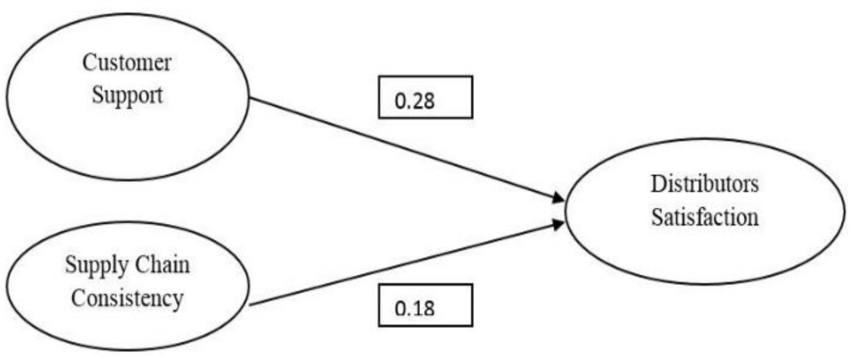
Table-4: Coefficients[a]

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.683	.571		1.196	.235
	Communication	.100	.073	.123	1.364	.176
	Customer_Support	.284	.081	.348	3.488	.001
	Supply Chain	.180	.082	.218	2.200	.030

Note: a. Dependent Variable: Satisfaction
Sources: Authors Compilation

The model's R was 0.547 and r square 0.299 in model summary (table 2). ANOVA was significant. Out of three independent variables, communication's relationship with customer satisfaction was not statistically significant with p value of more than 0.50. Customer support and supply chain was related to customer satisfaction with beta values of 0.28 and 0.18. With P values being lesser than 0.50, the relationship was statically significant.

Figure-1: Conceptual Model of Distributor Satisfaction



Sources: Authors Compilation

The above diagram portrays a customer satisfaction model with supply chain and customer support having a relationship with customer satisfaction. In this study after analysis the hypothesis supported as follows,

H1 (Null): Communication in distribution does not influence distributor's satisfaction.

H2A: Customer support result in distributor's satisfaction.

H3A: Supply chain consistency is related to distributor's satisfaction.

The model portrays key for satisfying a business customer who is also a supply chain partner. If a manufacturer effectively supplies the required goods in time and maintains the promise consistently, then distributor would be happy to accommodate partnership. In case of any queries or issues raised if there is quick response from the manufacturer protecting distributor's interests, then distributors would be happy to accommodate manufacturer.

CONCLUSION

Customer support and *supply chain consistency* in the supply chain of soft drink beverages lead to distributor's satisfaction. C*ommunication* did not lead to distributor's satisfaction.

Attributing to customer support, in today's partnership trends, customer becomes a partner in B2B supply chains. Supply chain will sustain growth if there is an immediate and honest response by manufacturer (customer/client). Distributor obviously will not be in a position to speak in case of any issues raised by end customers, but manufacturer should be fast and sincere to provide support for distributors thereby extending customer support at crucial times.

Supply chain consistency is hard to manage, as many variables role cannot be estimated. Demand may increase or decrease, the information flow should be monitored consistently as goods must be replenished on time so that distributor can support the manufacturer and help manufacturers' products to reach end customer.

FUTURE SCOPE FOR RESEARCH

Further studies can be conducted on various other industries by identifying important factors. Supply chain models for every industry are not same as it varies in terms of partners and their numbers. More factors can also be identified and their role in building distributor's satisfaction can be determined to bridge gap in existing body of knowledge.

REFERENCES

Bearzotti, L. A., Salomone, E., & Chiotti, O. J. (2012). An autonomous multi-agent approach to supply chain event management**.** ***International Journal of Production Economics***, *135*(1), 468-478.

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance**.** ***Journal of Operations Management*, *29***(3), 163-180.

Ding, H., Guo, B., & Liu, Z. (2011). Information sharing and profit allotment based on supply chain cooperation. ***International Journal of Production Economics***, *133*(1), 70-79.

Giannakis, M., & Louis, M. (2011). A multi-agent based framework for supply chain risk management. ***Journal of Purchasing and Supply Management***, *17*(1), 23-31.

Hu H-Y, Cheng Ch-Ch, & Chiu Sh-I, Hong F-Y (2011). A study of customer satisfaction, customer loyalty and quality attributes in Taiwan's medical service industry. ***African Journal of Business Management***, 5(1), 187-195.

John, J. (2011). An analysis on the customer loyalty in telecom sector: Special reference to Bharath Sanchar Nigam limited, India. ***African Journal Marketing Management***, 3(1), 1-5.

Machirori, T., & Fatoki, O. (2011). An empirical investigation into the extent of customer satisfaction and customer loyalty at big retail stores in King William's Town, South Africa. ***African Journal Business Management***, 5(17), 7665-7673.

Mena, C., Humphries, A., & Choi, T. Y. (2013).Toward a theory of multi-tier supply chain management. ***Journal of Supply Chain Management,*** 49(2), 58–77.

Mu, J., & Jia, W. X. (2013). A quantitative model for safety evaluation of food supply chain based on CAS. ***Advanced Material Research,*** 694–697, 3540–3544.

Prajogo, D., & Olhager, J. (2012). Supply chain integration and performance: The effects of long-term relationships, information technology and sharing, and logistics integration. ***International Journal of Production Economics,*** 135, 514–522.

Ramanathan, U., & Muyldermans, L. (2010). Identifying demand factors for promotional planning and forecasting: A case of a soft drink company in the UK. ***International Journal of Production Economics*,** 128(2), 538-545.

Strandvik, T., Holmlund, M., & Edvardsson, B. (2012). Customer needing: a challenge for the seller offering. ***Journal of Business & Industrial Marketing*,** 27(2), 132-141.

Tamayo, A. M. (2011). Psychographic measure of service quality of fast food chain in Davao city. ***African Journal of Marketing Management,*** 3(9), 219-225.

Tran, N., Bailey, C., Wilson, N., & Phillips, M. (2013). Governance of global value chains in response to food safety and certification standards: the case of shrimp from Vietnam. ***World Development***, 45, 325–336.

Wei, J., & Zhao, J. (2011). Pricing decisions with retail competition in a fuzzy closed-loop supply chain. ***Expert Systems with Applications*****,** 38(9), 11209-11216.

Wong, C. Y., Boon-Itt, S., & Wong, C. W. (2011). The contingency effects of environmental uncertainty on the relationship between supply chain integration and operational performance. ***Journal of Operations Management***, 29(6), 604-615.

(2014). ***The More Things Change: The World Bank, TATA And Enduring Abuses On India's Tea Plantations*** (World Bank Report). Retrieved from https://web.law.columbia.edu/sites/default/files/microsites/human-rights-nstitute/files/tea_report_final_draft-smallpdf.pdf.

Zadek, S. (2004).The Path to Corporate Responsibility. ***Harvard Business Review*****,** 82 (12), 125-132.

Zafar, M., Zaheer, A., Rahman, S., & Rehman, K. (2011). Impact of online service quality on customer satisfaction in banking sector of Pakistan. ***African Journal Business Management**,* 5(30), 11786-11793.

Retrieved from http://bibliotecadigital.fgv.br/ojs/index.php/joscm/article/download/11857/10783

Retrieved from http://crackmba.com/major-factors-in-a-supply-chain-management/

Retrieved from http://hrmars.com/hrmars_papers/Supply_Chain_Integration_and_Operational_Performance_Moder...

Retrieved from http://iajournals.org/articles/iajpscm_v2_i1_50_65.pdf

Retrieved from http://ijeeee.org/Papers/002-C00058.pdf

Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/jscm.12003/abstract

Retrieved from http://psych.unl.edu/psycrs/statpage/rhtest_eg1.pdf

Retrieved from http://publications.lib.chalmers.se/records/fulltext/222558/222558.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/40297/5/content.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/49527/10/14_%20references.pdf

Retrieved from http://www.aarmssjournals.com/wp-content/uploads/2016/08/V2I104.pdf

Retrieved from http://www.bjournal.co.uk/paper/BJASS_14_2/BJASS_14_02_03.pdf

Retrieved from http://www.cs.uu.nl/docs/vakken/scm/CHAP1.pdf

Retrieved from http://www.dayanandasagar.edu/dsce/

Retrieved from http://www.economicsdiscussion.net/supply/8-factors-that-influence-the-supply-of-a-product...

Retrieved from http://www.itinfo.am/eng/supply-chain-management/

Retrieved from http://www.supplychainquarterly.com/topics/Strategy/scq200704book/

Retrieved from http://www.tandfonline.com/doi/abs/10.1080/00207543.2014.935515

Retrieved from https://c2xnitie.wordpress.com/2014/01/17/benefits-of-information-sharing-continuous-reple...

Retrieved from https://link.springer.com/chapter/10.1007/978-3-319-13359-1_30

Retrieved from https://link.springer.com/chapter/10.1007/978-3-319-62386-3_7

Retrieved from https://link.springer.com/chapter/10.1057/9781137541253_13

Retrieved from https://myassignmenthelp.com/free-samples/business-event-management

Retrieved from https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2120429_code765212.pdf?abstractid=2045476...

Retrieved from https://scm.ncsu.edu/scm-articles/article/

Retrieved from https://www.aero-mag.com/consistency-in-the-supply-chain/

Retrieved from https://www.apics.org/ebusiness/apics-for-individuals/apics-magazine-home/magazine-detail-...

Retrieved from https://www.cips.org/en/Knowledge/Procurement-topics-and-skills/Risk-mitigation/Risk-Analy...

Retrieved from https://www.collegesearch.in/colleges/Dayananda_Sagar_College_of_Engineering/rankings

Retrieved from https://www.deepdyve.com/lp/emerald-publishing/evaluating-alternative-industrial-network-o...

Retrieved from https://www.instantessaywriting.com/events-financial-management

Retrieved from https://www.journals.elsevier.com/journal-of-purchasing-and-supply-management/

Retrieved from https://www.kbmanage.com/concept/risk-management-in-purchasing-supply-management

Retrieved from https://www.researchgate.net/publication/223757629_Risk_in_Supply_Networks

Retrieved from https://www.researchgate.net/publication/229333783_Supply_Chain_Collaboration_Impact_on_Co...

Retrieved from https://www.researchgate.net/publication/258064201_Toward_a_Theory_of_Multi-Tier_Supply_Ch...

Retrieved from https://www.sciencedirect.com/journal/journal-of-operations-management/vol/29/issue/3

Retrieved from https://www.sciencedirect.com/science/article/pii/S0272696311000325

Retrieved from https://www.sciencedirect.com/science/article/pii/S0925527311003872

Retrieved from https://www.sciencedirect.com/science/article/pii/S0925527315003400

Retrieved from https://www.sciencedirect.com/science/article/pii/S0969699714001100

Retrieved from https://www.sciencedirect.com/science/article/pii/S1478409217300961

Retrieved from https://www.scientific.net/AMM.678.684

Retrieved from https://www.scribd.com/doc/95737501/Chapter-1-4-Question

Retrieved from https://www.scribd.com/document/350739538/A-Study-on-Factors-Influencing-3700

Retrieved from https://www.solutionsrehab.com/educational/exploring-the-long-term-effects-of-drug-addicti...

Retrieved from https://www.thinkglobalgrowth.com/global-supply-chain-management/supply-chain-integration/

*****

Editor-In-Chief
Pezzottaite Journals
Saraswati Lane, Adjacent Nataraj Dance Academy, Near Modern Dewan Beverages, Jammu Tawi – 180002,
Jammu and Kashmir, India.

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

PERFORMANCE EVALUATION OF SINGARENI COLLIERIES COMPANY LIMITED

Eluri Venu Madhavi[5] Dr. B. K. Surya Prakasha Rao[6]

ABSTRACT

The present article assessed the performance of Singareni Collieries Company Limited (SCCL) from different dimensions such as coal production, coal productivity, sales, cost of sales to sales, net worth, debt-equity ratio, average collection period and earnings per share.

The study results show that the company needs to improve its performance in production and productivity. In addition, the company needs to take measures to lower the average collection period for it helps in improving the quality of debtors or improving the liquidity position of the company.

KEYWORDS

Board for Industrial and Financial Reconstruction, Collection Period, Cost of Sales to Sales, Debt–Equity Ratio, Debtors Turnover, Earnings per Share, Net Worth, Output per Man Shift etc.

INTRODUCTION

Singareni Collieries Company Limited (SCCL) is the second largest coal mining company in India after Coal India Limited (CIL) with a total manpower of 58,491 during 2015-16. It is a public sector coal mining company jointly owned by Telangana State Government (51 Percent share capital) and the Government of India (49 percent share capital). The company's accredited function is to explore and exploit coal deposits in the Godavari Valley coal field area covering the four districts of Telangana State namely Adilabad, Karimnagar, Khammam and Warangal, where the coal reserves are a whopping 8,791 million tonnes as per the reports of Geological survey of India and the inventory covers up to a depth of beyond 1,200 meters which include reserves confirmed, indicated as well as inferred.

The company markets its coal to diverse industries such as thermal power plants, cement, steel, paper, textiles, tobacco, ceramics, pharmaceuticals, distilleries etc. With spurt in industrial growth and the resultant increase in demand for electricity, the company has been playing a key role in the growth and development of the nation. Further, the new Electricity Act providing opportunities for independent power production and distribution, the demand for coal has increased phenomenally.

In short, the demand for its coal is more than what it can supply to the market. Hence, it is time for the company to tap the market potential by improving its performance. However, the performance of the company depends upon production and sales performance, cost control measures etc. Against this background, the present article aims at assessing the performance of SCCL.

