

INFRASTRUCTURE DEBT FUNDS AS A SOURCE OF FINANCING SMART CITY PROJECTS: A CASE STUDY OF KALYAN DOMBIVALI MUNICIPAL CORPORATION, MAHARASHTRA

Sanjay RODE

*Department of Economics, S.K.Somaiya College, Somaiya Vidyavihar University, India
sanjay.rode@somaiya.edu*

Abstract

Every municipal corporation must provide continuous quality infrastructural services to people within its jurisdiction. But due to rise in population and paucity of financial resources, the Kalyan Dombivali Municipal corporation is not able to provide quality basic infrastructural facilities such as transportation, roads and traffic management, sewage treatment, solid waste management, education and health care. Kalyan Dombivali municipal corporation is declared as smart city. But funds are inadequate to provide quality infrastructure to people. Already the capital expenditure is very low for various services and economically weaker section and poor people of city. Municipal corporation is spending very less on education as far as revenue expenditure is concerned. Slums are increasing due to lack of affordable housing scheme. There is need to invest more money on infrastructural facilities such as safe and sustainable drinking water, complete sanitation, sewage treatment, technological investment in road traffic management and environment sustainability. Municipal corporation should not depend on central and state government resources to finance capital expenditure. It must raise capital through issue of municipal infrastructure debt bonds. It must increase the property tax, water tariff, tax on registration of private vehicles, registration and transfer fees on private properties. Such measures will certainly improve the financial condition of the Kalyan Dombivali Municipal Corporation and it will be able to provide the better quality infrastructural facilities to its population.

Keywords: Urbanization, Sewage, Transportation

1. INTRODUCTION

Urbanization process is very fast in all developed and developing countries. Municipal infrastructure is a fundamental facility for the normal operation and development of an urban city and is of significance for the stable progress of sustainable urbanization around the world, especially in developing countries (Zheng Li Y et al 2017). The progress of an area depends to a large extent upon the availability of suitable infrastructure and services. With the passage of time the responsibilities of local self government has increased, the problems of local self government have become varied and complex (Kumari Raj, 2016). In India, Municipal corporations and councils are responsible to provide various infrastructural facilities. The state and central government provide financial assistance to improve the quality of infrastructure services. The Central government of India, has declared the Kalyan-Dombivali Municipal Corporation as smart city. But the declaration of the smart city does not help to solve the issues which people are facing in municipal corporation area. Due to continuous migration from rural and urban areas into corporation area, there is lot of pressure on physical infrastructure. Kalyan Dombivali Municipal Corporation (KDMC) is not able to provide basic infrastructure like water supply, drainage, sewerage, roads and services such as solid waste management, fire fighting, street light, education and primary health.

Kalyan and Dombivali railway station are most crowded railway stations on central railway. The Kalyan railway station has around 4 lakh commuters daily. This leads to major congestion outside station. The people are using suburban local and passenger trains to go their work and visit different places in country. The congestion is increasing every day as number of commuters are added in local compartment. Near Kalyan and Dombivali railway station, there is huge traffic of pedestrians, two wheelers, auto rickshaws, cars, city buses, goods vehicles. Also there is main city market, the civil court, the main police station, ST bus stand, the city bus terminus and talhsil office etc. The State Transport (ST) bus depot is in front of Kalyan West railway station. The entrance

and exit of the bus stand opens on the main road. It is continuous crowded place near station. The city bus stops for KDMC are spaced at various locations around Kalyan West station. In Dombivali, there is huge crowd on narrow roads towards railway station. It is due to vegetable vendors, illegal shops, pediatricians and auto-rickshaws. Kalyan (W) has largest area which is occupied by central railway. Such area occupied as railway goods yards and locomotives yards. There is no direct vehicles route from Kalyan East to West side. Due to large railway area and land occupancy, people have no choice but to walk through foot over bridges to reach either east or west. The foot over bridges are constructed at end of station which connects a part of Kalyan (E) with station. There are no parking and bus facilities are available at Kalyan east and nearby station. At Dombivali East and West, the bus terminal is not exists near railway station for passengers. They travel by auto rickshaws and some time up to railway station. It creates further traffic near Dombivali railway station. Traffic is not controlled digitally and there are inadequate traffic police for segregation of traffic. A auto rickshaw stands are not planned properly. They halt at various locations without permission and take and drop passengers continuously. It leads to noise and air pollution and accidents. For people of city, it is a loss of valuable time and money.

In KDMC, there are many chemical, engineering, textile and other small scale industries are located. Therefore contiguous environment degradation is observed in Kalyan Dombivali Municipal Corporation. Maximum industrial plants are responsible for soil, water and air pollution. Waste water from different industries is sent in rivers without treatment. It has severe impact on the living organisms. During production process, various gases are released in the environment. The safe, regular, sufficient quantity and quality with adequate pressure drinking water is not provided on 24*7 basis to all population. There are many illegal water supply connections. The water supply system has leakages and faulty connections at various joints. The slums are getting lower pressure and lower amount of drinking water supply. Those people staying in slums do not have water storage capacity and often carrying water from longer distance. Everyday, the women and children are carrying drinking water. They are spending time and energy for few liters of water required for the family. The KDMC purchases approximately fifty per cent of daily water quality from different water supply agencies. This water is purchased at high rates and it is supplied to consumers of corporation at subsidized rates. The revenue generated from supplied drinking water supply charge is only capable to meet two thirds of the total water supply expenditure. Water tariff are not revised over the period of time and it is very low for different types of customers in corporation area. At the same time, the slums and underdeveloped areas do not have adequate distribution network. Inadequate storage capacity as per the norms is another issue in corporation area. The old localities have very old pipelines and there is continuous leakages and pipe line burst are observed. Newly developing areas have no coverage of water supply lines but the population is increasing continuously.

In every Municipal Corporation, the sewage collected from individual house sewer connection through sewer lines to pumping stations. Such sewage is further sent to the sewage treatment plants at different locations for the treatment. Finally the treated waste water is discharged finally to the creek. The present sewage coverage in the Kalyan Dombivali Municipal Corporation area is below twenty per cent. As per standard sewage collection and treatments standard, it must be 85 per cent. Due to low coverage of sewerage system, there is water contamination through untreated sewage and discharge in open drains to surface water bodies. The sewage tanks and lateral sewers are very old and they are not capable of handling the sewage load. Such issue is because of rising population and waste water volume. The existing sewage lines get choking, overflow and sewage ex-filtration from damaged underground sewage lines. The existing septic tanks in uncovered areas are not suitable for integration to the present sewage system. The sewage network is very old of commercial establishments, houses in developed areas of Municipal Corporation. Such network is hydraulically inadequate with rising population. Such network often gets chock due to silt deposition in it. It is a major reason for reduction of the hydraulic capacity of sewers in KDMC area. The issue mainly observed in the monsoon season. Kalyan Dombivali city is situated at 6 meter mean sea level (MSL). The major rivers such as Kalu, Ulhas and Kalyan creeks runs along the North and West sides boundaries of Municipal Corporation. An overall topography slopes towards the North and West side. Storm water drains in the corporation function as a conveyance channels for untreated sewage. The storm water drains network chokes due to arbitrary dumping of solid wastes and residue of building materials. It is observed that the drains are regularly silted and collapsed in some sections of corporation. Such silted and collapsed drain reduces the flow of water and it results in floods. Due to unplanned constructions, the drains are not accessible for machines and labour. The Ulhas, Kalu and Waldhuni river bring

water from different sides of region. The water con-flux of these rivers at Kalyan city. In every monsoon at least one river gets flooded in KDMC area. Every year, it creates flood like issue for Kalyan city. Nearly 70 per cent of storm water from Dombivali is disposed in the buffer zone of the creek which is not under the corporation limit. The drains in such area are not maintained by KDMC. At various places, the solid waste and residue of building waste is dumped in drains. It leads to deposits of silt and reduction of effective hydraulic capacity. Most of the open drains in the Kalyan Dombivali Municipal Corporation leads to health hazard for people. Uncontrolled storms in monsoon may result from inadequate drainage facility.

Solid waste refers to the refuse, the solid and semi solid waste matters of a community except the night soil. Solid waste contains organic as well as inorganic matters. Every day, the KDMC generating around 510 MT of solid waste. It mainly comprises as biodegradable solid waste components. The solid waste is generated by households, hotels and restaurant, vegetable markets, fruits vender's, construction activities and by the floating population coming in corporation area. Every house in corporation area store the garbage in plastic bins, bags, buckets and metal bins with out the lids. Solid waste is not collected from all households. Few households throw waste in and around the bins. It is frequently observed that the waste is also thrown on roads, streets, drains public or private open spaces. Such solid waste thrown on open surface creates unhygienic conditions for people and shabby places. The solid waste such as rubber spare parts, abounded and used household items, the construction waste and animal excreta creates severe effect on environment. Solid waste management includes the entire process of dealing with solid waste, starting from the collection from the primary source to ultimately disposing off it hygienically, so that it may not be a nuisance or create any harmful effect on near by community. The solid waste management involves, management at waste generation level, storage at the source of generation, primary collection, street cleansing, temporary storage at locality level, regular and periodic transportation of this temporarily collected waste to disposing sites and treatment plants (Kumar V. and R.K. Pandit (2013). But most of the steps are not followed in corporation area. Solid waste management issues represent major problems (Devi, K. et. al 2014). The collection, transportation and process of solid wastes must have the proper policy (Arane, Nikhil and Dr. Ramesh D Dod 2018).

The transportation and traffic picture in cities is extremely unsatisfactory and sad. A majority of people use buses and autos, while a few uses public transport system. The increasing number of scooters, motorcycles, mopeds and cars make traffic problem worse by every day. The number of buses plying in cities is not adequate for growing population (Ahir D. et. al 2018). High traffic congestion is observed on roads of Kalyan and Dombivali. All over the city uncontrolled junctions, encroachment on pavement and pedestrian pathways, hawkers are observed. Kalyan Dombivali municipal corporation has established public transport system in 1997. It is a cheap mode of transport for the people. Everyday people from city and outside are traveling by KDMC buses. KDMC has established buses network from Kalyan and Dombivali area to Thane, Navi Mumbai, Bhiwandi and adjoining villages. The condition of buses is not as per standard. The travel time, congestion, frequency of buses, ticket pricing are the issues with municipal corporation buses.

Kalyan city is facing acute traffic problems on its roads. Unplanned growth of population, residential and commercial properties, the city is really taking its toll on its roads by way of increase delay and stop reducing journey speeds. It has very severe impact on overall environment of city. Encroachment of the pavement on roads has forced pedestrian traffic utilize the formation with leading to reduction of carriage way and increased congestion in city. At the same time, there is no adequate signals and signals system on roads. Most of the intersections at different points are being controlled manually by traffic police. The city has limited public transport facilities. It resulted into uncontrolled growth of share auto and tempos. City has less space for parking. It has resulted into over crowing of vehicles all over roads on city. Parking requirement with rising population and vehicles are not been performed. Non availability of subways at various points has increased number of accidents in city. The movement of vehicles and patricians has always observed as problem. There is also significant loss of productivity of people due to increased travel duration and congestion, delays and pollution related health hazard.

Open spaces for gardens, playgrounds, green belts are lungs of any city. There are few gardens and playgrounds in KDMC. Due to over migration and without city development plan, the density of population is growing fast in city. The trees are cut and there is encroachment near the gardens, hilly areas. The city has lost the Eco-sensitivity touch due to growth of slums. The Kalyan Dombivali Municipal Corporation has widened

roads at different places due to rise in population. But municipal corporation has not put street light on road. What ever street light are found in city, they are old and outdated. The regular staff is not available for repairing street light and maintain it on regular basis. The poor street light is major concern for people and vehicles in corporation area. It always leads to number of accidents in corporation area.

There is continuous migration in KDMC area from urban and rural areas. Due to high demand and less supply of houses, the housing is beyond reach of poor people. They leave in various slums in corporation area. The poor search work at various small scale industries, construction and commercial sectors of region. They work as helpers, assistant for trade and business activities, hawking, retailing, carting, construction labors and seller of vegetables and fruits. The newly migrants in urban area work as daily wage laborer at various construction sites. But due to unavailability of affordable accommodation in corporation, they prefer to live in slums. Maximum migration over the period of time resulted into proliferation of slums in corporation area. Urban poor population in Kalyan Dombivali is estimated as around half of the total population. The existing slums do not have basic services and amenities which is a serious concern. Slums in corporation area are located on CRZ, hilly area and forest and government lands. Such slums can't be revamped under any housing scheme of central or state government. Slums are very congested and dense at different locations. Therefore providing them basic services it difficult task for municipal corporation. The poor people of slums are highly prone to health hazards due to lack of basic services such as water, roads, sewage, solid waste and medical facilities.

Due to rapid industrialization and urbanization, the untreated sewage enters in lakes. The untreated release of sewage to the water bodies pollutes the local ecology and the lakes. Now all lakes are breeding grounds for various diseases. An encroachment at various places of lakes has resulted in improper facility for inlet and outlets of storm water from adjacent catchment area. The plastic bottles, bags, papers are thrown in lakes. It also includes discharge of sewage, waste flowers, washing cloths, immersing Ganesha idols. Such activities and solid waste leads to development of anaerobic conditions at various lakes and water bodies in corporation. Municipal corporation do not have facility to purify the waste water at various ponds and water bodies. It further leads to health issues among people in surrounding areas. The major objective of this paper is to find the growth of revenue and capital receipts and expenditure. The second objective is to find the imbalance in the growth of revenue and capital receipts over the period of time. Last objective of this paper is to provide policy to improve revenue and capital receipts and reduce the revenue and capital expenditure. The first part of the paper is related to the data and methodology. Second part deals with economic model and the growth of revenue and capital receipts and expenditure of municipal corporation over the period of time. The second last part of research paper explains the ordinary least square regression results. The conclusion and policy implication is the last part of this paper.

2. DATA

Data for revenue as well as capital receipts and expenditure of municipal corporation is collected from the municipal corporation budgets from 2014-2020. The population related data of corporation is collected from various census reports of central government such as 1971,1981,1991,2001 and 2011 census. Secondary data related to various infrastructure issues is collected from Times of India , Loksatta and Maharashtra Times newspapers. The number of journals and thesis referred related to Finances of Kalyan Dombivali Municipal Corporation. We visited many times to Kalyan and Dombivali and observed the number of infrastructural facilities provided by the municipal corporation to people over the period of time. Smart city related policy papers, programs and data is collected from website of Ministry of Housing and Urban Affairs, Government of India.