THE STUDY

Public sector undertakings play a significant role in the overall development of the nation. These companies need to operate at the maximum level of efficiency to improve their performance. Performance improvement in their working gives a fillip to national economy and prosperity for the entire nation.

Hence, Singareni Collieries Company Limited as a public sector company has to improve its performance. However, the performance of the company depends upon various factors such as coal production, coal productivity (output per man shift), sales, cost of sales to sales, net worth, debt-equity ratio, debtors as number of month's profits and earnings per share. Against this background, the performance of SCCL has been evaluated and the same has been presented from table-1 to table-9.

COAL PRODUCTION

The performance of SCCL can be measured in terms of coal production. In view of this, the coal production particulars of the company for the period from 2009-10 to 2015-16 has been presented in table-1.

[5]Research Scholar, Department of Commerce and Business Administration, Acharya Nagarjuna University, Andhra Pradesh, India, venumba78@gmail.com
[6]'Director, Management Sciences, RVR&JC College of Engineering. Andhra Pradesh, India, bkspr_rvrjc@yahoo.com

The table shows that the coal production has increased continuously from 504 lakh tones in 2009-10 to 531.90 lakh tones in 2012-13. Though a sudden decline is noticed in 2013-14, again it has increased phenomenally and stood at 600.38 lakh tonnes in 2015-16. The annual growth rate of coal production varied between a low of (-) 5.12 percent in 2013-14 and a high of 14.27% in 2015-16. The analysis reveals that coal production is poor between 2009-10 and 2014-15 but in 2015-16, the production is very high.

Table-1: Coal Production of SCCL

Year	Production (in Lakh Tonnes)	Annual Growth (Per cent)
2009-10	504.00	-
2010-11	513.33	1.85
2011-12	522.11	1.71
2012-13	531.90	1.87
2013-14	504.69	(-) 5.12
2014-15	525.40	4.10
2015-16	600.38	14.27

Sources: www.scclmines.com

COAL PRODUCTIVITY

Productivity is a performance measure, which includes effectiveness and efficiency. An organization is productive, if it achieves its goals and does so by converting inputs into output at the lowest cost. An organization is effective, if it successfully meets its targets. In this regard, the productive performance of SCCL in terms of output per man shift (OMS) in overall mines and departments for the period from 2009-10 to 2015-16 has been presented in table-2.

The table shows that the output per man shift rose from 2.73 tonnes in 2009-10 to 3.94 tonnes in 2012-13. Though it declined to 3.86 tonnes in 2013-14, again it shot up and stood at 4.74 tonnes in 2015-16. The annual growth rate of coal productivity is erratic and varied between a low of (-) 2.03 per cent in 2013-14 and a high of 26.69 per cent in 2012-13. The analysis reveals that the coal productivity is very high in 2012-13 and 2015-16.

Table-2: Coal Productivity (Output per Man Shift)

Year	Overall Mines & Departments (in tonnes)	Annual growth (Percent)
2009-10	2.73	-
2010-11	2.90	6.23
2011-12	3.11	7.24
2012-13	3.94	26.69
2013-14	3.86	(-) 2.03
2014-15	4.20	8.81
2015-16	4.74	12.86

Sources: www.scclmines.com

SALES

The performance of SCCL can also be measured in terms of sales. This is because; sales generate revenue to organizations, which can be used for expansion and other developmental activities. In view of this, the performance of the company in terms of sales for the period from 2009-10 to 2015-16 has been presented in table-3.

The table shows that the sales of the company have increased continuously from Rs. 6,853.84 crores in 2009-10 to Rs. 10,128.29 crores in 2012-13. Though a sudden decline is noticed in 2013-14, again the sales increased and stood at Rs. 13,214.09 crore in 2015-16.

The annual growth rate of sales fluctuated between a low of (-) 3.42 per cent in 2013-14 and a high of 23.84 per cent in 2014-15. It is also found that the annual growth rate of sales is negative in 2013-14. The analysis reveals that the annual growth rate of sales is good during the period under consideration with the exception of the year 2013-14.

Table-3: Sales Performance of SCCL

Year	Sales (In Crores)	Annual Growth (Percent)
2009-10	6,853.84	-
2010-11	8,165.81	19.14
2011-12	9,238.04	13.13
2012-13	10,128.29	9.64
2013-14	9,782.03	(-) 3.42
2014-15	12.114.23	23.84
2015-16	13,214.09	9.08

Sources: www.scclmines.com

COST OF SALES TO SALES

Cost of sales reveals the expenditure incurred by a company to generate sales. Here cost of sales refers to factory cost plus office and administration overheads in addition to selling and distribution expenditure. In this regard, the cost of sales as a percent of sales has been presented in Table-4.

The table shows that the cost of sales as a percent of sales fluctuated between a low of 89.55 percent in 2015-16 and a high of 95.30 percent in 2013-14. The analysis reveals that the cost of sales as a percent of sales in SCCL is very high during the period under consideration with the exception of the year 2015-16.

Table-4: Cost of Sales to Sales

Year	CS to sales(Per cent)
2009-10	94.21
2010-11	93.43
2011-12	93.84
2012-13	94.49
2013-14	95.30
2014-15	94.54
2015-16	89.55

Sources: www.scclmines.com

NET WORTH

Net worth is an amount payable by which assets exceed liabilities. Net worth is a concept applicable to individuals and businesses as a key measure of how much an entity is worth. In this regard, the net worth of SCCL for the period from 2009-10 to 2015-16 has been presented in Table-5.

The table shows that the net worth of the company has increased continuously from Rs. 2,624.55 crore in 2009-10 to Rs 4,782.95 crore in 2015-16 and the annual growth rate moved between a low of 3.07 percent in 2013-14 and a high of 23.48 percent in 2015-16. The analysis reveals that the annual growth rate of net worth is good in almost all the years with the exception of the year 2013-14. It is also noticed that the annual growth of net worth is very high in 2015-16.

Table-5: Net Worth of SCCL

Year	Net Worth (Rs. In Crores)	Annual Growth (Per cent)
2009-10	2624.55	-
2010-11	2875.20	9.55
2011-12	3132.75	8.96
2012-13	3432.50	9.57
2013-14	3538.03	3.07
2014-15	3873.27	9.48
2015-16	4782.95	23.48

Sources: www.scclmines.com

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

DEBT-EQUITY RATIO

Debt-Equity ratio refers to lenders contribution for each rupee of the contribution made by owners. In this regard, the debt-equity ratio of SCCL for the period from 2009-10 to 2015-16 has been presented in Table-6.

The table shows that the debt-equity ratio of SCCL has increased continuously from 0.27 times in 2009-10 to 2.08 times in 2015-16. It is clear from the debt-equity ratio that SCCL's lenders have contributed fewer funds between 2009-10 and 2012-13 and after that, they contributed more funds compared to equity shareholders. The analysis reveals that the debt-equity ratio of the company is good as the ratio is optimum.

Table-6: Debt-Equity Ratio of SCCL

Year	D/E Ratio
2009-10	0.27:1
2010-11	0.19:1
2011-12	0.36:1
2012-13	0.59:1
2013-14	1.33:1
2014-15	2.05:1
2015-16	2.08:1

Sources: Authors Compilation from Annual reports and Accounts of SCCL

DEBTORS AS NUMBER OF MONTHS

A company sells goods for cash and credit. A number of companies use credit as a marketing tool. When the company extends credits to its customers, debtors are created in the company's accounts. Debtors are converted into cash over a short period and, therefore included in current assets. The liquidity position of a company depends on the quality of debtors largely. Financial Analysts apply three ratios to judge the quality or liquidity of debtors: (a) debtors turnover, (b) collection period, (c) aging schedule of debtors. In this regard, the debtors collection period for the period from 2009-10 to 2015-16 has been presented in Table-7.

The table shows that the debt collection period has increased from 0.46 months (21 days) in 2009-10 to 2.98 months (nearly 90 days) in 2015-16. The analysis reveals that the debtor's collection period has increased from 21 days to 90 days, which is alarming.

Table-7: Debtors as Number of Months

Year	Debtors as Number of Months Sales
2009-10	0.46
2010-11	0.47
2011-12	0.85
2012-13	1.13
2013-14	0.87
2014-15	1.75
2015-16	2.98

Sources: Authors Compilation from Annual reports and Accounts of SCCL

PROFITS OF SCCL

The profit performance of the company is quite alarming for quite a long time because it was referred to Board for Industrial and Financial Reconstruction (BIFR) in the early 1990's. It is to be mentioned here that the company had a huge accumulated loss of Rs. 1,219 crores by the end of financial year 1997-98. After that, the company started making profits continuously. In this regard, the profit performance of the company for the period from 2009-10 to 2015-16 has been presented in table-8.

The table shows that the profits have increased from Rs. 268.11 crore in 2009-10 to Rs. 1,066.13 crore in 2015-16. The annual growth rate of profits is highly erratic and varied between a low of 1.96 per cent in 2011-12 and a high of 117.38 percent in 2015-16. The analysis revels that the profit performance of the company is good during the period under consideration with the exception of the years 2011-12 and 2013-14.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-8: Profits Made by SCCL

Year	Profits Earned (Rs. in crores)	Annual Growth (Per cent)
2009-10	268.11	-
2010-11	351.37	31.05
2011-12	358.27	1.96
2012-13	401.14	11.97
2013-14	418.74	4.39
2014-15	490.44	17.12
2015-16	1066.13	117.38

Sources: Authors Compilation from Annual reports and Accounts of SCCL

EARNINGS PER SHARE

The Profitability of the shareholder's investment can be measured in many ways. One such measure is to calculate the earnings per share. The earnings per share (EPS) are calculated by dividing the profits after taxes by the total number of ordinary shares outstanding. In this regard, the earnings per share of SCCL for the period from 2009-10 to 2015-16 has been presented in Table-9.

The table shows that the earnings per share of the company have increased continuously from Rs 1.55 in 2009-10 to Rs 6.15 in 2015-16. The company recorded the ever-highest growth in earnings per share in 2015-16. The analysis reveals that earnings per share of the company has grown steadily between 2009-10 and 2014-15 but in 2015-16 an abnormal growth is noticed.

Table-9: Earnings of SCCL

Year	EPS
2009-10	1.55
2010-11	2.03
2011-12	2.07
2012-13	2.31
2013-14	2.42
2014-15	2.83
2015-16	6.15

Sources: Authors Compilation from Annual reports and Accounts of SCCL

FINDINGS AND SUGGESTIONS

The coal Production and productivity have not increased steadily and the annual growth rate is negative in 2013-14. However, the coal productivity is good compared to coal production. In case of sales, they are good during the period under consideration with the exception of the year 2013-14. However, the cost of sales to sales is alarming in almost all the years with the exception of the year 2015-16.

The company is in good financial standing as the net worth is good and the debt-equity ratio is optimum. However, the quality of debtors has deteriorated as the average collection period rose from 21 days to nearly 90 days.

The profits made by the company and the earnings per share made by shareholders are reasonably good. It is also noticed that both the profits and earnings per share are the highest in 2015-16.

SUGGESTIONS

SCCL has to take measures to ensure that both production and productivity grow steadily through proper planning and controlling. Further, measures have to be taken to increase the sales by identifying new customers and selling more to existing customers. In addition, the company needs to control cost, as cost of sales to sales is alarming at 93.62 percent on an average.

The company has to continue the existing financial practices to maintain good net worth and optimum debt-equity ratio. In addition, it has to speed up collections to decrease the average collection period for it helps in increasing the quality of debtors. All the same, the company has to increase profits by undertaking cost control measures.

CONCLUSION

The performance evaluation of SCCL reveals that its overall performance is good but it needs improvement in areas like production, productivity, and cost of sales to sales.

REFERENCES

Pandey, I. M. (2005). ***Financial statement Analysis in Financial Management***, pp. 581-626. New Delhi: Vikas Publishing House.

Venkateswara, Rao Bh, & Jampala, Rajesh C. (2007, February). Singarei Collieries Company Limited – The Great Turnaroung Story. ***ICFAI Reader,*** pp. 64-70.

Kachru, Upendra. (2007). The Organization and productivity in production and Operations Management. ***Excel Books***, pp. 491-525.

Maheswari, S. N., & Maheswari, S. K. (2008). ***Capital and Revenue in Financial Accounting,*** PP. 1.165 to 1.173. Vikas Publishing House Private Li,ited.

Aswathappa, K., & Sridhar, Bhatt K. (2010). ***Introduction to Production and Operations Management in Productions and Operations Management,*** pp. 1-12. Mumbai: Himalaya Publication House.

Prasad, G. (2017). ***Ratio analysis in Accounting for Managers***, PP.8.1 to 8.34. Guntur: Jai Bharat Publications.

Annual Reports and Accounts of SCCL from 2009-10 to 2015-16.

Vijaya, Kumar P. (2014). ***Analysis of Financial Statements in Accounting for Managers***, pp. 238-260. Himalaya Publishing House.

Jawaharlal. (2013). ***Financial Statement Analysis in Accounting for Management***, pp. 349-391. Himalaya Publishing House.

Retrieved from http://ec.europa.eu/eurostat/statistics-explained/index.php/Hospital_discharges_and_length...

Retrieved from http://financialanalysishub.com/average-collection-period/

Retrieved from http://hindustanpetroleum.com/documents/pdf/AnnualReport2013-14.pdf

Retrieved from http://hrmars.com/hrmars_papers/Article_21_A_Regressional_Impact_of_Earning_per_Share_on_M...