3. METHODOLOGY

We have used an annual compound growth method to calculate the growth of the revenue and capital receipts and expenditure as well as subheads of it.

$$Y_{it} = a * b^t \quad (1)$$

In Above equation (1) Y_{it} means receipts and expenditure of Municipal Corporation in i^{th} component for t period. The growth of revenue and expenditure of major and sub heads is calculated from 2013-14 to 2019-20. The a and b in equation (1) are parameters. The equation (1) is written in log form.

$$\text{Log}Y_{it} = \text{Log}a + T\text{Log}b + \text{Log}u_{it} \quad (2)$$

The log is estimated for Municipal Corporation's receipts and expenditure from 2014 to 2020. The compound growth rate (g) is also calculated for above mentioned period.

$$G = (\hat{b} - 1) \times (100) \quad (3)$$

In equation(3),the g shows calculated annual compound growth rate. The parameter is also calculated as follows.

$$\hat{B} = \text{Anti log } b \quad (4)$$

The figures in percent are revenue and capital receipts and expenditure with subheads of corporation for particular period.

4. ECONOMIC MODEL

We have divided the revenue receipts and expenditure as well as capital receipts and expenditure of municipal corporation into sub categories.

Revenue receipts of Corporation:

Revenue receipts of the corporation means annual income receipts from all sources. It is divided as follows.

$$\sum_{t=1..t}^n RR = \sum_{t=1}^n (IT + UAD + SS + MP + E + CHM + PWG + UP + PE + OT + GGA) \quad (5)$$

Revenue Receipts (RR) of Municipal Corporation is categorized as an Indirect Tax(IT), Urban Architecture Department (UAD), Social Security and facilities (SS), Municipal Property (MP), Entertainment (E), Cleanliness, Health, Market (CHM), Public Work and Gardens(PWG), Urban poor (UP), Public Education (PE), Others (OT) and Government Grants and Aid(GGA). It is further divided into sub categories as follows.

$$\sum_{t=1..t}^n IT = \sum_{t=1}^n (TP + O + NDF + CD) \quad (5.1)$$

The Indirect Tax(IT) of corporation comprises as Tax on property(TP), Octri (O), Normal Deposits and Fees(NDF), Computer Department(CD) on annual basis.

$$\sum_{t=1..t}^n E = \sum_{t=1}^n (AKAA + SPAP) \quad (5.2)$$

The municipal corporation has two Auditoriums in its area. The municipal corporation gets revenue receipts from such Auditoriums such as entertainment tax, parking etc. It is explained as an revenue from entertainment (E) and it deals with Acharya K.Atre Auditorium(AKAA), Savtribai Phule Auditorium and Playground(SPAP).

$$\sum_{t=1..t}^n CHM = \sum_{t=1}^n ((CH + PC + HD + M)) \quad (5.3)$$

Cleanliness, Health, Market (CHM) deals with Cleanliness and Hygiene (CH), Pest Control (PC), Hospital and dispensaries(HD), Markets(M).

$$\sum_{t=1..t}^n PWG = \sum_{t=1}^n (C + UC + PG + WSS + TC) \quad (5.4)$$

Public Work and Gardens(PWG) divided into Construction (C), Unauthorized construction(UC), Public Gardens(PG), Water Supply and Sanitation(WSS),Tree Conservation (TC). All the above categories provides the receipts to the municipal corporation.

$$\sum_{t=1..t}^n PE = \sum_{t=1}^n (PS + PGCD) \quad (5.5)$$

Public Education (PE) divided into category as Primary Schools (PS), Play Grounds and Cultural Department(PGCD). .

5. CAPITAL RECEIPTS

Capital receipts of the municipal corporation is incoming annual cash flows. It is a loans taken, borrowing and recovery of loans for corporation. The capital receipts for the municipal corporation are very few in terms different categories. It is further categorized as follows

$$\sum_{t=1..t}^n CR = \sum_{t=1}^n (PB + FUP) \quad (6)$$

Capital receipts mainly comprises as Previous Balance (PB) and receipts for Urban Poor (FUP). For the Urban Poor related capital receipts are further categorized into following sub heads.

$$\sum_{t=1..t}^n FUB = \sum_{t=1}^n (PFD + SGO + IAD + GTO + PFPB + FUP) \quad (6.1)$$

For urban poor capital expenditure comprises as Provident Fund Deposits (PFD), Special Grant and Others (SGO), In Advance Deposits (IAD), Government Tax and Others (GTO), Provident Fund (PF) of municipal corporation of Kalyan Dombivali.

6. REVENUE EXPENDITURE

Revenue expenditure for corporation means payments for different purposes within a year. Such payment could be salaries or pensions. It does not create any assets for corporation.

$$\sum_{t=1..t}^n RE = \sum_{t=1}^n (NSRC + AD + PSE + PS + E + PCMH + PWDG + UP + PE + O) \quad (7)$$

Revenue Expenditure (RE) of municipal corporation is categorized into different subheads. It is mainly classified as Normal Supervision and Revenue Collection (NSRC), Architecture Department (AD), Public Security and Facilities (PSF),Entertainment (E),Public Cleanliness and Market, Health (PCMH), Public Work Department and Gardens (PWDG),Urban Poor (UP),Public Education (PE) and Others. We have categorized the Normal Supervision and Revenue Collection as follows.

$$\sum_{t=1..t}^n NSRC = \sum_{t=1}^n (SORC + AD + NS + PTC + LBTC + CS) \quad (7.1)$$

Normal Supervision and Revenue Collection (NSRC) deals with Secretary Office and Revenue Collection (SORC), Accounting Department(AD), Normal Superintendence (NS), Property Tax Collection (PTC), Local Body Tax Collection (LBTC) and Computer Section (CS).

$$\sum_{t=1...t}^n PSF = \sum_{t=1}^n (SL + FB + SD) \quad (7.2)$$

We have divided the Public Security and Facilities (PSF) as Street Light (SL), Fire Brigade (FB), Security Deposit (SD).

$$\sum_{t=1...t}^n E = \sum_{t=1}^n (PKAA + SPA) \quad (7.3)$$

Entertainment related revenue expenditure of municipal corporation is divided expenditure related to P.K.Atre Auditorium (PKAA), S.Phule Auditorium (SPA) for different years.

$$\sum_{t=1...t}^n PCMH = \sum_{t=1}^n (PH + WSS + S + FAD + MASH + EPC) \quad (7.4)$$

Public Cleanliness , Market , Health (PCMH) is a revenue expenditure as Public Health (PH), Water Supply and Solid Waste (WSS), Sanitation (S), Food Alteration Department (FAD), Markets and Animal Slaughter House(MASH), Environment and Pollution Control (EPC).

$$\sum_{t=1...t}^n PWDG = \sum_{t=1}^n (C + CIL + PG + MH) \quad (7.5)$$

Public Work Department and Gardens (PWDG) means expenditure for Construction (C), Control of Illegal Construction(CIL), Public Gardens (PG), Mental Health (MH).

$$\sum_{t=1...t}^n UP = \sum_{t=1}^n (EWS + SR + HD + PE + WCW) \quad (7.6)$$

Urban Poor(UP) related revenue expenditure divided as Economically Weaker Section(EWS), Slums and Rehabilitation(SR), Hospitals and Dispensaries(HD), Primary Education(PE), Women and Child Welfare(WCW)

$$\sum_{t=1...t}^n PE = \sum_{t=1}^n (CL + PE + CD + OT) \quad (7.7)$$

Public Education(PE) related to Common Libraries (CL), Primary Education (PE), Cultural Department(ED) and Others(OT) types of revenue expenditure.

$$\sum_{t=1...t}^n O = \sum_{t=1}^n (PRO + PRJ + S) \quad (7.8)$$

Others category of revenue expenditure is related to Programs(PRO), Projects(PRJ) and Sections (S).

Capital Expenditure of corporation:

Capital expenditure of the corporation means the expenditure incurred on acquiring fixed assets. It gives profit or dividend in future to corporation. We have divided capital expenditure of corporation into different categories.

$$\sum_{t=1...t}^n CE = \sum_{t=1}^n (UP + L) \quad (8)$$

Capital expenditure is mainly related to urban poor in corporation as well as loans.

$$\sum_{t=1...n} UP = \sum_{t=1}^n (FFUP + GAUP + WCW) \tag{8.1}$$

Urban Poor mainly included as funds for urban poor, Government aid for urban poor, Women and child welfare.

$$\sum_{t=1...n} L = \sum_{t=1}^n (LPPF + RF + IAE + GTOFFUP + GAUP + WCW) \tag{8.2}$$

Loans comprises as loans and PPF, Reserve funds, In advance expenditure and government tax and others.

7. SMART CITY: A KALYAN DOMBIVALI MUNICIPAL CORPORATION (KDMC)

Kalyan Dombivali Municipal Corporation (KDMC) is established in 1983 as per the growing population criteria of central government. Total area of corporation is around 67.65 sq.km. Maximum area of the corporation is still under the developing category. Kalyan and Dombivali is well connected to Mumbai through local trains. Kalyan is well connected to other cities in Maharashtra as well as North and South

states in India. Kalyan -Dombivali has railway conductivity to western suburbs through Diva-Vasai rail network. Kalyan Dombivali is also connected through road network to North India by Mumbai Agra national highway-03 via Bhiwandi by pass.

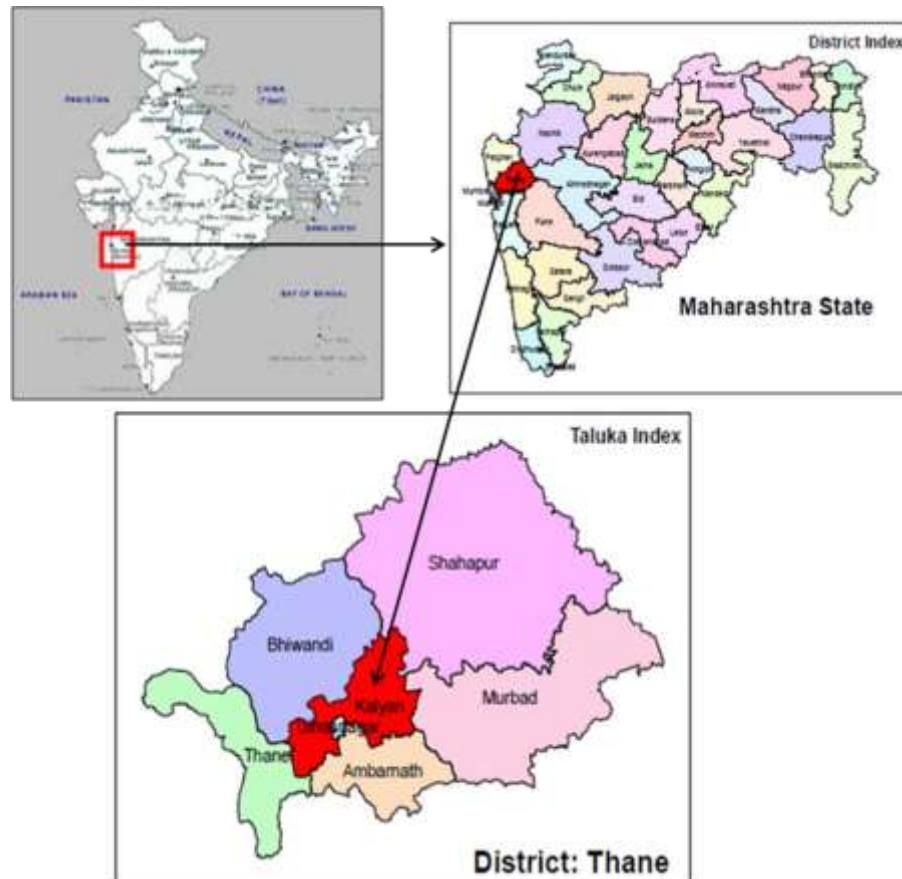


FIGURE 1 MAP OF THANE DISTRICT IN INDIA

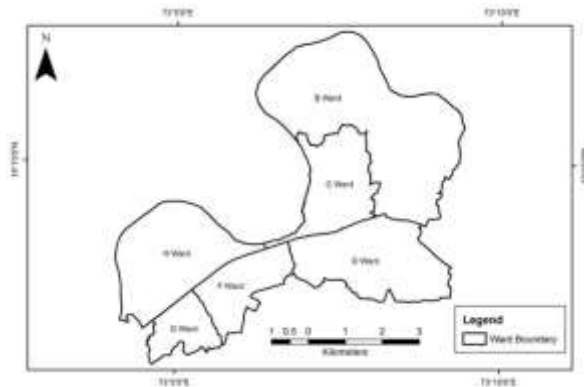


FIGURE 2 : WARD WISE MAP OF KALYAN DOMBIVALI MUNICIPAL CORPORATION (KDMC)

The state highway 61 is passing from Kalyan to Ahmednagar. Kalyan and Dombivali has highest literacy in state and also known as historic and culturally vibrant cities of state. The middle class people of region always prefer to stay in corporation area due to pleasant climate and cheaper real estate. Kalyan Dombivali Municipal Corporation is a hub for economic activities such as trade and commerce, education. Population of KDMC in 1961 was only 149894 . There was improvement in infrastructure facilities and connectivity to Mumbai. Therefore in 1991, the population increased up to 442242. After liberalization, many industries established production and manufacturing activities in KDMC area. Government allocated land and allowed firms to export their products. Therefore many jobs created in production and manufacturing sector. Many people from rural area and other parts of states migrated in the corporation area for work and education. In 2001, the population of KDMC was observed as 820562. The population grown more than six percent of total population of 1991. The population density was growing fast in KDMC. Mumbai and Thane city marked as high density and population growth. The middle class and lower income groups of people of Mumbai and Thane have no choice but to migrate in Kalyan Dombivali municipal corporation area. Kalyan Dombivali cities have fast and cheaper connectivity by rail and good educational environment and health care services. Therefore population in 2011 was 1193512 and it is growing.

The central government has declared the Kalyan Dombivali Municipal Corporation (KDMC) as a smart city. All over world, the urbanization process is increasing fast. As the urbanization increases, the complexity increases very fast in provision of various services. The smart city concept helps to solve the housing, transport, energy, poverty, inequality, energy and unemployment. City must be creative and sustainable. It must improve quality of life, help environmental sustainability and economic growth. Smart city must support smart people. It is mainly characterized by high levels of qualification, life long technological learning, social ethnic diversity, creativity, openness and participation in social life and economic freedom with good income. The living in smart city is depending upon cultural, health, education, tourism facilities and social cohesion. The smart city as an urban environment that is elegantly efficient, grander than the messy urban environments. The smart city is a new market for urban management (Glasmeiera Amy and Susan Christophersonb 2015). An excessive focus on the technological aspect alone leads to many problems in the implementation of the smart city concept (Winkowska Justyna et.al.2019) But in the long term, the smart city brings enormous opportunities and exciting challenges. In general, a metropolitan area can be considered as smart when city operations and services such as healthcare, education, transport, parking, and electricity grid are supported through ICT infrastructure in order to facilitate efficiency and ease of operation (Bawany, Narmeen Zakaria and Jawwad A. Shamsi 2015)n. In Kalyan Dombivali Municipal Corporation, the services such as applying for a driver's license, buying of car and property, change of the address, request for a passport, start of a new business, reporting of a crime, declaration of income taxes, seeking health services and so on will change with access to technology. But at present, the municipal government must be empowered and accountable entities. They need to take control of their destinies, become deliberate about their economic growth, and devolve powers to the places and people who are closest to the ground (Praharaaj S. et.al.2018). Therefore it is important to take into account the financial status of the Municipal corporation.