Retrieved from http://mancherial.telangana.gov.in/tourist-places/

Retrieved from http://mayukhportfolio.co.in/mining/output-per-man-shift-in-mining.html

Retrieved from http://pezzottaitejournals.net/pezzottaite/images/ISSUES/IJOBMPV2N1.pdf

Retrieved from http://rcbrnet.com/journals/rcbr/Vol_2_No_1_June_2013/3.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/5904/12/12_chapter%203.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/684/13/13_%20chapter-iv.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/8360/11/11_chapter%203.pdf

Retrieved from http://www.betterinvesting.org/NR/rdonlyres/F75F85FB-3614-45B3-9456-0D39F34D1C70/0/1998031...

Retrieved from http://www.eenadupratibha.net/Pratibha/OnlineDesk/Singareni_Collieries/documents/singareni...

Retrieved from http://www.elon.edu/docs/e-web/administration/institutional_research/factbooks/Fact%20Book...

Retrieved from http://www.fao.org/docrep/012/i0680e/i0680e03.pdf

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Retrieved from http://www.financeformulas.net/Average-Collection-Period.html

Retrieved from
http://www.gsmi-ijgb.com/Documents/V3%20N2%20JFAM%20P01%20-Pushpa%20Bhatt%20-Earnings%20pe...

Retrieved from http://www.livemint.com/Search/Link/Keyword/Capital%20Account

Retrieved from http://www.opentextbookstore.com/precalc/1.4/Chapter%204.pdf

Retrieved from http://www.telanganatourism.gov.in/partials/about/31-districts-of-telangana.html

Retrieved from http://www.zeebiz.com/companies/news-how-eicher-motors-changed-its-fortune-from-crisis-yea...

Retrieved from http://www2.sas.com/proceedings/sugi27/p253-27.pdf

Retrieved from https://99to1percent.com/joining-million-dollar-club-challenge-can/

Retrieved from https://economictimes.indiatimes.com/coal-india-ltd/directorsreport/companyid-11822.cms

Retrieved from https://efinancemanagement.com/financial-analysis/debtors-receivable-turnover-ratio-and-co...

Retrieved from https://efinancemanagement.com/financial-analysis/how-to-analyze-and-improve-debtors-turno...

Retrieved from https://en.oxforddictionaries.com/definition/performance

Retrieved from https://en.oxforddictionaries.com/definition/resultant

Retrieved from https://quizlet.com/subject/earnings-per-share/

Retrieved from https://scclmines.com/itc/Annual_Report_2015-16.pdf

Retrieved from https://scclmines.com/itc/AR200910.PDF

Retrieved from https://study.com/academy/lesson/average-collection-period-formula-analysis.html

Retrieved from https://study.com/academy/lesson/how-to-calculate-earnings-per-share-definition-formula.ht...

Retrieved from https://study.com/academy/practice/quiz-worksheet-calculating-earnings-per-share.html

Retrieved from https://unstats.un.org/sdgs/report/2017/goal-08

Retrieved from https://www.acronymfinder.com/Output-Per-Man_Shift-(mining)-(OMS).html

Retrieved from https://www.businesstoday.in/moneytoday/stocks/stocks-rising-for-10-years-will-they-give-g...

Retrieved from https://www.coursehero.com/file/pjta5d/2-An-organization-is-productive-if-it-achieves-its-...

Retrieved from https://www.drybulkmagazine.com/dry-bulk/19012017/demand-for-nsw-coal-has-increased-accord...

Retrieved from https://www.fool.com/knowledge-center/the-debt-to-net-worth-formula.aspx

Retrieved from https://www.govrecruitment.com/sccl-management-trainee-previous-papers/

Retrieved from https://www.investopedia.com/financial-edge/0711/the-highest-priced-stocks-in-america.aspx

Retrieved from https://www.investopedia.com/terms/a/average_collection_period.asp

Retrieved from https://www.investopedia.com/terms/d/debtequityratio.asp

Retrieved from https://www.investopedia.com/terms/n/networth.asp

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Retrieved from https://www.isixsigma.com/implementation/financial-analysis/cost-quality-not-only-failure-...

Retrieved from https://www.quora.com/What-does-a-celebritys-net-worth-mean

Retrieved from https://www.scribd.com/presentation/135729933/Introduction-to-Production-and-operations

Retrieved from https://www.stockopedia.com/ratios/

Retrieved from https://www.thestreet.com/story/13002167/1/16-rock-solid-dividend-stocks-with-50-years-of-...

Retrieved from https://www.ukessays.com/essays/management/introduction-to-production-and-operations-manag...

Retrieved from https://www.webindia123.com/telangana/Telangana.html

*****

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

REASONS BEHIND JOINING SHGs AND FORMATION OF SHG IN BENGALURU: A STUDY

Syed Rahamathulla[7] Dr. E. A. Parameshwara Gupta[8]

ABSTRACT

Microfinance initiative is concentrated in South India especially in rural areas. These initiatives are strongly welcomed by the poor, vulnerable and deserved who are rejected by the formal financial organisations and because of failure of government sponsored welfare programmes. The programme undertaken by the government machinery failed to trickle down to the level of poor and suffered from various failures like red-tapism, bureaucracy, high rate of corruption and duplication of projects. People who are living in slums and outerskirts require failure like the rural beneficiary for leading a normal life and to protect from various health hazards. Further, schooling of children is an eternal problem in Bengaluru and becoming inaccessible for the poor to admit in some institutions.

Financial initiation through Self Help Group (SHGs) creates awareness among the beneficiaries. On common platform beneficiaries discusses various related socio, economic and political issues. Beneficiaries are asked to undergoing programme and encouraged to involve in IGAs.

The comparison of members of SHGs and non-members shows that the members of SHG and their quality of life, health, employment, savings etc. are better when compare to non-members. The empowerment, decision on socio-economic and political is better than the non-members in the concerned areas. The SHGs at Bengaluru are becoming a model to others to follow.

KEYWORDS

Formation, Reasons, Self Help Groups, Norms, Income Generating Activities, Empowerment etc.

INTRODUCTION

Women forms 50% of population but so far, the male dominated society is not allowing the women to come to mainstream. Further, the women development is possible only when they are empowered which is accepted across the globe. Acclaim microfinance activities, which provide better access to market, finance, and health, children's education involvement in IGAs as a best strategy to alleviate poverty, which is bane on our part and development needs alleviation of poverty. Poor people should be allowed to live with more dignity and improved standard of life.

Microfinance initiative is attracting the attention of developing and under developed countries because of formal financial institutions restrictions to access the poor and deserved. Formal financial institutions have forgotten their social responsibility to the poor and society. Further, these institutions insist upon collateral and many a times the type of collateral insisted might not be existing with the poor. SHGs, which are formed by known caste, knowledge known religion, are highly helpful to the poor to access finance without any collateral and hurdles. The peer member who is the head of the association monitors loan scrutiny, loan spending and recovery. Since known people form these groups, recovery may not be a problem and in many groups recovered rate is progressive.

SIGNIFICANCE OF MICROFINANCE INITIATIVES

The microfinance strategy is accepted as a best strategy to alleviate poverty and it is acclaimed as a powerful tool of poverty alleviation. Microfinance activities make the urban poor to involve in income generating activities. The savings they created are put to use for common benefit of members. The genuine member may be given loan facility, which should be spend for productive use. Poverty is a state of deprivation. Such poor may not be in a position to spend at a specified level because of lack of resources.

Economic development of any nation is influenced by various economic factors like employment, savings, and industrialization, integration of technology and availability of financial services. Availability of financial resources is the strong driver of economic development. A good system of financial services helps the people to grow and provides employment opportunities.

[7]Research Scholar, Dravidian University, Andhra Pradesh, India, srahmathulla2011@gmail.com
[8]Co-ordinator (M. Com.), Sri Kongadiyappa College, Karnataka, India, eapgupta.52@gmail.com

Microfinance initiatives are capable of bringing poor living in slums and outerskirts to the mainstream. Easy access to financial services is the key element in the process of socio economic empowerment. Through microfinance initiates, the poor can be brought within the ambit of economic activity.

Microfinance is a catalyst in making the people to be included in financially inclusive programmes. Financial inclusion provides timely delivery of financial services to the vast section of disadvantage and low income groups in the society. It is capable of joining the social divides in the society. Inclusive growth covers each poor in the society. Microfinance activities strongly support the inclusive programme. Inclusive growth of late is gaining momentum in the society.

FORMATION OF SHGS IN BENGALURU URBAN

Phases of Group Formation

The group formation in the study are follows the following procedure. This procedure is followed in all the formation of SHGs.

First stage - Pre Formation Phase

The promoting agency collects information about financial requirements of proposed groups. In order to collect the required information the promoting agency plan to visit the selected area. During this visit, the agency attempts to generate interest and awareness among the elders of the family and convinces the elders of the family about the potential advantages of organizing into SHGs. Therefore, a first meeting will be convened with the elders of the family and a request for their support for the implementation of the idea of formation of SHG is made. This is done after attracting the confidence of potential members since when once the concurrence of elders is obtained, the community participation is ensured.

After convincing the elders of the family about the need and formation of an SHG, the next step to be taken is to convince the prospective women has and enquire the kind of difficulties faced by them in their everyday life. The daily difficulties faced by them may be either social or economic or both. The enquiry about women is facing difficulties in their daily life helps the promoting agency to understand the needs of each family.

The first meeting with prospective one women member is conducted either below a big tree, or in a temple or in a government school or in a community center or any other area, which may be easily approachable to all the women. In this meeting the principles, functioning of SHGs and processes etc. are explained to the members. The attending prospective women members may make queries pertaining to different aspects of the proposed SHG to clarity their doubts. This process is followed by two or three visits after 10 to 15 days while the interested women members are encouraged to finalize the composition of their respective groups.

Second Stage - Second Phase

This stage is concerned with the SHGs formation and training the members of SHGs. The promoting agency generally performs the following functions.

Selection or Election of the Leader

The first after the formation of SHGs is to select or elect the leaders of the group. Either the selection or election of the group leaders are left to the choice of the group concerned. If the group is unable to decide its leader, promoting agency will assist the SHG members either to select or to elect the leaders. Generally, in the study area three kinds of group leaders are appointed and assign the concerned responsibilities as shown below.

President or Chairman

The President or Chairman is one who is generally known all issues pertaining to run SHG successfully. The elected president should be wise, highly cooperative, open-minded, possess leadership qualities, has good rapport with members, has the capacity of inspiring the group, create socio economic awareness, advice on women empowerment and dynamic and active. The chairman responsibilities may be as follows:

Successfully organize group meetings, decide the venue and timing of meeting.
Take up necessary communication between member's banks and promoting agency.
Sign the documents on behalf of the company.
The chairman's most other important duty is to decide credit to the needy group member.

Cashier

Cashier should be literate women and possess clear ability to maintain accounts. The duties of cashier may be:

- Savings collection regularly.
- Credit collection from the members who have borrowers loan already.
- Keep a record of bank transactions of members.
- The cashier has to maintain account of loans disbursement and repayments.
- Maintenance of cashbook and other records.

In the absence of any literate member, NGOs and banks train up one of the responsible member who readily accepts the responsibility of maintaining records of the groups. The promoting agency takes up the responsibility of selecting a responsible member in case the members are not ready to take up responsibility. They also train the member. It is a general practice the cashier is subjected to change once in six months and a new member will be appointed in the place of outgoing. The tenure of cashier various from 6 months to one year. If there is, no objection to continue further the member can continue as cashier.

Secretary

The secretary of the concerned group is one who assumes all responsibilities of the president in his absence and helps the president SHG in the day-to-day administration of the group. Secretary also advises the president in some crucial matters.

After the fulfilment of the above requirements, a full pledged meeting of all members will be convened. In this meeting, the members are required to pass a resolution signed by the members present at meeting, expressing the willingness to open an account in the name of the SHG with some decided bank. This procedure is followed by savings collection, every member has to contribute towards savings fund, and such member who is unable to contribute has to withdraw from the group. The proceedings of the meeting, names of the members, etc. are recorded in the minute book.

Third stage - Post Formation Phase

During this phase, the president or peer member of the group would like to hand over documents as required by the bank. Further, a saving bank account will be opened in the name of the group. The other details to be provided by the peer member to the group may be conduct of internal lending by the members of the group, maintenance of SHG books of accounts etc. The NGOs or the officials of the bank solve all the doubts, problems, anxiety and fear of all the members. The activities in post formation phase are mentioned below.

- A saving bank account is opened in the name of the SHG. The recommendation of promoting agency to open an account is essential. This account will be opened as per the RBI norms and minimum balance required is Rs. 1000/-.
- A resolution copy to open an account should be given.
- A copy of rulebook of the group containing composition of leaders, details of members, the proceedings of group members is to be filed.
- An authorization letter to operate the bank account should also be filed with the bank.
- A savings bank passbook will be issued by the bank.
- After the completion of documents submission and opening a bank account, the group starts internal lending to its members. The group towards lending to the needy member will utilize the common savings fund, which is collected from the members for 2 to 3 months. The interest earned is also added to the savings pool. The group will decide the purpose, terms and conditions for lending.
- Cashier prepares the savings ledger. The lending transactions are separately entered in a separate ledger, which is exclusively kept to record only credit disbursed and credit collections. The books maintained by the group later serve as original documents of reference for borrowing later from the bank.

OBJECTIVES OF STUDY

- To analyse the formation procedure followed at Bengaluru and to analyse formation features.
- To analyse the significance of microfinance.
- To analyse the reasons behind joining an association.
- To study beneficiaries involvement in IGAs, attending meeting, awareness of bylaws.

HYPOTHESES

There is no formation procedure and features of formation.
Microfinance initiatives have no significance.
There are no reasons behind joining on SHG.
Beneficiaries are not involved in IGAs, not attending meeting and are not aware of bylaws.