8. REVENUE RECEIPTS FOR KDMC

The revenue receipts are classified for the municipal corporation as in Table 2.

TABLE 2 REVENUE RECEIPTS OF KDMC (PER CENT)

No	Account head	Sub head	CAGR
1.	Indirect tax		5.92
A		Tax on property	6.46
B		Octri	5.44
C		Normal deposits and fees	20.69
D		Computer department	10.75
2	Urban architecture department		6.32
3	Social security and facilities		32.90
A		Fire protection fund	32.92
4	Municipal property		34.91
5	Entertainment		3.86
A		Acharya K.Atre Auditorium	5.32
B		Savtribai Phule Auditorium and playground	2.59
6	Cleanliness , health, market		16.94
A		Cleanliness, Hygiene	33.43
B		Pest control	-12.94
C		Hospital and dispensaries	12.69
D		Markets	15.71
7	Public work , Gardens and water supply, sanitation		9.56
A		Construction	3.48
B		Unauthorized construction	140.17
C		Public gardens	5.08
D		Water supply and sanitation	9.51
E		Tree conservation	5.09
8	Urban poor		27.00
A		Slum improvement and rehabilitation	25.75
9	Public education		10.05
A		Primary schools	10.03
B		Play grounds and cultural dept	4.56
10	Others		58.91
11	Government grants and aid		9.02
Total receipts(1 to 11)-10)			6.90

The growth of indirect tax was 5.92 percent from 2014-2020. It mainly includes as the growth of the property on taxes which was 6.46 per cent. Under this, the growth of general tax, corporate education tax, road tax, vehicle tax, property transfer and postal charges fees was high. At the same time, the penalty on authorized construction , late fees on charges property tax was also high. The growth of Octrai was 6.46 per cent in KDMC from 2014-2020. In Octrai, the contribution of Octrai tax, fees, other income, corporation tax, stamp duty, registration fess, penalty and goods and services grant was high. The growth of the normal deposit and fees was observed as 20.69 per cent over the study period. In this category, revenue receipts are more from RTI

fees, other deposits, marriage registration fees. The growth of the revenue from computer department was 10.75 percent from 2014-20 period. Such revenue receipts are observed due to information technology related services by the municipal corporation. The revenue receipts from the urban architecture department was 6.32 per cent. Under this category, the revenue receipts are high from development fee, architecture law penalty, building construction and permission fees, staircase permission fees, engineering licence fees. The growth of revenue receipts from social security and facilities was 32.90 per cent. Under this category, the revenue receipts from fire protection fund was 32.92 per cent. The growth from security deposit was very low. The revenue receipts from the municipal corporations property was 34.91 per cent from 2014-2020 period. In this category, the revenue receipts from the buildings of municipal corporation, advertisement fees, boat's fair, fees from postal cards, banners, income from parking and income from school rent was higher. Revenue receipts from the entertainment was only 3.86 per cent. It mainly comprise as P.K.Atre and Savitribai Phule auditorium. It mainly include auditorium and shows tax, canteen rent, parking fees, rent of conference hall. P.K.Atre auditorium related revenue receipts growth was 5.32 per cent. The play ground and S.Phule auditorium related revenue receipts was only 2.59 per cent. The revenue receipts from the cleanliness, health and market was 16.24 per cent from 2014-2020. The revenue receipts from cleanliness and hygiene was very high (33.43 per cent). Municipal corporation does not get revenue from pest control. There fore the revenue receipts from the pest control was minus 12.94 per cent. Municipal corporation has stopped its pest control program. Now in private market, many people are doing the pest control activity. They are getting more revenue for it. The growth of revenue from the hospitals and dispensaries was 12.69 per cent. It mainly comprises as the hospital of municipal corporation and medical fees, rent of ambulance, sono-graphy fees, registration fees, birth and death certificate fees, pathology lab related fees. Municipal corporation gets revenue from all the above items.

The revenue receipts from the market was 15.71 per cent. It mainly comprises as fees and rent from fish and mutton stalls in city, licence fees, permission fees for business etc. The revenue receipts from the public work and garden was 9.56 per cent. If we see the revenue receipts from the construction, it was only 3.48 per cent from 2014-2020. Road cutting charges was more in this category. The revenue receipts from unauthorized construction was 140.17 per cent. In this category, the revenue was higher from penalty from unauthorized construction, fees for legalizing unauthorized construction. Municipal corporation puts maximum penalties on illegal construction in its area. The receipts from the public garden was 5.08 per cent from 2014-2020. It mainly include the mini train rent, plant sell , garden fees. Very few gardens are charging such fees. The revenue receipts from the trees conservation was 5.09 per cent from 2014-20. The revenue receipts from the urban poor was 27 per cent. It mainly comprises as slum improvement and rehabilitation. It contributed 25.75 per cent from the 2014-20. The revenue receipts from the public education was 10.05 percent. It comprises as primary, secondary educational level revenue receipts for municipal corporation. From primary education, the revenue receipts was 10.03 percent. The receipts from play grounds and cultural department was only 4.56 percent for corporation. The receipts from the others is 58.91 per cent from 2014-2020. The other receipts mainly comprises as the municipal corporation investment and saving account deposits, xerox fees and certificate fees, sell of old furniture and commodities, and various form fees. The revenue receipts from the government grants and aid was 9.02 per cent from 2014-20 period. The growth of whole revenue receipts for Kalyan Dombivali Municipal Corporation from 2014-20 is estimated as only 6.90 per cent.

TABLE 3 THE CAPITAL RECEIPTS OF KDMC (PER CENT)

No	Account head	Sub head	CAGR
1	Previous balance		24.96
2	For urban poor		-8.37
A		Provident fund deposits	7.03
B		Special grant	0.00
C		Others	-0.21
D		In advance deposits	0.91
E		Government tax and others	8.81
F		Defined provident fund	45.27
	Total capital receipts		21.67

TABLE 4 KDMC AND REVENUE EXPENDITURE (PER CENT)

No	Account head	Sub head	CAGR
1	Normal supervision and revenue collection		11.28
A		Secretary office and revenue collection	20.68
B		Accounting test Department	2.47
C		Normal superintendence	9.56
D		Property tax collection	10.98
E		Local body tax collection	-16.65
F		Computer section	20.99
2	Architecture department		8.05
3	Public security and facilities		9.42
A		Street light	8.56
B		Fire brigade	12.47
C		Security deposit	9.97
4	Property section		4.95
5	Entertainment		22.49
A		P.K.Atre Auditorium	20.75
B		S.Phule Auditorium	23.60
6	Public cleanliness , market , health		12.53
A		Public health	13.08
B		Water supply and solid waste	10.24
C		Sanitation	7.52
D		Food alteration department	-100.00
E		Markets and animal slaughter house	8.85
F		Environment and pollution control	25.48
7	Public work department and gardens		14.84
A		Construction	13.95
B		Control of illegal construction	11.97
C		Public gardens	28.95
D		Mental health	42.27
8	Urban poor		9.70
A		Economically weaker section	-2.80
B		Slums and rehabilitation	4.90
C		Hospitals and dispensaries	8.26
D		Primary education	10.50
E		Women and child welfare	24.62
9	Public education		17.14
A		Common library	11.59
B		Primary education	10.82
C		Cultural department	12.66
D		Others	23.14
10	Others		58.15
A		Programs	27.36
B		Projects	18.05
C		Sections	70.58
	Total revenue expenditure		18.44

The growth of previous balance in capital receipts was 24.96 percent for corporation from 2014-2020. For urban poor, the capital receipts are minus 8.37 per cent. The provident fund deposits was 7.03 per cent. It mainly includes the contribution from workers, investment and savings, interest and other deposits. The central and state government provides special grants to different corporations for different programs. The special grants have not received by the corporation over the period of time. It mainly includes salary special grant, workers welfare grant. The other kinds of capital expenditure has observed as minus 0.21 per cent. It mainly comprises as security deposit, library deposit, drama , ground , playground deposits, new shop deposits and other deposits. Recently , there is decline in such receipts for municipal corporation.

In advance deposits have grown with 0.91 per cent. It mainly comprises as functioning of government, advance for day to day functioning , festival advance, contractor advance, vehicle purchase advance and family welfare advance. We can see lowest growth in such receipts over the period of time. The government tax and others have grown with 8.81 per cent. It mainly comprises as the educational fees, employment guarantee fees, big complex land fees, income tax and surcharge, sales tax, theatre house service tax, workers welfare tax, soil and rock transfer and royalty. The defined provident fund related capital receipts was 45.27 per cent from 2014-20. We found the highest growth of such kinds of capital receipts of municipal corporation. Total capital receipts from 2014-20 for Kalyan Dombivali Municipal Corporation was 21.67 percent. Most of the Municipal Corporations, the taxes, user charges and fees, transfers and loans - is narrow compared to international benchmarks with regard to the financing of local public services (Siddaram. H. M. and Prof. H. H. Bharadi 2017). We can see that the revenue receipts growth are low for this corporation. Therefore growth of revenue expenditure over the period of time is also low.

The growth of the normal supervision and revenue collection related revenue expenditure was 11.28 per cent. In this category, the secretary office and revenue collection of expenditure was 20.63 per cent. Basically, it comprises as wages, bonus, election expenditure, stationary furniture, fuel, vehicle impairment, book purchase, training to civil servant and emergency expenditure of corporation. The accounting department related revenue expenditure was 2.47 per cent. It comprises as wages, grants, travel expenses and emergency expenditure. The normal superintendence related expenditure was 9.56 percent from 2014-20. It mainly includes as general administration, wages and allowances, salary of temporary workers, travel, stationary , xerox, electricity bills, furniture, petrol of vehicles, vehicle repair and telephone bills, provident fund, computer training to staff. The growth of the revenue expenditure for property tax collection was 10.98 percent. Such expenditure increased because of salary and allowances of staff, postal stamp, vehicles repair, maintenance and rent, stationary, xerox, emergency expenditure. Local body tax collection is -16.65 percent of revenue expenditure. It mainly declined due to wages and allowances, daily wage, refunds, petrol for vehicles, and xerox. The revenue expenditure for computer section grown as 20.99 per cent. Now at most of places in corporation, computers are used for work. Therefore expenditure for computer department has increased. The growth of revenue expenditure from the architecture department was 8.05 percent. In comprises as different items. The growth of wages, allowances, development and emergency expenditure was higher. The revenue expenditure for the public security and facility was 9.42 percent. It mainly comprises as street lights. The revenue expenditure for street light was 8.56 per cent from 2014-20 for corporation. Street light related revenue expenditure mainly comprises as wages and allowances, electricity bills, commodity purchase, repair vehicles and maintenance, social program and security of people. Such expenditure is increasing over the period of time in corporation. The fire brigade related revenue expenditure was 12.47 per cent. It mainly comprises as wages and allowances, uniform, seminar and training, fire man insurance, petrol, vehicles repairing, equipment of fire related goods and cleanliness and emergency expenditure. The security deposit related revenue expenditure was 9.97 per cent. It comprises as salary and allowances, uniform, security and cleanliness.

The property section related revenue expenditure was 4.95 percent of KDMC. It mainly comprises as wages and allowances, stamp purchase and emergency expenditure. Entertainment and playground centers related revenue expenditure was 22.49 percent. There are two Auditoriums in Kalyan Dombivali Municipal Corporation that is P.K.Atre and Savitribai Phule Auditorium. The revenue expenditure for P.K.Atre auditorium was 20.75 percent from 2014-20. It comprises as salary and allowances, impairment, CCTV, electricity supply, security and cleanliness of auditorium, gardening, insurance, and generator. The growth of the revenue expenditure of S.Phule auditorium was 23.60 percent. It mainly comprises as salary, repairing of auditorium, CCTV and security. Municipal Corporation regularly repairs the auditoriums in its area. The city cleanliness, market and

health related expenditure grown as 12.53 per cent. In this category, the growth of public health related revenue expenditure was 13.08 percent. It comprises as salary and temporary labour wages, uniform, sewage transport, equipment and cleanliness and overall sewage management.

The sanitation related revenue expenditure was 7.32 per cent from 2014-20. It comprises as salary and overtime, uniform, purchase of insecticides, petrol and diesel, fog machine, pump and spare parts, purchase and vehicle repairing and emergency expenditure. The revenue expenditure related food alternation and department was very low (-100 per cent). Such expenditure was low because very less staff and wages and overtime. Market and slaughter house related revenue expenditure was 8.85 per cent. It mainly comprises as wages and overtime, vehicle repairing and maintenance. The environment and pollution control related to revenue expenditure was 25.48 per cent from 2014-20 period. It comprises as salary and overtime, vehicle repair and maintenance. The public work department and garden related revenue expenditure was 14.84 per cent from 2014-2020. The construction related to revenue expenditure was 13.95 percent in KDMC. It mainly comprises as expenditure on salary, over time, road repairing and maintenance, zebra crossing , vehicle repairing and rent, statue establishment, overbridge repairing, emergency expenditure, night shelter establishment and repairing. Municipal corporation spend lot of money on such activities regularly. The revenue expenditure for control of unauthorized construction was 11.97 per cent. It mainly comprises as salary and overtimes of staff involved in it, vehicle repairing, salary and allowances of policemen and emergency expenditure. Most of the time Municipal corporation has policy to demolish the illegal constructions after specific date. They demolish such illegal constructions in city. It leads to rise in revenue expenditure for different activities and items.. The revenue expenditure related to public garden was 28.95 per cent. It mainly included as salary and allowance to staff, repair of gardens, tree plantation etc.

The mental health related revenue expenditure was 42.27 per cent from 2014 to 2020 in KDMC. The revenue expenditure related to urban poor was 9.70 per cent. It mainly comprises as the revenue expenditure related to economically weaker section. It was -2.80 percent from 2014-20 period. There is decline in revenue expenditure because municipal corporation is spending less money on street light, temple repairing, toilets for poor , water supply and road repairing. The slums and rehabilitation related to revenue expenditure was 4.90 percent. It mainly comprises as salary and allowances, photo pass of people of slums. Municipal corporation spends money on such programs regularly.