RESEARCH METHODOLOGY

Data collection	:	Through questionnaire (English)
Sample fixation	:	Bill Godden's suggestion and 600 sample
Sampling Technique	:	Convenient sampling
Sources of data	:	Primary and secondary
Statistical analysis	:	Chi-square and ANOVA
Area of study (Universe)	:	Bengaluru Metropolitan City
Constraint in the study	:	Time, finance and transportation

REVIEW OF LITERATURE

Alexander Newman et al., (2014) in their study they have revealed that micro finance provision can create positive conditions for psychological or social capital to flourish. Thus, in turn microfinance provision can stimulate new venture creation and contribute to the growth of existing ventures.

Ansari (2005) viewed that SBLP is not only a massive intervention in India but also formed one of the biggest microfinance programmes in the world and has become an important part of the normal finance system in India.

Banerjee et al., (2010) expressed that there is a dearth of literature as to whether microfinance provision influences the creation of new business and growth of existing business. Further, they have stated that although development economists have begun to investigate such issues through empirical work the findings of such research are in conclusive and there has been limited focus on the underlying mechanisms which may explain how micro finance influences entrepreneurial activity.

Bhatt (1987) stressed the need for the financial innovations and concluded that it is a function of the central bank to create conditions favourable for financial inter-mediation that widens and deepen the credit or capital market through the introduction of new processes and products (credit instruments), cultivation and nurturing of new markets and introduction of new institutions and organismal structures.

Chakrabarthi (2004) assessed more specific issues such as the role of SHG federations on the sustainability of SHGs and the economic and personal empowerment of women as well as the role of microfinance in poverty eradication. The major findings of these studies are that SHG federations play a critical role in improving the sustainability of SHGs through financial and organizational support.

Chandrashekar et al.,(2010) in their research they have stated that SHGs have been successful in not only designing financial products meeting particular needs of the poor but also strengthening collective self-help capacity of the poor at the local level, leading to their employment.

LIMITATIONS OF STUDY

The present study suffers from the following limitations.

It is limited only to proper Bengaluru.
The conclusions drawn cannot be applied to other areas since the geographical area is limited and a lengthy study may provide better conclusions.
The sample is not quite large.
The study also suffers from constraints like finance, time and transportation.

SURVEY FINDINGS

Table-1 reveals data about formation features and functions of SHGs. The promoting agency visited four times the village, heads of the village and prospective member. The average time taken to form an SHG is 65 days. The norms framed by SHG reveal about the purpose of group formation. 90% to avail loan, 30% development works and 60% to involve in IGAs. 12 meetings were held previously at the rate of one meeting per month. Major criteria behind the formation of an SHG are area based. The income generating activities include sale of cloth pieces, different pickles, sambar and badam powder, hand keys, bed sheets / pillow covers, candles etc.

Table-2 reveals information about reasons behind joining SHGs. These reasons vary from fight against gender discrimination to SHGs makes beneficiary busy. 565 respondents or 94% gave the reason fight against gender discrimination followed by 570 respondents to fight against exploitation, 580 better education, health and to fight against poverty, 590 said about common platform and hence joined SHGs, SHGs provide 540 said about financial literacy, 550 quoted the reason involving in IGAs, 590 enhancement of women empowerment, 530 awareness of voting and contest in election, 520 creation of savings 500 enhances of decision making 510 SHGs considers inclusive growth, 520 creates confidence for self-economic progress, 520 SHGs makes beneficiaries busy and hence they joined SHGs.

Table-3 highlights data regarding significance of microfinance. The significance drivers vary from alleviation of poverty and enhancement of income to developing entrepreneurial skills. 370 respondents or 62% are strongly known about the drivers of significance of microfinance followed by 185 known, 20 no comment and 25 strongly not known. Out of 370 respondents who are strongly known about the drivers of significance of microfinance, 90 said about alleviation of poverty, 78 about women empowerment. 75 jobs and savings are created and 65 about financial inclusion and 62 about the driver of developing entrepreneurial skills. 185 respondents said about known regarding drivers of significance of microfinance, 50 said about the driver of alleviation of poverty, 38 about women empowerment, 35 creation of jobs and savings, 32 financial inclusion, 30 about developing entrepreneurial skill ANOVA quantitative tool rejects the null hypotheses and accepts the alternative. Therefore it can be concluded have respondents are aware of drivers of significance of microfinance.

Table-4 reveals data about respondents attending meeting. 400 respondents or 67% great majority attend the meeting monthly once followed by 100 respondents or 17% weekly, 50 each respondents fortnightly and any day other than weekly, bi-weekly and monthly. Table reveals that respondents attend meeting to discuss the significant issues pertaining to SHGs. The Chi-square quantitative technique fails to accept the null hypotheses and accepts the alternative. To measure the norms adopted by SHGs a sample of 50 groups were chosen and the president / peer member, the head of the group was enquired about the norms followed in their concerned groups. It was found during the time of data collection that almost all the SHGs following a set of norms framed for smooth going and success of the groups. Peer presence is dominating in all the sample groups and peer member will be present at the time of credit delivery to the needy beneficiaries. 42 groups practicing a norm of asking the member to leave the group in case the member continuously absent three times may be weekly / monthly. 4 each group follows the norm of compulsory 90% and 80% attendance.

Further the table-5 reveals data about savings to loan ratio, repayment norms and duration of membership in a group to avail a loan. Sample groups followed different savings to loan ratio. 25 groups followed 1:2 savings to loan ratio, 20 followed 1:4 savings to loan ratio and a marginal of 02 groups 1:1 ratio and 03 groups followed 1:3 savings to loan ratio. In all the groups, the norm of no new loan will be sanction unless and until the previous is settled is followed. 20 groups following the minimum duration waiting to avail a loan is followed, 8 groups each 5 months and 12 months and 2 groups each following a norm of 2 months, 3 months and 4 months. The greater the duration or waiting period is insisted in order to know the credit worthiness of beneficiaries.

Table-6 shows the data about the benefits of involvement in the income generating activities. 358 respondents out of 600 or 60% are strongly agree over the awareness of benefits of involvement in the IGAs, followed by 187 respondents or 31% agree over the same, 25 somewhat aware and finally 30 low aware about the same. Out of the 358 respondents who have strongly agree, 72 expressed about the benefit of keeping the members busy, 60 about enhancement of income, 57 elimination of unemployment, 55 more acquaint of financial Liberace, 54 about savings formation. Similarly out of 187 respondents who have agree about the benefits of involvement 40 said that involvement in IGAs keeps the members busy, 34 said about the benefit of financial literacy,
32 said about educating children, 29 about enhancement of income, 28 about savings, and 24 about elimination of unemployment. ANOVA fails to accept the null hypotheses and accepts the alternative. Therefore, one may conclude here that respondents are aware of benefits of involving in IGAs.

CONCLUSION

Microfinance activities are strongly acting against poverty and beneficiaries are involve in IGAs. The intervention of microfinance initiative is hailed as best strategy to reduce the poverty and makes the beneficiaries to involve in IGAs. In a fast growing city marketing may not be a problem and beneficiaries should be well trained about book keeping, savings ledger maintenance, credit collection and disbursement register etc., Proper training should also be given regarding skill development and entrepreneurship talent. There are greater chances the microfinance movement, which is spreading so fast in urban centers, may become a great movement shorty.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

REFERENCES

Alexander, Newman, Susan, Schwarz, & Daniel, Borgia. (2014). How does microfinance nhance entrepreneurial outcomes in emerging economices? The mediating mechanisms of psychological and social capital. ***International Small Business Journal,*** 32(2), 168.

Ansari, S. A. (2008). Microfinance in India. ***Co-operative Perspective***, 42(4), 39-48.

Banerjee, A., Duflo, E., & Glennerster, R. (et. al.). (2010). ***The Miracle Of Microfinance? Evidence from a Randomised Evaluation*** (MIT Working Paper Series). Boston, MA. MIT

Bhatt, V. V. (1987). Financial innovations and credit market evoluation. ***Economic and Political Weekly***, XXII(22), 45-54.

Chakrabarti, R. (2004). The India MF experience: Accomplishments and challenges. In B. Debray and A.V. Kham (eds), ***Integrating The Rural Poor Into Markets***. New Delhi Academic Foundation.

Chandrashekar, T. C., & Shivakumar, S. C. (2010). Microfinance in India experience. ***Southern Economist,*** 49(2), 170-90.

Retrieved from http://ddegjust.ac.in/studymaterial/bba/bba-201.pdf

Retrieved from http://overpopulation.org/pop-sustainability.html

Retrieved from http://pezzottaitejournals.net/pezzottaite/images/ISSUES/V4N1/IJLSCMPV4N106.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/31999/7/g7-%20chapter%202.pdf

Retrieved from http://www.answers.com/Q/FAQ/2062

Retrieved from http://www.icommercecentral.com/open-access/the-role-of-microfinance-institutions-in-finan...

Retrieved from http://www.referenceforbusiness.com/management/Gr-Int/Group-Dynamics.html

Retrieved from http://www.refworld.org/pdfid/4c7f3fbc2.pdf

Retrieved from http://www.wmionline.org/aboutus/whatmicro/whatmicro.html

Retrieved from http://www.yourarticlelibrary.com/management/group-dynamics-its-characteristics-stages-typ...

Retrieved from http://www.yourarticlelibrary.com/sociology/social-processes-the-meaning-types-characteris...

Retrieved from https://bizfluent.com/how-5705712-address-group-people-letter.html

Retrieved from https://ideas.repec.org/p/han/dpaper/dp-490.html

Retrieved from https://onesourcegov.files.wordpress.com/2017/08/ar-16-17-final.pdf

Retrieved from https://smejoinup.com/blog/financial-services-helps-in-managing-your-money/

Retrieved from https://sureshe.wordpress.com/2017/11/25/call-floor-leaders-to-request-their-support-for-t...

Retrieved from https://www.importantindia.com/12408/features-of-parliamentary-form-of-government/

Retrieved from https://www.policybazaar.com/life-insurance/

Retrieved from https://www.projectmanagement-training.net/category/six-phases/

Retrieved from https://www.researchgate.net/profile/Daniel_Borgia/publication/270723877_How_does_microfin...

Retrieved from https://www.ripublication.com/ijmibs-spl/ijbmisv4n3spl_07.pdf

Retrieved from https://www.ukessays.com/essays/finance/microfinance-institutions.php

APPENDIX

Table-1: Formation Features and functions of SHGs

	Significant Features	Indicating Factors	Number
1.	Number of times promoting agency visited & met the prospective members	Visited the area and in the beginning the head of the prospective group consulted	04
2.	Average time taken to form the SHG (days)	Consulting the head of the areas takes little time	65
3.	Purpose of group formation (in percentage)	(i) Obtaining credit	90%
		(ii) Developmental works	30%
		(iii) Development in IGAs	60%
4.	Frequency of meetings held per month		1
5.	Average number of members in the groups		12
6.	No. of meetings held in the last year		12
7.	Criteria for group formation	Religion	50
		Area based	475
		Economic & Social Activity	75
		Total	600
8.	Selection mode of peer member	Voting	515
		Jointly by NGOs and banks	85
		Total	600
9.	Members attending the meeting (in percentage)		90%
10.	Members borrowing money		85%
11.	Rate of interest	Decided by members	24%
12.	Number of trade fairs attended	-	10
13.	Products sold in the fair	Cloth pieces Pickles - different variety Sambar Powder Badam Powder Hand Key Bed Sheets / pillow covers Candles / birthday etc.	

Sources: Field Survey

Table-2: Reasons Behind Joining Self Help Groups - Respondents Opinion

Reasons behind joining on SHG	Yes	%	No	%	T
To fight against gender discrimination	565	94	35	6	600 (100)
To fight against exploitation	570	95	30	5	600 (100)
To avail better education health, sanitation and to fight against poverty	580	97	20	3	600 (100)
SHGs provides a common platform to discuss some issue	590	98	10	2	600 (100)
Creates more financial literacy awareness	540	90	60	10	600 (100)
Joined SHG to involve in IGAs	550	92	50	8	600 (100)
Joined SHG to enhance women empowerment	590	98	10	2	600 (100)
Awareness enhancement voting contest in elections	530	88	70	12	600 (100)
To create savings	520	87	80	13	600 (100)
Enhances decision making	500	83	100	17	600 (100)
SHGs considered inclusive growth	510	85	90	15	600 (100)
SHGs creates confidence for self-economic progress	520	87	80	13	600 (100)
SHGs makes beneficiaries busy	530	88	70	12	600 (100)

Sources: Field Survey
Note: Respondents were asked to express multiple options.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-3: Significance of Microfinance

Factors Driving Significance of Microfinance	SK	K	NC	SNK	T
Microfinance alleviates poverty and enhances income	90	50	3	6	149
Microfinance improvises women empowerment and also provides livelihood	78	38	5	7	128
Microfinance achieves financial inclusion	65	32	3	4	104
Microfinance provides job and savings are created	75	35	4	5	119
Microfinance develops entrepreneurial skills	62	30	5	3	100
Total	370	185	20	25	600

Sources: Field Survey
Note: SK - Strongly Known, K- Known, NC - No Comment, SNK - Strongly not known, T – Total

Hypotheses

H0	Microfinance and awareness of significance of microfinance is not related and respondents are not aware of significance of microfinance.	Reject
H1	Microfinance and awareness of significance of microfinance is positively related and respondents are aware of significance.	Accept

ANOVA Table

Source of Variation	SS	d.f.	m.s.	F-ratio	5% F limit (From F Table)
Between the sample	16450	(4-1)=3	16450/3 =5483.3333	5483.3333/47.5 =115.4385	
Within the sample	760	(20-4)=16	760/16 =47.5		F(3,16)=3.24
Total	17210	(20-1)=19			

Sources: Field Survey

Table-4: Classification of Respondents by Attending the SHG Meetings

Frequency of Attending Meeting	Number of Respondents	%	x^2 Value
Weekly	100	17	
Bi-weekly	50	8	
Monthly	400	67	566.6668*
Any day other than the above	50	8	
Total	600	100	

Sources: Field Survey
Note: x^2 (0.05, d.f. = 3) = 7.815; *Significant @ 5% level

Hypotheses

H0	Microfinance and respondents attending the meeting is not positively related and there exists no significant greater variations in the attending of meeting.	Reject
H1	Microfinance and respondents attending the meeting is positively related and there exists significant greater variations in the attending of meeting.	Accept

Chi-square Table

Calculated value = 566.6668, Significance level = 5%, d.f. = 3, TV = 7.815

Analysis of Chi-square

The calculated value being 566.6668 being greater than the TV = 7.815 @ 5% level of significance with d.f. = 3 fails to accept the null hypotheses and accepts the alternative.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-5: Awareness of Bylaws or Norms by the SHG Members

Norms	Type of Norms	Sample SHG Groups N = 50
Attendance	A member not attending the meeting continuously for 3 months or weeks should leave the group	42
Savings to loan ratio	1:1	02
	1:2	25
	1:3	03
	1:4	20
Repayment Norms	No new loan will be granted unless the Settlement of previous loan	50
Duration of membership in a group to avail a loan	2 months	02
	3 months	02
	4 months	02
	5 months	08
	6 months	28
	12 months	08

Sources: Field Survey

Table-6: Advantages of Involvement in Income Generating Activities

Awareness about benefits of IGAs	SA	A	SWA	LA	T
Keep SHG members busy	72	40	6	8	126
Enhances income of the SHG members	60	29	3	6	98
Eliminates unemployment	57	24	5	5	91
More savings may be formed	54	28	4	4	90
Involvement in IGA makes the member to educate children better	60	32	4	3	99
More acquaint of financial literacy	55	34	3	4	96
Total	358	187	25	30	600

Sources: Field Survey
Note: SA - Strongly agree, A - Agree, SWA - Somewhat agree, LA - Low agree

Hypotheses

H0	Microfinance and advantages involvement in IGA is not positively related and there exist no significant variations in the benefits	Reject
H1	Microfinance and advantages involvement in IGA is positively related and there exist significant variations in the benefits	Accept

ANOVA Table

Source of Variation	SS	d.f.	m.s.	F-ratio	5% F limit (From F Table)
Between the sample	12443.8002	(4-1)=3	12443.8002/3 =4147.9334	4147.93334/ 19.900 =208.4378	
Within the sample	389.8002	(24-4)=20	389.8002/20 =19.9001		F(3,20)=3.10
Total	12833.6004	(24-1)=23			

Sources: Field Survey

ANOVA Analysis

The above ANOVA table reveals that the calculated value being 208.4378 higher than the TV = 3.10 @ 5% level of significance with d.f. v1 = 3 and v2 = 20 fails to accept the null hypotheses and accepts the alternative.

*****

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

CORPORATE SOCIAL RESPONSIBILITY PRACTICES IN SELECTED PUBLIC LIMITED COMPANIES AT BENGALURU: A STUDY

Nagaraja C.[9] Dr. Aswathanarayana T.[10]

ABSTRACT

Corporate Social Responsibility has become a powerful strategy to alleviate poverty, hunger, unemployment. Companies have realized the needs and expectations of customers and across the globe, the stakeholders have realized the significance of CSR in order to build customer loyalty, enhancing image, and to increase turnover and profit. Customers prefer a CSR company than a non-CSR company. In these days of high competition companies have realized the greater value of CSR and are going beyond the traditional marketing mix to increase the value of intangible assets. CSR has become a gateway to generate brand equity and increase employee loyalty.

The intention of maximization of profit is natural in every business unit but social responsibility is an obligation to the people living inside and outside the organisation. Business and society is interrelated and it is the responsibility of business to satisfy various groups of people like owners, employees, customers, government, suppliers etc., CSR has become one of the catch phrases of new millennium across the world and the government and corporate must take care of it. A successful corporate balances the economic and financial goals and optimization of shareholder value with maximization of social benefits to the society. It is clear that the aim of CSR is to build a healthy society and development of communities.

KEYWORDS

Brand Loyalty, Health, Profit, Image, Transparency, Public Sector Undertakings etc.

INTRODUCTION

Companies make profit by using society in many ways. Therefore, it is their ethical duty to give back towards the progress of the society. Of late companies have realized that to derive benefits and to stay and access competitive advantage they have to focus on welfare of the society and to reduce social divides. The multiple social welfare programmes implemented by the government could not trickle down to the needy and could not produce expected result and therefore companies in future in order to better the society and its welfare should undertake the beneficial activities benefitting the society and its stakeholders. CSR is becoming a "business necessity" and in order to get sustainable development a close and good relationship with society is needed.

CSR is a multi-angled concept, some prefer to call it as an obligation, and others consider it as a strategic tool. In a developing country like India, CSR plays an instrumental role in the development of organisation and societies. One can easily notice the paradigm shift from corporate philanthropist to being socially accountable, committable and responsible. The concept of inclusive growth, helping the downtrodden to join mainstream are some of the suitable strategies that makes the needy people to improve the society socio-economically. The concept of equity in the society is attaining widespread significance and planners, experts, and economists have realized that until and unless the unassessed is properly accessed, the economic gains cannot be equally shared by all in the equitable manner.

CSR involves a commitment by a company towards sustainable economic development of the society. It means the companies directly come with contacting the locations, identifying their basic needs and finding suitable solution. Multinational companies have realized the significance of CSR and moving in that direction of preparing CSR projects in order to improvise the society in a meaningful manner. They are using CSR as a strategy to stay, to expand, and to face competitive market.

CSR and Marketing: Highlighting the Significance

A successful marketer wanted to encash the benefits to be derived from practicing CSR activities. It has become a responsibility on the part of corporates to inform to the society about the CSR initiatives undertaken by the companies otherwise; they lose the return on their investment. Branding is playing a catalyst role in forging the consumers, stakeholders with companies. Brands are capable of appealing to the minds of every dynamic consumer in an ever changing and dynamic globe. It has become a necessity on the part of companies addressing the relevant issues in the development of marketing strategy. Firms have realized the value of enhancement of intangible asset be it a brand name of employee morale. Only such companies, which have gained the goodwill of

[9]Research Scholar, Department of Commerce, Bharathiar University, Tamil Nadu, India, nagarajc.2009@gmail.com
[10]Professor, Government First Grade College, Karnataka, India, aswathtn@gmail.com

public, can develop intangible assets into strategic advantages. In the eye and mind of companies, brand marketing has become an important strategy to win customers, society. Consumers will spend money on brands that reflects their values and concern in their mind. By including the brand name in social movement and campaigns brand, awareness and recognition are enhanced.

STATEMENT OF PROBLEM

Business cannot exist without society. They are interrelated. The changes in the society also bring changes in the business. A survey of existing literature on CSR reveals that the corporates are expected to operate in the best interest of the society and should poses a sense of obligation towards the society and companies should attempt positively to solve the problem. The rising awareness among the consumers about green practices, protection of environment, health, education, eradication of hunger, local area development should also be viewed by the corporates in order to build a healthy and progressive society.

The socio economic development of Indian economy is highly unbalanced and heavy regional imbalances are emerging out of this trend. Heavy concentration of industries in a few pockets of India is paving the way for demand of a separate state. It is the duty of the government to reduce poverty, hunger and enhance health of the people, and work for equal development of all reasons.

REVIEW OF LITERATURE

Ashok Kumar Rath (2016) has stated in his research paper that CSR has become now an integral part of corporate governance. As per section 135 of Companies Act 2013, they have to spend 2% of the average profits made during the three immediately preceding financial years. Further, the researcher revealed the attainment of goals of CSR statutory obligation alone will not serve the purpose and private players collective effort may be quite useful.

Foo Nin Ho et al. (2012) conducted empirical test to examine national culture and geographic environment on business firms. Results showed that Hofstede’s cultural dimensions were closely associated with corporate social performance (CSP) and European Companies are found to outperform to those of other countries under consideration in CSR.

Sathish Kumar (2012) expressed CSR initiatives by 30BSE listed companies. The study concluded that CSR initiatives of the companies under study are independent of the level of revenue, type of ownership and the type of public and private sector.

Shruti Srivastava et al. (2015) reported that the Indian Express dated 23rd November 2015 India’s top 50 companies claimed to have spent Rs. 4000 crores in the financial year ending 31st March 2015. Most of these companies invested in the areas like education, healthcare, environment and Swachh Bharath initiatives in mostly states like Karnataka, Tamil Nadu, Gujarat, Delhi and Andhra Pradesh, UP, Jharkhand and Bihar along with North Eastern States.

Bansal et al. (2012) expressed in their study on 30 companies of 11 sector listed in Bombay Stock Exchanges, that companies are not only working to earn profit but also realized the significance of being socially friendly. They concluded that social responsibility has become now started taking a turn in new direction.

OBJECTIVES

- To know the socio-economic demographic profile of the respondents.
- To analyse the respondents perception of CSR.
- To analyse the respondents awareness of CSR’s benefits and drivers of CSR.
- To study the activities undertaken by the public companies ltd. in Bengaluru.

HYPOTHESES

- Socio-economic demographic variables are not supporting the CSR in Bengaluru.
- Respondents do not possess perception of the CSR activities.
- Respondents are not aware of benefits of CSR.
- There are no activities undertaken by the public companies in Bengaluru.

RESEARCH METHODOLOGY

The present study is a descriptive study and covers both primary and secondary data. Primary data is collected by meeting the respondents and administering a well-prepared questionnaire as schedule, in order to save time and money. The employees of BEL, BIOCON, L&T, Infosys and CSM public Ltd., companies were met and data collected. The public also covered in order to measure the awareness of CSR initiatives undertaken by the different companies.

Sampling Technique

A total of 600 respondents covered from selected public limited companies and public consisting government and private employees, professionals, home makers, students, officials and employees working at different companies. 300 employees and 300 public were considered sufficient for the present study.

Sample of the Study

Using the formula suggested by Bill Godden the sample of the study was decided.

SS = infinite where population is > 50,000
SS = Z^2x (P) x (i-p)/c^2
Z = Z value[A] (e.g. 1.96 for a confidence level)
P = Percentage of population picking a choice, expressed as decimal[B]
C = Confidence interval, expressed as decimal.
(e.g. 0.04 = +/- 4 percentage points)
AZ values (Cumulative Normal Probability Table)
1.645 = 90% Confidence level
1.96 = 95% Confidence level
2.576 = 99% Confidence level
SS = 3.8416 x 0.5 x 0.5 / 0.0016 = 0.9604 / 0.004
= 600.25 or 600.

Sampling

Table-A

Category	Number of Respondents		Total
	Males	Females	
Employees of Public Limited Companies	200	100	300
General Public: Government Employees	50	20	70
Private Employees	100	30	130
Self Employed	30	10	40
Professionals	25	05	40
Home makers, students studying in UG and PG, others	25	05	30
Total	430	170	600

Sources: Authors Compilation

Data Collection

A total of 600 respondents 300 from public company ltd., employees and the rest 300 public formed the entire sampling structure. Out of 650 responses collected from different companies and general public only 600 were usable ones. The responses received were considered yielded a response rate of 92%. A well-drafted questionnaire was prepared and used to collect the data. The questionnaire was prepared taking into account the objectives.

SCOPE OF STUDY

The present study covers Bengaluru Urban only. By verifying the list of best public companies in Bengaluru, BEL, BIOCON, L&T, Infosys & CMS were selected, employees were interviewed, and the responses given by them were entered properly. Chi- square and ANOVA quantitative metrics were performed to test scientifically the variations in the data.

LIMITATIONS

The study is confined to Bengaluru. Data was collected and the different opinions given by the respondents are presented in the Likert different point of scale. The respondents out of their memory gave the responses. These findings may become a basis for the future policy formation about CSR since mandatory legislation is in the beginning.

SURVEY FINDINGS

Table-1 highlights data about respondent's demographics profile. There are 430 or 72 males out of 600 and the remaining 28 females. There are 510 respondents married and 90 are single including students. 300 respondents or 50% belongs to the age group of 31-40 years followed by 170 belongs to 41-50 years, 10 belongs to 21-30 years. There are 200 BE degree holders in the study followed by 120 MSc Computer graduates, 100 each post graduates other than MSc Computer degree holders and 100 ME Degree holders. Further Table-1 reveals that 20 chartered Accountants, 60 general degree holders also interviewed for the primary data collection. The monthly income details show that there are 180 respondents getting a monthly income of Rs. 40000 - 50000 followed by, 140 between 50000 - 60000, 130 between 60000 - 70000 and 80 were above Rs. 70000. 93% of the employees out of 300 participated in CSR activities at the company level and only 20 not participated who may be new entrants.

Table-2 reveals data about respondent's awareness of benefits of CSR. 360 respondents out of 600 are highly aware of benefits of CSR followed by 180 are aware, 24 somewhat aware, 18 not aware and 12 strongly not aware. Out of 360 who are strongly aware 72 said about CSR is a way to burnish companies image, generate brand equity and enhances employee loyalty, 69 viewed about the benefit of CSR enhances reputation, 65 said about CSR improvises the financial performance, reduces operating efficiency and increases sales, 54 said about CSR aims at enhancing shareholder value. 52 about brand image enhancement and 48 about CSR establishes transparency. Out of 186 who are aware of benefits of CSR 41 said about CSR enhances reputation followed by 35 a way of burnish companies image, 32 about improvises financial performance, 30 about improvises financial performance, 30 above improvises brand image. 28 about enhanced transparency build trust and trust translates into commercial transactions. 20 about CSR's benefit of enhancing shareholder value. Out of 24 who stood somewhat aware, 9 said about CSR improvises image, 5 about reputation followed by 18 not aware and 12 strongly not aware.