The revenue expenditure related to hospital and dispensaries was 8.26 percent. It comprises as salary, urban health centers, travel, uniform, medical and chemical purchase, new equipment purchase, x-ray machines, gas and expenditure related to national immunization and other school health related programs. Municipal corporation regularly spends lot of money on such health related programs. Revenue expenditure related to the primary education was 10.50 per cent. Primary education related revenue expenditure mainly comprises as salary and allowances, furniture, schools repairing, electricity of school buildings, school rents, xerox, toilet and water provision, mid day meals to children. Under gender budget number of programs are announced every year by corporation. The revenue expenditure under women and child welfare department is observed as 24.62 per cent. Under this head , number of programs are performed such deliveries and child welfare programs, help to women in business and technical training, women and child health related programs, essential commodities distribution to poor women and cultural programs for women and children. Municipal corporation spends lot of money on such programs every year. Revenue expenditure for public education was 17.14 per cent from 2014-20. In that, common libraries related revenue expenditure was 11.59 per cent. It mainly comprises as salary allowances, books and magazines. The revenue expenditure related to primary education was 10.82 per cent. It mainly includes as teachers salary and allowances and cultural programs. The revenue expenditure related to cultural department and play grounds was 12.66 per cent. It mainly includes as organization of cricket matches for youths, cultural programs, inter school cricket competitions at district level. Every year, municipal corporation spends money for youths under different programs. The other programs related revenue expenditure was 58.15 per cent. It mainly comprises as number of programs (27.36 per cent) such as advertisement cost, flood control, handicap related programs, Adhar card related programs, and other emergency expenditure. The projects related to revenue expenditure has increased up to 18.05 per cent. It mainly comprises as MSJN project loan and transport grants. The various sections related revenue expenditure has increased and it was observed as 70.58 per cent. We can observe that the total capital expenditure was

18.44 per cent from 2014-20 period. We found lot of variation in revenue receipts from 2014-20 period of Kalyan Dombivali Municipal Corporation.

Table 5 Capital expenditure of KDMC (Per cent)

No	Account head	Sub head	CAGR
1	Urban poor		12.48
A		Funds for urban poor (Weaker section, social backward and poor)	32.76
B		Government aid for urban poor	17.65
C		Women and child welfare (Gender Budget)	39.15
2	Loans		11.20
A		Loans and PPF	8.19
B		Reserve funds	20.29
C		In-advance expenditure	13.75
D		Government tax and others	4.63
	Total capital expenditure		24.31

The urban poor expenditure was 12.48 percent. In it, the growth of funds for urban poor was 32.76 per cent. It includes as new road, gardens, new electric poles, drainage, toilets, development of underdeveloped area, development work in slums. The government aid for urban poor was 17.65 per cent from 2014-20. It includes as JNNURM programs, Dalit vasti improvement, minority facility and improvement. The women and child welfare related expenditure was 39.15 per cent. It was high because of building and repairing toilets at schools, colouring of anganwadi's, playgrounds for women and children. The growth of loans was 11.20 percent from 2014-20. In loans, the growth of loans and PPF growth was 8.19 per cent. The reserve funds growth was 20.29 per cent. It was high because deposits as octrai, libraries, auditoriums etc. In advance expenditure was 13.75 per cent from 2014-20. It mainly comprises as office, festivals, contractors, vehicles, family welfare, expenditure. It also comprises as some deposits.

The government tax and others were 4.63 per cent from 2014-20. It comprises as government, education, employment guarantee sales tax, service tax, computer and IT repairing, workers welfare, royalties on soil and rock related receipts. Municipal corporation has fixed expenditure over the period of time. We can conclude that the total capital expenditure has grown with 24.31 percent from 2014 to 2020 for Kalyan Dombivali Municipal Corporation.

9. REGRESSION RESULTS

The nature of data is annual budgets of Kalyan Dombivali Municipal Corporation from 2014-20. We have only four categories of data as revenue receipts and expenditure, capital receipts and expenditure. The data is sum of either revenue or capital receipts and expenditure. Therefore we have no choice but to use ordinary least square regression (Greene William H. 2018) to study the relationship of variables with the revenue receipts and expenditure, capital receipts and expenditure. The data for regression result is used as six years budgets (2014-2020) of Kalyan Dombivali Municipal Corporation. The regression model is defined as follows.

$$Y_{it} = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \dots + \epsilon \tag{9}$$

Where

Y_{it} considered as dependent variable of the data series

- x_1 is the independent variable categorized into different types
- ϵ is an error term in equation
- β_0 is the intercept term

- β_1 means the slope parameter or coefficient
- β_2 is the slope parameter or coefficient
- i stands for the i^{th} observation in the data set, $i = 1, 2, \dots, N$
- N is the number of observations in the data set of study

In the above regression, the dependent variable is used as KDMC Municipal Corporations every years revenue receipts and expenditure. Same category is considered for capital receipts and expenditure. We have used various independent variables from each category of receipts and expenditure. However, every sub head category is regressed with specific regression. We have shown regression results for number of dependent variables.

TABLE 6: REVENUE RECEIPTS FOR MUNICIPAL CORPORATION OF KDMC

Variables	Co-efficient	Standard error	T test
Indirect taxes	1.52**	0.10	14.60
Public work department and gardens	6.23**	0.94	6.65
Constant	-20612.05**	5656.86	-3.64
R	R Square	Adjusted R Square	Std. Error of the Estimate
	0.99	0.99	0.98
			1138.17

@** Significant at 5 per cent

Indirect taxes of corporation are positively correlated to the revenue receipts. Indirect taxes consists of tax on property, Octrai, normal deposits and computer department. As far as tax on property is concerned then it included as the growth of general tax, corporate education tax, road tax, vehicle tax, property transfer and postal charges fees. Over the period of time, municipal corporation has increased such taxes. At the same time, the penalty on illegal constructions, late fees on charges property tax was also high. Octri for KDMC consists of Octrai tax, fees, other income, corporation tax, stamp duty, registration fess, penalty and goods and services grant. The normal deposits have also increased from revenue such as RTI fees, other deposits, marriage registration fees. The public work department related receipts are positively co related to revenue receipts. Such receipts included as construction, control of illegal construction and public gardens in corporation area. The construction consists of road cutting charges by firms and individual in corporation area. The control of illegal construction means the revenue from penalty from unauthorized construction by people. Municipal corporation sometime charges fees to legalize unauthorized constructions in city. The revenue receipts from public gardens in city included as the mini train rent, plant sell, garden fees for entry and functions. Very few gardens are charging such fees because they are limited in number.

10. REGRESSION RESULTS FOR CAPITAL RECEIPTS FOR CORPORATION

The capital receipts are positively co-related and statistically significant with previous year's balance of corporation.

TABLE 7 CAPITAL RECEIPTS FOR KDMC

Variables	Co-efficient	Standard error	T test
Previous balance	0.98*	0.00	83889.16
For urban poor	0.51*	0.00	4321.31
Constant	0.67	0.47	1.40
R	R Square	Adjusted R Square	Std. Error of the Estimate
1.00	1.00	0.99	0.46

@ * Significant at 1 percent ** Significant at 5 per cent

Municipal corporation always keeps good amount of money from previous years budgets. The capital receipts are positively co-related to urban poor of corporation. Such receipts consists of provident funds for poor. It includes as contribution from workers, investment and saving, interest and other deposits. It also included as special deposits as salary special grants, workers welfare grants. The other deposits consists of security, library deposits. It also includes as playground deposits, new shop deposits and other deposits.