Table-3 reveals information about respondent's perception of CSR. 396 out of 600 or 66% strongly agree about their perception level, 180 or 30% agree and only 24 or 4% somewhat agree. Out of the 180 respondents who have agree, 35 each said about mandatory restrictions and creates brand loyalty followed by 30 respondents stating about their perception of CSR bridges social divide, 28 about CSR creates respect by peers in the society, 27 about meets the consumer needs and table and finally 25 respondents stating CSR enhances turnover and profits. Further, the table reveals about 24 respondents expressing somewhat awareness. The ANOVA statistical tool performed to know the variations in the drivers of perception of respondents about CSR reveals that it fails to accept the null hypotheses and accepts the alternative. ANOVA tool reveals that presence of variation and respondents are aware of drivers of perception.

Table-4 reveals the overall data about the public companies practices of CSR activities. 590 respondents said about engaging local and marginalized followed by 580 each about gender equity, poverty eradication, rain water harvest, employee morale, skill development and career development followed by 550 respondents speaking about potable water, 540 about women empowerment, 530 each about education initiatives and protection of natural heritage, 520 about environment, 510 about hunger and nutrition, 490 about waste management, and 400 about rural development.

CONCLUSION

The study reveals that the stated public companies have taken up different CSR initiatives and very important among the CSR initiatives these companies engaged local and marginalized and there by further divide in social issues has been stopped. Rainwater harvesting which is a compulsory issue in Bengaluru and that respondents stated by the performance. It is concluded here that the public companies are involving the CSR activities and paying back to the society where they are highly benefitted. The success of CSR initiatives is highly depending the commitment of both management and employees of these companies.

It is beyond doubt proved across the globe that the local and global companies are aware of the significance of CSR and realized that in order to stay in the market CSR has to be performed since the customers are showing an upward trend in using environmental products.

REFERENCES

Rath, Ashok Kumar. (2016). A critical study on CSR activities of public sector undertakings in India and its financial implications. ***IOSR Journal of Business and Management***, 18(10), 31-36.

Foo Nim Ho, Hki Ming Deanna Wang, Scottj, & Vtell. (2012). A global analysis of CSP: The effects of cultural and geographic Environments. ***Journal of Business Ethics,*** 17(4), 423-433.

Kumar, Sathish. (2012). Application of Chi-square to analyse CSR: A study of BSE Sensex (30) based companies. ***Journal of IPEM,*** 6(1), 1-11.

Srivastava, Shruthi, & Singh, S. (2015, November 23). Health Care to Swach Bharath, How firm spent their CSR. ***The Indian Express.***

Bansal, Harabajan, Parida, Vina, & Kumar, Pankaj. (2012). Emerging trends of CSR in India. ***KAIM Journal of Management,*** 4(1-2).

Retrieved from http://finance.bih.nic.in/Documents/CSR-Policy.pdf

Retrieved from http://iosrjournals.org/impact-factor.html

Retrieved from http://iosrjournals.org/iosr-jagg.html

Retrieved from http://jcdr.in/articles/PDF/1139/1685_9_4_11.pdf

Retrieved from http://maxwellsci.com/print/crjss/v3-269-275.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/3774/14/14_chapter%204.pdf

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/50908/7/07_chapter%203.pdf

Retrieved from http://www.dotcomdist.com/How-To-Build-Customer-Loyalty-Through-Your-Brand-Image

Retrieved from http://www.indianresearchjournals.com/pdf/IJMFSMR/2012/December/6.pdf

Retrieved from http://www.iosrjournals.org/iosr-jbm/papers/Vol16-issue12/Version-1/I0161215155.pdf

Retrieved from http://www.iosrjournals.org/iosr-jbm/papers/Vol17-issue4/Version-5/J017457278.pdf

Retrieved from http://www.iosrjournals.org/iosr-jbm/papers/Vol19-issue7/Version-2/N19070293101.pdf

Retrieved from http://www.iosrjournals.org/iosr-jdms.html

Retrieved from http://www.iosrjournals.org/iosr-jmce.html

Retrieved from http://www.jcdr.net/article_fulltext.asp?id=1180

Retrieved from http://www.readbag.com/micpa-my-micpamember-cpa-review-cpa-taxinvestmentreview-2007

Retrieved from http://www.studymode.com/subjects/why-has-strategic-management-becomes-so-important-to-tod...

Retrieved from http://www.taxmann.com/commentaries/samples/Volume3_SampleChapters.pdf

Retrieved from https://archive.org/stream/ERIC_ED309985/ERIC_ED309985_djvu.txt

Retrieved from https://economictimes.indiatimes.com/mf/analysis/investing-for-a-monthly-income-of-rs-1-0-...

Retrieved from https://explorable.com/research-designs

Retrieved from https://ijirset.com/upload/2015/september/118A_S.pdf

Retrieved from https://researchbasics.education.uconn.edu/anova_regression_and_chi-square/

Retrieved from https://timesofindia.indiatimes.com/city/mumbai/cooperative-societies-can-breathe-easy-as-...

Retrieved from https://travelandencounter.holylandtrust.org/an-obligation-to-the-people-of-umm-al-kheir-e...

Retrieved from https://www.cleverism.com/7ps-additional-aspects-marketing-mix/

Retrieved from https://www.psychologytoday.com/blog/co-parenting-after-divorce/201502/what-exactly-is-the...

Retrieved from https://www.pwc.in/assets/pdfs/publications/2013/handbook-on-corporate-social-responsibili...

Retrieved from https://www.quora.com/How-does-social-media-benefit-society

Retrieved from https://www.quora.com/What-is-the-difference-between-chi-square-and-Anova

Retrieved from https://www.telegraph.co.uk/finance/newsbysector/industry/11896546/Corporate-Social-Respon...

Retrieved from https://www.xerox.com/downloads/ind/en/i/ind_social_responsibility.pdf

APPENDIX

Table-1: Demographic Profile of Respondents

Variables		Number of Respondents		%
A. Gender	Males	430		72
	Female	170		28
B. Marital Status	Married	510		85
	Single	90		15
C. Age in years	<20 years	20		03
	21-30	60		10
	31-40	300		50
	41-50	170		28
	51 & above	50		09
D. Educational Background				
	Post graduates (Other than MSc Computer)	100		17
	BE	200		33
	ME	100		17
	MSc Computer	120		20
	CA Chartered Accountant	20		03
	General Degree (BA / B.Sc. / B. Com. / BBA)	60		10
E. Monthly Income in Rs. (Excluding students (20))				
	20000-30000	20		04
	30000-40000	30		05
	40000-50000	180		31
	50000-60000	140		24
	60000-70000	130		23
	>70000	80		13
F. Participation in CSR activities				
	Yes %	No	%	Total
(Excluding students and home maker, general public)				
	280 93%	20	07%	300

Sources: Authors Compilation

Table-2: Awareness of Benefits of CSR

Awareness level	HA	A	SWA	NA	SNA	T
CSR is a way to burnish companies images generate brand equity loyalty and enhance employee	72	35	9	3	3	122
CSR inspires financial performance reduces operating cost and increases sales	65	32	2	2	1	102
CSR enhances reputation of the company in the market	69	41	5	6	3	124
CSR improvises the brand image and open the door for brand loyalty creation	52	30	3	2	2	89
Enhanced transparency builds trust and trust translated into commercial transactions	48	28	3	3	1	83
CSR aims at enhancing share holder value	54	20	2	2	2	80
Total	360	186	24	18	12	600

Sources: Field Survey
Note: HA - Highly Aware, A - Aware, SWA - Some What Aware, NA - Not Aware, SNA - Strongly Not Aware

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Hypotheses

H_0: CSR practices in Bengaluru and awareness of benefits of CSR is not positively related and there exists no significant variations in the awareness level — Reject
H_1: CSR practices in Bengaluru and awareness of benefits of CSR is positively related and there exists significant variations in the awareness level — Accept

ANOVA Table

Source of Variation	SS	d.f.	MS	F-ratio	5% F limit (from F-table)
Between the sample	15540	(5-1)=4	15540/4 =3885	3885/31.76 =122.32	
Within the sample	794	(30.5)=25 =31.76	794/25		F=(4,25) =2.76
	16334	(30-1)=29			

Sources: Field Survey

ANOVA Analysis

The calculated value being 122.32 higher than the TV = 2.76@5% level of significance with d.f. = v1 = 4 and v2 = 25 fails to accept the null hypotheses and accepts the alternative.

Table-3: Respondents Perception of CSR

Drivers of Perception	SA	A	SWA	T
CSR is a mandatory and companies should take up stated CSR initiatives in the local area	70	35	5	110
Greater respect by peers in the community	66	28	4	98
Widens social awareness and bridges the social divide	74	30	5	109
Creates brand loyalty	65	35	3	103
Meets the consumers needs and taste	58	27	4	89
Enhances turnover and profits	63	25	3	91
Total	396	180	24	600

Sources: Field Survey
Note: SA - Strongly agree, A - agree, SWA - Somewhat agree

Hypotheses

H_0: CSR practices in Bengaluru, respondent's perception is not positively related, and there exists no significant variation in drivers of perception of CSR — Reject
H_1: CSR practices in Bengaluru, respondent's perception is positively related, and there exists significant variation in drivers of perception of CSR — Accept

ANOVA Table

Sources of Variation	SS	d.f.	MS	F-ratio	5% F limit (from t F-table)
Between the sample	11632	(3-1)=2	11632/2 =5816	5816/15.1333 =384.31	
Within the sample	227	(18-3)=15	227/15 =15.1333		F=(2,15) =3.68
Total	11859	(18-1)=17			

Sources: Field Survey

ANOVA Analysis

The calculated value being 384.31 higher than the TV = 3.68@5% level of significance with d.f. = v1 = 2 and v2 = 15 fails to accept the null hypotheses and accepts the alternative.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-4: Respondents Perception about Activities Undertaken by Selected Companies

	Yes	%	No	&	T
			Sample 600		
Education initiatives	530	88	70	12	600
Health and welfare	500	83	100	17	600
Environment	520	87	80	13	600
Rural Development	400	67	200	33	600
Vocational training	380	63	220	37	600
Livelihood	500	83	100	17	600
Drinking water	550	92	50	08	600
Gender equality	580	97	20	03	600
Women empowerment	540	90	60	10	600
Rainwater harvest	580	97	20	03	600
Hunger and nutrition	510	85	90	15	600
Community welfare	530	88	70	12	600
Poverty eradication	580	97	20	03	600
Youth empowerment & training	500	83	100	17	600
Engaging local & marginalized	590	98	10	02	600
Waste management	490	82	110	18	600
Protection of national heritage	530	88	70	12	600
Employee morale, skill development and career development	580	97	20	03	600

Sources: Field Survey

*****

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

PRICING STRATEGIES IN BUSINESS

Alibabu[11] Omprasad Reddy[12]

ABSTRACT

This paper discusses about various Models of pricing and pricing strategies used by the businesses. These models and strategies are explained with examples. Pricing strategies aims to gain more profits and boost companies implement their own pricing strategies depends upon the place, climate conditions, demand of the product, and customer's income levels. Pricing strategies is used to earn more incomes in business and to increase their sales in the market. Price is the one element of the marketing mix that produces revenue. Pricing strategies are most important factors in business firms. The choice of pricing strategies implemented by the firm will depend on the whole corporate strategy, buyer expectations and behaviour, competitor strategy, industry changes, and regulatory boundaries. Other factors affecting the nature of pricing strategies are corporate image, geography, price discrimination, and price sensitivity.

KEYWORDS

Pricing, Strategy, Marketing, Profits etc.

INTRODUCTION

A business can use number of **pricing strategies** when selling a product or service. The price can be set to maximize profitability for each unit sold or from the market overall. It can be used to protect an existing market from new entrants, to rise market share within a market or to enter a new market.

Pricing is one of the most vital and highly demanded components within the theory of marketing mix. It helps consumers to have an image of the values the firm has to offer through their products, creating firms to have an outstanding reputation in the market. The firm's assessment on the price of the product and the pricing strategy influences the consumer's decision on whether or not to purchase the product. The competition within the market today is extremely high, for this reason, businesses must be focused on their opponent's actions in order to have the comparative advantage in the market. The technology of internet usage has enlarged and advanced dramatically therefore, price comparisons can be done by customers through online access. Consumers are very selective regarding the purchases they make due to their knowledge of the monetary value. Firms must be aware of these factors and price their products accordingly.

MODELS OF PRICING

Absorption Pricing

In absorption pricing, all costs are recovered. The price of the product comprises the variable cost of each item plus a proportionate sum of the fixed costs.

EX: The total cost assigned to each unit produced, using full absorption costing, is therefore the direct costs of ₹40000 plus overhead costs of ₹10000, giving a total cost of ₹50000 per product. As each product sells for ₹600000 the absorption costing method calculates a profit of ₹10000 on each unit sold.

Skimming Pricing

In most skimming, goods are high priced so that fewer sales are needed to break even. Selling a product or service at a high price, sacrificing high sales to increase profit is therefore "skimming" the market. Skimming is usually employed to pay back the cost of investment of the original research into the product: commonly used in electronic markets when a new range, such as DVD players, apple iphone are firstly marketed at a high price. This strategy is often used to target "early adopters" of a product or service. Early adopters generally have a relatively lower price-sensitivity this can be endorsed to their need for the product outweighing their need to economize; a greater understanding of the product's value; or simply having a higher disposable income.

[11] Student, Department of Management Studies, Gates Institute of Technology, Andhra Pradesh, India, www.alibabu1990@gmail.com
[12] Student, Department of Management Studies, Gates Institute of Technology, Andhra Pradesh, India, omprasadreddy.devarapalli1996@gmail.com

This pricing strategy method is employed only for a restricted duration to recover most of the investment made to build the product. To gain further market share, a seller must use other pricing tactics such as economy or penetration. This method can have some obstacles as it could leave the product at a high price against the competition.

Ex: Samsung mobiles, apple iphone mobiles and electronic goods are best examples for skimming price. These companies when they launch their new product, the pricing will be very high. As the time passes on gradually due to competition and consumer interests, the prices of the same products will be decreased.

Decoy Pricing

In this method of pricing where the seller offers at minimum three products, and where two of them have a parallel or equal price. The two products with the alike prices should be the more expensive ones, and one of the two should be less attractive than the other. This strategy will make people compare the options with similar prices, and as a result, sales of the more attractive high-priced item will rise.

Ex: The retailer gives the combo offer that includes 2 mobiles plus memory card, plus Bluetooth device. Consumer purchases all the products at one occasion.

Freemium Pricing

Freemium is a revenue model that works by offering a product or service free of charge, typically digital offerings such as software, content, games, web services or others. However, charging a premium for innovative features, functionality, or related products and services. The word "freemium" is a combination of two aspects of the business model: "free" and "premium". It has become a highly popular model, with eminent success.

Ex: Reliance Jio prime offer for first 3 months was free, later they are charging as per consumer's usage.

High-low Pricing

Means of services offered by the organization are frequently priced higher than competitors, but through promotions, advertisements, and or coupons, lower prices are offered on important items. The lower promotional prices are aimed to bring customers to the organization where the customer is offered the promotional product as well as the regular higher priced products.
EX: All the automobile companies are giving advertisements with the basic price of the cars to attract the customers.

Keystone Pricing

A retail pricing strategy where retail price is set at dual the wholesale price. For example, if a cost of a product for a retailer were ₹200, then the sale price would be ₹400. In a competitive industry, it is often not recommended to use Keystone Pricing as a pricing strategy due to its relatively high profit margin and the fact that other variables need to be taken into account.

EX: key stone pricing is used while the product is forbidden in the market. In addition, this pricing strategy was implemented in inflation time. Like floods, limited availability of the product, and wartime.

Function hall's is the best example for key stone pricing. If we assume the function hall rent is ₹40000 in normal days. The same function hall rent would be ₹80000 in at wedding days.

Loss Leader

A loss leader or leader is a product sold at a low price to stimulate other profitable sales. This would help the companies to enlarge its market share as a whole. Retailers usually use loss leader strategy method in order to lead the customers into buying products with higher marked-up prices to produce profits rather than purchasing the leader product, which is sold at a lower cost. When a "featured brand" is priced to be sold at a lower cost, retailers rise not to sell large quantities of the loss leader products and they tend to purchase fewer quantities from the supplier as well to prevent loss for the firm.

EX: Supermarkets and restaurants are excellent samples that apply the strategy of loss leader. In the restaurant, we assume the roti cost is ₹30 and the curry item cost is ₹100, here the roti cost is at low price and the curry cost is very high. This is the strategy of loss leader.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Marginal-cost Pricing

In business, the exercise of setting the price of a product to equal the extra cost of producing an extra unit of output. Businesses often set prices close to marginal cost during periods of reduced sales.

EX: An item has a marginal cost of ₹100.00 and a normal selling price is ₹200.00, the firm selling the item might wish to lower the price to ₹110 if demand has waned. The business would choose this approach because the incremental profit of ₹10 from the transaction is better than no sale at all.

Cost Plus Pricing

It is a cost-based method for setting the prices of goods and services. Under this approach, the direct material cost, direct labor cost, and overhead costs for a product are combined up and added to a markup percentage (to create a profit margin) in order to derive the price of the product.

EX: All the consumer products like soaps, and cosmetics. If the soap material cost is ₹15, direct labor cost is ₹5, overhead costs are ₹6 and profit margin is ₹4, now the cost of the soap is ₹30.

Odd Pricing

In this type of pricing, also known as psychological pricing, the seller tends to fix a price whose last digits are just below a round number (also called just-below pricing). This is done to give the buyers/consumers no gap for bargaining as the prices seem to be less and yet in an actual sense are too high, and takes advantage of human psychology.

EX: A good example of this can be noticed in most supermarkets where instead of pricing at ₹1000, it would be written as ₹999.

Penetration Pricing

Penetration pricing includes setting the price low with the goals of attracting customers and gaining market share. The price will be raised later once this market share is gained.

Firms or businesses that are just entering the market generally use penetration pricing strategy method. In marketing, a theoretical method is used to lower the prices of the goods and services causing high demand for them in the future. Such as, when the production rate of the firm is lower when compared to other firms in the market and sometimes when firms face hardship into releasing their product in the market due to extremely large rate of competition. In these situations, it is appropriate for a firm to use the penetration strategy to gain consumer attention.

Example: Suzuki Company's Nexa segment has implemented penetration pricing when they introduced Nexa Baleno car models in the market.

Price Leadership

An opinion made of oligopolistic business behavior in which one company, usually the leading competitor among several, leads the way in defining prices, the others soon following. The environment is a state of limited competition, in which a lesser number of producers or sellers shares a market.

EX: Gold & Silver is the best example for price leadership. The Indian Bullion Jewelers Association or the IBJA as it plays a key role in defining day-to-day gold rates in the country and rest of the gold retailers in India will simply follow the IBJA rates.

Target Pricing Business

Pricing method whereby the selling price of a product is calculated to produce a particular rate of return on investment for a specific volume of production. The target pricing method is generally used by public utilities, like electric and gas companies, and companies whose capital investment is high, like automobile manufacturing companies.

EX: gender based, caste based, age, level of income, etc.

Time-based Pricing

A flexible pricing mechanism made possible by advances in information technology, and employed mostly by Internet-based companies. By replying to market fluctuations or large amounts of data gathered from customers ranging from where they live to, what they buy to, how much they have spent on past purchases. Dynamic pricing allows online companies to regulate the prices of similar goods to correspond to a customer's willingness to pay. The airline industry sector is often cited as a dynamic pricing success story. In fact, it employs the technique so deceitfully that most of the passengers on any given airplane have paid different ticket prices for the same flight.

EX: On line shopping is the best example for time-based pricing, they gives bumper offers in a stipulated time.

Value-based Pricing

Value-based pricing is important business activity and is the process of developing product strategies and pricing them properly to establish the product within the market. This is a main concept for a comparatively new product within the market, because without the correct price there would be no sales. Having an excessively high price for an average product would have negative effects on the business, as the consumer would not buy the product. Fixing a low price on a luxury product would also have a damaging impact on the business as in the end the business would not be gainful. This can be seen as a positive for the consumer as they do not need to pay extreme prices for the luxury product.

EX: Branded companies are the best example for the value based pricing, like woodland, apple, fast track, Samsung.

Variable Pricing Strategies

Variable pricing strategy determines the price by adding the sum of total cost of the variable characteristics associated in the production of the product. Examples of variable characteristics are interest rates, location, date, and region of production. The sum of total of the variable characteristics is then included within the original price of the product during marketing. Variable pricing allows product prices to have an equilibrium "between sales volume and income per unit sold". Variable pricing strategy has the advantage of safeguarding the sum of total cost businesses would face in order to develop a new product. However, variable pricing strategy eliminates the cost of fixed pricing. Fixed pricing comprises the price of commitment received from manufactures in the production of developing the product and other involvement of factors.

EX: variable pricing strategy is depends upon the original price, place, transportation, expenses of the product.

Special Event Pricing

Sellers will launch special prices in certain seasons to drawn in more customers. Structured retailers offer huge discounts during festivals such as Deepavali and ugadi.

Low-Interest Financing

Instead of cutting its price, the company can offer customers low-interest financing. Automakers have used no-interest financing to try to draw more customers.

EX: Now-a-days all the automobile companies giving the low interest financing of their vehicles to customers.

Longer Payment Terms

Sellers, specifically mortgage banks and auto companies, stretch loans over longer periods and thus lower the monthly payments. Consumers often worry less about the cost or the interest rate of a loan, and more about whether they can afford the monthly payment.

EX: Longer payment terms is nearly 48 months or four years or above. Banks and finance companies are giving mortgage housing loans and car loans by giving long period.

CONCLUSION

Every business firm and companies implement their own pricing strategies depends upon the place, climate conditions, demand of the product, and customer's income levels. The main objective of pricing strategies is to earn more profits and to increase their sales in the market. Pricing strategy is one of the key elements in the business firms to develop their organization. Sometimes pricing strategies will retain the more customers in the market. Pricing strategies is used to attract the customers and willing to buy the products in the market.

REFERENCES

Kotler, Philip, & Armstrong, Gary. (2010). ***Principles of Marketing*** (13th Edition), pp. 293. Pearson Prentice Hall. ISBN: 978-0-13-607941-5.

(2016, March 26). ***Marketing Mix (Pricing Strategies).*** Retrieved from http://www.learnmarketing.net/price.htm

(2016, March 27). ***5 Reasons Pricing Strategy is Increasing in Importance.*** Retrieved from http://www.marketing91.com/pricing-strategy-increasing-importance/

(2016, March 28). ***Predatory Pricing***. Retrieved from http://www.investopedia.com/terms/p/predatory-pricing. asp

Retrieved from https://www.researchgate.net/publication/272352932_Pricing_Strategy

Retrieved from http://www.investopedia.com/terms/p/predatory-pricing.asp

Retrieved from http://www.marketing91.com/pricing-strategy-increasing-importance/

Retrieved from http://www.netmba.com/marketing/pricing/

Retrieved from http://www.yourarticlelibrary.com/accounting/pricing-decisions/pricing-decisions-influenci...

Retrieved from http://www.yourarticlelibrary.com/marketing/pricing/pricing-objectives-top-5-objectives-of...

Retrieved from https://blog.blackcurve.com/whats-your-pricing-strategy

Retrieved from https://emimfreemium.wordpress.com/feed

Retrieved from https://info.blackcurve.com/pricing-wiki-pricing-strategy

Retrieved from https://mba651fall2007.wikispaces.com/Value

Retrieved from https://quizlet.com/37160478/ch-7-flash-cards/

Retrieved from https://storagegaga.wordpress.com/tag/file-sharing

Retrieved from https://theevolutionofthedigitalcamera.wordpress.com/the-more-expensive-ones/

Retrieved from https://www.kotak.com/en/rates/mclr-rate.html

Retrieved from https://www.marketing91.com/pricing-strategies/

Retrieved from https://www.pcreview.co.uk/threads/how-to-sum-total-cost-field-in-report.3688198/

Retrieved from https://www.quora.com/Do-I-have-to-pay-back-my-relocation-expenses

Retrieved from https://www.wikihow.com/Calculate-Marginal-Cost

*****

Editor-In-Chief

Pezzottaite Journals
Saraswati Lane, Adjacent Nataraj Dance Academy, Near Modern Dewan Beverages, Jammu Tawi – 180002,
Jammu and Kashmir, India.

PEZZOTTAITE JOURNALS

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

WORK EFFICIENCY AND EFFECTIVENESS OF ANGANWADI WORKERS (AWWs) IN ASSAM: A CASE STUDY WITH SPECIAL REFERENCE TO TITABAR SUB-DIVISION OF JORHAT DISTRICT

Jyotika Medok[13]

ABSTRACT

The key functionary of ICDS Scheme is the Anganwadi worker. The study will focus on the working efficiency and effectiveness of Anganwadi workers .Proper physical condition of the Anganwadi centres along with the Quality work life is very much essential for better performance of the Anganwadi workers. Quality work life is the degree to which employees are able to satisfy their personal needs through experience in the organization. An attempt has been made to highlights and assesses the profile of the Anganwadi workers and to examine the efficiency of Anganwadi workers and offer some suggestive measures for the upliftment of their efficiency and effectiveness etc.

KEYWORDS

Working Effectiveness, Efficiency, Quality Work Life, Working Environment etc.

INTRODUCTION

Integrated Child Development Service (ICDS) scheme started by the Government of India in 1975 is a multi-sectoral endeavor which aims at integrated delivery of a package of services for children of 0-6 years of age, pregnant and lactating mothers and adolescent girls from dis-advantaged sections belonging to poorest of the poor families. Pre-school children are our future citizen and form an important segment of the Indian population. Children's Development is an important as the development of material resources.

A study team constituted by the planning commission in 1972 suggested comprehensive plan of action to meet the needs of children as result of the recommendation of the study team, along with a national policy of children in 1974 the Integrated Child Development Services (ICDS) project was introduces in 1975. ICDS Scheme is the most comprehensive scheme of the Government of India for early childhood care and development. Young children are the most vulnerable because the foundation for the lifelong learning and human development is laid in the early years, therefore the ICDS programme has been designed to promote and facilitate total development of the child, through different components viz. health, nutrition, pre-school, education etc. The key functionary of ICDS scheme is the Anganwadi worker, an honorary worker who belongs to the community and caters to a population of 1000 people each.

SIGNIFICANCE OF STUDY

Anganwadi worker is the key person and is charged with multiple responsibilities for achieving the targeted goals. Anganwadi workers are the main link between the community and ICDS schemes. Therefore, the success of the schemes largely depends on the effectiveness of the Anganwadi workers.