11. REVENUE EXPENDITURE FOR THE CORPORATION:

We have used least square regression to find the correlated factors with revenue expenditure of corporation.

TABLE 8 REVENUE EXPENDITURE OF KDMC

Variables	Co-efficient	Standard error	T test
Secretary office and revenue collection	58.09**	1.92	30.26
Public education	-159.27**	15.52	-10.25
Public cleanliness , market , health	5.87**	0.78	7.51
Constant	-13437.24***	4599.78	-2.92
R	R Square	Adjusted R Square	Std. Error of the Estimate
1.00	0.99	0.99	1376.32

@** Significant at 5 per cent, *** Significant at 10 per cent

The secretary office and revenue collection is positively correlated with revenue expenditure. The secretary office and revenue collection comprises as wages, bonus, election expenditure , stationary furniture, fuel, vehicle impairment, book purchase, training to civil servant and emergency expenditure. The growth expenditure of the accounting department was higher. It comprises as wages, grants, travel expenses and emergency expenditure. The normal superintendence expenditure has grown from 2014-20. It mainly includes as general administration, wages and allowances, salary of temporary workers, travel, stationary, xerox, electricity bills, furniture, petrol of vehicles, vehicle repairing and telephone bills, provident fund, computer training to staff. The growth of the revenue expenditure from property tax collection was higher. Such expenditure increased because of salary and allowances of staff, postal stamp, vehicles repair, maintenance and rent, stationary, xerox, emergency expenditure. Local body tax collection declined of revenue expenditure. It mainly declined due to wages and allowances, daily wage, refunds. The revenue expenditure from computer section grown over the period of time. Now most of the work is done on computer of corporation. The cost of maintenance of computers has increased for corporation.

The revenue expenditure for public cleanliness, market, health is positive and statistically significant. It comprises as salary and temporary labour salary, uniforms, equipment and cleanliness, xerox, city cleanliness, sewage management. The sanitation related expenditure was higher of corporation from 2014-20 period. It comprises as salary and overtime of staff, uniforms, purchase of insecticides, petrol and diesel, fog machines, pump and spare parts, purchase and vehicles, repairing and emergency expenditure. The revenue expenditure related to food alternation and department was very low. It was low because very less staff involved in such activities of corporation. Market and slaughter house related revenue expenditure was 8.85 per cent. It mainly comprises as wages and overtime of staff, vehicles repairing and maintenance. The environment and pollution control related to revenue expenditure was also higher. It comprises as salary and overtime, vehicle repairing and maintenance. Public education to revenue expenditure is negatively co-related and statistically significant. In that common library related revenue expenditure is declining. It mainly comprises as salary allowances, books and magazines. Municipal corporation does not buy magazines and books now a days. The revenue expenditure related to primary education is declining. It mainly includes as teachers salary and allowances and cultural programs. The number of corporation schools are declining in number whereas the private schools are increasing. The revenue expenditure related to cultural department and playgrounds was low. It mainly includes as cricket matches, cultural programs, inter school cricket competition at district level. Municipal corporation is spending less on such programs. Due to few playgrounds, very few matches are organized in corporation area. Therefore expenditure on such activities is low.

12. REGRESSION RESULTS FOR CAPITAL EXPENDITURE OF CORPORATION

The urban poor related expenditure was statistically significant in capital expenditure as compare to other expenditure.

TABLE 9 REGRESSION RESULTS OF KDMC FOR CAPITAL EXPENDITURE

Variables	Co-efficient	Standard error	T test
Funds for urban poor (Weaker section, social backward and poor)	24.70**	0.05	416.97
Government aid for urban poor	4.34*	0.00	1288.85
Women and child welfare	50.15**	0.10	491.59
Constant	24.70**	12.8	16.18
R	R Square	Adjusted R Square	Std. Error of the Estimate
1.00	1.00	1.00	4.45

@ * Significant at 1 percent ** Significant at 5 per cent

The urban poor related expenditure includes as new road, gardens, new electric poles, drainage and toilets, development of underdeveloped area, development work in slums. The government aid for urban poor is statistically significant and positively co-related with capital expenditure. It includes as JNNURM projects, Dalit vasti improvement program, minority facilities and improvement program. The municipal corporation spends money on such programs. The women and child welfare related expenditure was statistically significant and positively co-related with capital expenditure. It was high because of building and repairing toilets at schools, colouring anganwadies, playgrounds for women and children. In Every budget of municipal corporation, the money is spent on infrastructure facilities.

13. POLICY IMPLICATION

Municipal corporations find high migration in their areas. Kalyan Dombivali Municipal Corporation is well connected by roads and railway to financial capital of country as well as other cities of country. Due to pleasant climate and employment opportunities, there is continues migration and growth of the population in Kalyan Dombivali Municipal Corporation (KDMC). The high population growth has affected on the infrastructural services such as water supply, drainage, sewerage, roads, solid waste management, street light, education and health care. The revenue receipts from all subheads are increasing except pest control. Capital receipts are declining for urban poor which includes special grants and others. The local body tax collection is declining, food alteration department, expenditure on economically weaker section, as far as revenue expenditure is concerned. Revenue receipts are positively co-related to indirect taxes and public work department and gardens. Capital receipts are positively co-related to previous balance and receipts for urban poor. Revenue expenditure positively co-related to secretary office and revenue collection and public cleanliness, market and health. It is negatively co-related to public education.

Municipal corporation must increase expenditure on public infrastructure services. Most of the water meters in corporation are tempered and manipulated. There is need to appoint agency that supply, install maintain and take monthly meter reading. The underdeveloped and slums are not covered by the sewerage. Municipal corporation must upgrade and rebuild sewage collection in its area. Municipal corporation must spend money on sewers manholes, pump and lift stations. It must ensure a higher degree of sewerage treatment in accordance with applicable norms. Sewage treatment plants need to design to handle ultimate stage flow with installation on a modular basis. All steps are urgently required to solve sewage related issue in corporation. In the corporation area, there is flood observed due to excess rainfall in every monsoon. There is need to widen and rebuilt the water drains all over city. Municipal corporation must collect solid waste from every house on daily basis. From very few houses, the solid waste collected as door to door ringer bells. There is no proper segregation of waste. The collected solid waste need to be treated through techno-economically feasible process. The transportation of whole solid waste to disposal site is an expensive and time consuming task for corporation. The number of trucks, dumpers JCB machines are old and required capital expenditure for its replacement. There is need of GPS system to transport the solid waste from city. The existing road network, the footpaths, storm water drains, parking areas, auto rickshaw terminus, city bus terminus and the state transport bus stand need to be maintained and upgrade properly. There is need of plan to reduce the pedestrian movements across station and traffic of vehicles in KDMC. The municipal corporation must have app based complaint system of various services. The app also provides a user facility to view status of lodge complaint until is resolved, while online system will help officers at Municipal Corporation to solve/reject

complaint with reasons and monitor the status of complaint. Such system is quick and cheaper for corporation (Ramakrishna D. et al. 2016). Technology must be used to solve various public utility related issues in corporation area. Administering planetary urban is perhaps the biggest challenge the practitioners, policy makers, planners and academia is facing in the recent era (Khatua Sarani 2019). In order to provide the municipal corporation services and upgrade infrastructure, municipal corporation required maximum resources. Municipal corporation should not depend on central and state government for resources to finance capital expenditure. It must raise capital through issue of municipal infrastructure debt bonds. Only declaring smart city does not mean the resources will be available. There is need to raise resources to sustain the financial status of the municipal corporation.

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