The Anganwadi worker in ICDS programme assumes a pivotal role in Anganwadi centre due to her close and continuous contact with the community. By virtue of her position in the community, the Anganwadi worker has more chances to interact and to educate the mothers. The working environment has very much importance in the process of service delivery by the Employees. Proper physical condition of the Anganwadi centres along with the Quality work life is very much essential for better performance of the Anganwadi workers. Quality work life is the degree to which employees are able to satisfy their personal needs through experience in the organization. The study will highlight the quality work of the Anganwadi workers.

The present study will play a vital role in helping the programme implementers to understand how efficiently the Anganwadi workers are performing their jobs. The study will help to know various reasons, which are responsible for low performance of AWW and will have an insight into factors that are responsible for any poor or ineffective functioning. The study will also help the policy makers of ICDS to take necessary measures to create congenial working environment and better Quality of Working Life (QWL) of the Anganwadi workers. The study will bring the drawbacks of the Anganwadi workers functioning and that will help to design proper training programme for them and to make them efficient to discharge their duties and responsibilities.

[13]Research Scholar, Department of Commerce, Dibrugarh University, Assam, India, joemishing@gmail.com

OBJECTIVES OF STUDY

To assess the work efficiency and effectiveness of the Anganwadi workers in the study area.
To offer some suggestive measures for the upliftment of the quality of working of the Anganwadi workers.

RESEARCH DESIGN

Nature of the Study: The study will be of descriptive and attempts have been made throughout the survey to give description of the state of affairs of the AWWs as it exists in the area under consideration. This kind of research will be appropriate to investigate the factors influencing the functioning of the AWWs.

Source of Data: The present study is based on both primary and secondary sources of data. Primary data has been collected by preparing a well-designed interview schedule and questionnaire containing both close ended and open-ended questions. The secondary data has been collected from annual report of the ICDS, referred journals, internet, and periodical etc.

Technique of collection: The interview schedule in vernacular language was administered to the worker respondents of the AWCs by the researchers personally visiting the study area. The interview method permits greater depth of questioning and probing for data and the response rate tends to be quite high in face-to-face interviews. Since most of the workers and parents are low educated and do not understand English well, a copy of the interview schedule has been translated into vernacular language. So that AWWs able to understand the questions and give answers. The researcher has cleared any difficulty face by the respondents. Face to face, Questionnaire has also been prepared with close and open-ended questions for the collection of data from the supervisors.

Sample design and size: A sample of 50 Anganwadi Centres out of 437 centres was selected by using stratified random sampling technique in order to collect the required information.

LIMITATION OF STUDY

The study only considers the childcare activities of the Anganwadi workers. Since the study will be conducted in the 3 ICDS projects of Jorhat district as such generalization will be restricted to the area under investigation in particular and other areas where similar condition prevail in general

RESULT AND DISCUSSION OF STUDY

Table-1: Attendance of the Children

S. No.	Factors	Number of Respondents	Percentage
1	Regularity	38	76
2	Not regularity	12	24
Total		50	100

Sources: Field Study

It is observed from the table that 76 percent of the children are attending regularly in the Anganwadi Centres of the sample survey while 24 percent of them are not attending in the Anganwadi Centres as their parents are unaware and illiterate so that they did not know whether their children are attending in the centres or not.

Table-2: Age Group of the Children

S. No.	Factors	Number of Respondents	Percentage
1	1—3 years	34	68
2	3---6 Years	16	32
Total		50	100

Sources: Field Study

It is observed that from the sample of 50 Anganwadi Centres 68 percent of the children are belonging in the age group from 1-3 years while 32 percent of them are in the age group from 3-6 years. Hence, it is analyzed that majority of the children are belonging in the age group of 1-3 years. 68 percent children were enrolled in Anganwadi Centres at the age 1-3 years, as parents viewed that early years of life are important for child's development.

Table-3: Gender of the Student

S. No.	Factors	Number of Anganwadi Centres	Percentage
1	Males	32	64
2	Females	18	36
Total		50	100

Sources: Field Study

It is revealed from the table that 64 percent of the surveyed area children are enrolled male students while 36 percent of them are females. It is observed that parents prefer to send their male children to Anganwadi, as they believed that males are the future bread earners so they should be given more nutrition and education.

Table-4: Educational Qualification of the Anganwadi Workers

S. No.	Qualification	Number of Respondents	Percentage
1	Up to V Std.	02	4
2	V—X Std.	33	66
3	H. S. (Higher Secondary)	13	26
4	Graduate	02	4
5	P.G.	Nil	00
	Total	50	100

Sources: Field Study

It reveals from the table that 66 percent of the Angnawadi workers have educational qualification up to Xth standard while 04 percent of them are in class V std and 26 percent are H.S. passed, and rest 4 percent are graduate. Hence, it is analyzed that majority of the Angnawadi workers have their educational qualification up to 12th standard.

Teaching Aids used in the Anganwadi Centres (AWCs)

Pictorial charts, puppets and posters are the only teaching aids using in the Anganwadi Centres for imparting education to the children. Anganwadi workers use indigenous materials for making teaching aids like posters, puppets etc.

Table-5: Teaching Aids used in the Anganwadi Centers

S. No.	Factors	Number of Respondents	Percentage
1	Indigenous materials	22	44
2	Charts	28	56
Total		50	100

Sources: Field Study

It reveals from the table that 56 percent of the Anganwadi Workers are using charts as teaching aids while 44 percent of them are using indigenous materials as a teaching aid. Hence, it is analyzed that majority of the Angnawadi workers are using charts as a teaching aids. 56 percent Anganwadi Workers teach children using charts that provided to them by the government. It is also revealed from the responses of Angnawadi workers that no funds are provided for making teaching aids. However, the government is providing charts of animals, birds, alphabet, number etc., in the Anganwadi Centres.

Table-6: Awareness the Teaching Methods by the Parents

S. No.	Factors	Number of Respondents	Percentage
1	Aware	26	52
2	Do not Aware	24	48
	Total	50	100

Sources: Field Study

It is seen from the table that 52 percent of the respondents are aware of the teaching methods being used by the Anganwadi workers while 48 percent of them are not aware, as they are illiterate and ignorant. Hence, it is analyzed that majority of the respondents are aware about the teaching methods.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

Table-7: Door to Door Visit by the Anganwadi Workers (AWWs)

S. No.	Factors	Number of Respondents	Percentage
1	Do not visit	26	52
2	Fortnightly visit	10	20
3	Once a months	14	28
Total		50	100

Sources: Field Study

It is found that 52 percent of the Anganwadi Workers pay no home visits, while 20 percent of them visit fortnightly whereas 28 percent visit once in a month.

Table-8: Purpose of the parents to visit Anganwadi Centres

S. No.	Factors	Number of Respondents	Percentage
1	Accompany to the children	06	12
2	Get information	04	08
3	Required information	04	08
4	Do not visit	36	72
	Total	50	100

Sources: Field Study

It is found from the table that 12 percent of the parents pay visit to the centre just to accompany the child and no bring them back to home, 08 percent visit to the centre to get information regarding their child's performance. It is also observed in the present study that 72 percent parents who do not visit to Angnawadi centre are found mostly illiterate and are unaware of the services provided at the Angnawadi. All the parents responded that their child shows interest in studies after his/her enrollment in the Anganwadi centres. When asked about their views about. Anganwadi, it was found that all the parents believe that Anganwadi centre is the best place for their children to get good nutrition, health and education, free of cost. They consider Anganwadi as the best place for children as their children get better nutrition and education for their overall development.

MAJOR FINDINGS OF STUDY

- 74 percent of the children are attending regularly in the Anganwadi centres while 24 percent of them are not attending in the Anganwadi Centres.
- 68 percent children are enrolled in Angnawadi Centres at the age 1-3 years, as parents viewed that early years of life are important for child's development.
- 64 percent of the children are enrolled male students while 36 percent of them are females.
- 66 percent of the Angnawadi workers have educational qualification up to Xth std while 04 percent of them are in class V std.
- 56 percent Anganwadi Workers teach children using charts that provided to them by the government.
- 52 percent of the respondents are aware of the teaching methods being used by the Anganwadi workers while 20 percent of them are not aware as they are illiterate are ignorant.
- 52 percent of the Anganwadi Workers pay no home visits, while 20 percent of them visit fortnightly whereas 28 percent visit once in a month.
- It is also observed in the present study that 72 percent parents who made no visits to Angnawadi centre are found mostly illiterate and are unaware of the services provided at the Anganwadi Centres.

MAJOR SUGGESTION

- Anganwadi Workers (AWWs) and Helpers should make more efforts to achieve the targets of enrollments of children, expectant women and nursing mothers.
- Facilities like drinking waters, electricity and sanitation should be provided in every Anganwadi Centres (AWWs).
- Every child under six should be eligible for enrollment at the local Angnawadi. There should be no eligibility criteria other than age, and no ceiling on the number of children to be enrolled in a particular Angnawadi.
- Anganwadi Workers should build good rapport with the people; she should visit people's houses regularly.
- Honorarium of both Anganwadi Workers and Helpers should be increased because they are doing the entire functions envisaged under the scheme.

Volume 7, Number 1, January – March' 2018
ISSN (Print): 2319-9032, (Online): 2319-9040
SJIF (2016): 7.175, SJIF (2017): 8.878
H5-Index: 3, H5-Median: 3, H-Citations: 10

REFERENCES

Aijaz, R. (1987). Improve Implementation of Integrated Child Development Services. ***Yojana,*** 31, 24-27.

Chandershekhar, S. (1986). ***In Proceedings of XVI Annual Conference of Indian Association of Preventive and Social Medicine.*** Srinagar.

Chaturvedi, S. (1987). ICDS Scheme on Psycho-Social Development. ***Indian Pediatrics,*** 24, 153-160. Cord Abstracts, National Institute of Rural Development.

Maruthilatha, D. (1988). ***An Evaluation of Communication Skills of the Anganwadi Workers of Integrated Child Development Scheme*** (An Unpublished Master's Dissertation). Sri Ventekeshware University, Tirupati.

Renu, B. P., & U., H. Rekha. (1982). Impact on Preschoolers of Urban Slums. ***Indian Journal of Paediatrics,*** 49, 213-218.

Tara, S. N., & U., Ram Kumar. (1988). ***Integrated Child Development Services-An Evaluation***. New Delhi: Ashish Publishing House.

Retrieved from http://akshara.org.in/category/anganwadi-and-preschool/

Retrieved from http://ethesis.nitrkl.ac.in/5194/1/411HS1003.pdf

Retrieved from http://examples.yourdictionary.com/examples-of-open-ended-and-closed-ended-questions.html

Retrieved from http://healthopine.com/the-anganwadi-workers-of-india-connecting-for-health-at-the-grassro...

Retrieved from http://ijiset.com/vol3/v3s1/IJISET_V3_I1_09.pdf

Retrieved from http://ijseas.com/volume1/v1i4/ijseas20150436.pdf

Retrieved from http://iosrjournals.org/iosr-jbm/papers/Vol7-issue1/A0710107.pdf?id=5303

Retrieved from http://megsocialwelfare.gov.in/icds.html
Retrieved from http://rguhs.ac.in/cdc/onlinecdc/uploads/05__22106.doc

Retrieved from http://shodhganga.inflibnet.ac.in/bitstream/10603/48161/14/14_bibliography.pdf

Retrieved from
http://www.chinh.in/2013%20CIKFF/WCD%20Research%20for%20WEB%20UPLOAD%202013/Anganwadis%20R...

Retrieved from http://www.disabilityindia.co.in/Acts-in-Disability/National-policy-for-persons-with-disab...

Retrieved from http://www.eastkameng.nic.in/departments/ICDS.htm

Retrieved from http://www.icds-wcd.nic.in/affidivticds.htm

Retrieved from http://www.ijhssi.org/papers/v2(10)/Version-1/B0210106020.pdf

Retrieved from http://www.ijhssi.org/papers/v3(9)/Version-2/A03920104.pdf

Retrieved from http://www.ijset.net/journal/205.pdf

Retrieved from http://www.indiastudychannel.com/projects/1795-Project-Report-Employee-Morale.aspx

Retrieved from http://www.msjonline.org/index.php/ijrms/article/viewFile/857/828

Retrieved from http://www.valleyinternational.net/thijsshi/v2-i4/2%20theijsshi.pdf

Retrieved from http://www.wecd.uk.gov.in/pages/display/147-icds-general

Retrieved from http://www.wecd.uk.gov.in/pages/show/142-child-development

Retrieved from http://www.wetheteachers.in/aids.html

Retrieved from http://www.yourarticlelibrary.com/employee-management/quality-of-work-life-its-meaning-and...

Retrieved from http://zeenews.india.com/tags/Anganwadi.html

Retrieved from https://documents.mx/documents/applications-1bestarinet-ministry-of-education-malaysia-moe...

Retrieved from https://feminisminindia.com/2018/02/13/anganwadi-workers-movement-case-study/

Retrieved from https://mdd.maharashtra.gov.in/Site/Upload/Pdf/18-icds_final-cod.pdf

Retrieved from https://prisymid.com/blog/survey-reveals-that-only-17-of-the-respondents-are-aware-of-the-...

Retrieved from https://scroll.in/article/836489/indias-infant-mortality-has-dropped-68-in-41-yrs-but-it-s...

Retrieved from https://telanganatoday.com/anganwadi-workers-told-update-teaching-skills

Retrieved from https://www.arts.gov/sites/default/files/TheArtsAndHumanDev.pdf

Retrieved from https://www.linkedin.com/pulse/20140623183842-4217978-face-to-face-interviews-secrets-tric...

Retrieved from https://www.mbaskool.com/business-concepts/human-resources-hr-terms/2390-quality-of-work-l...

Retrieved from https://www.ndtv.com/topic/anganwadi-workers

Retrieved from https://www.sav.sk/journals/uploads/06201021Sojka1%20-%20OK.pdf

*****