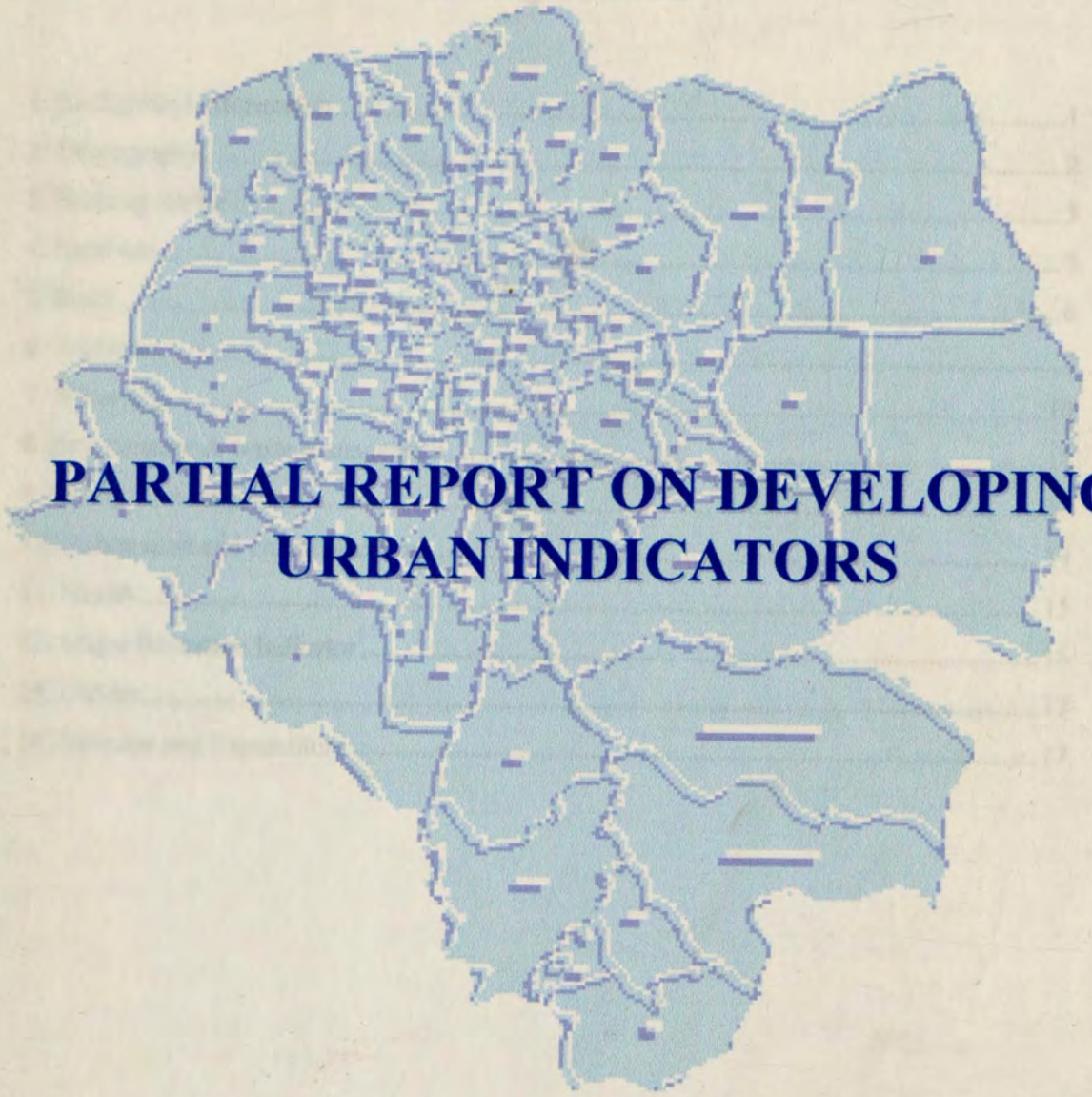
Addis Ababa City Government
Finance and Economy Development Bureau



PARTIAL REPORT ON DEVELOPING URBAN INDICATORS

April, 2005

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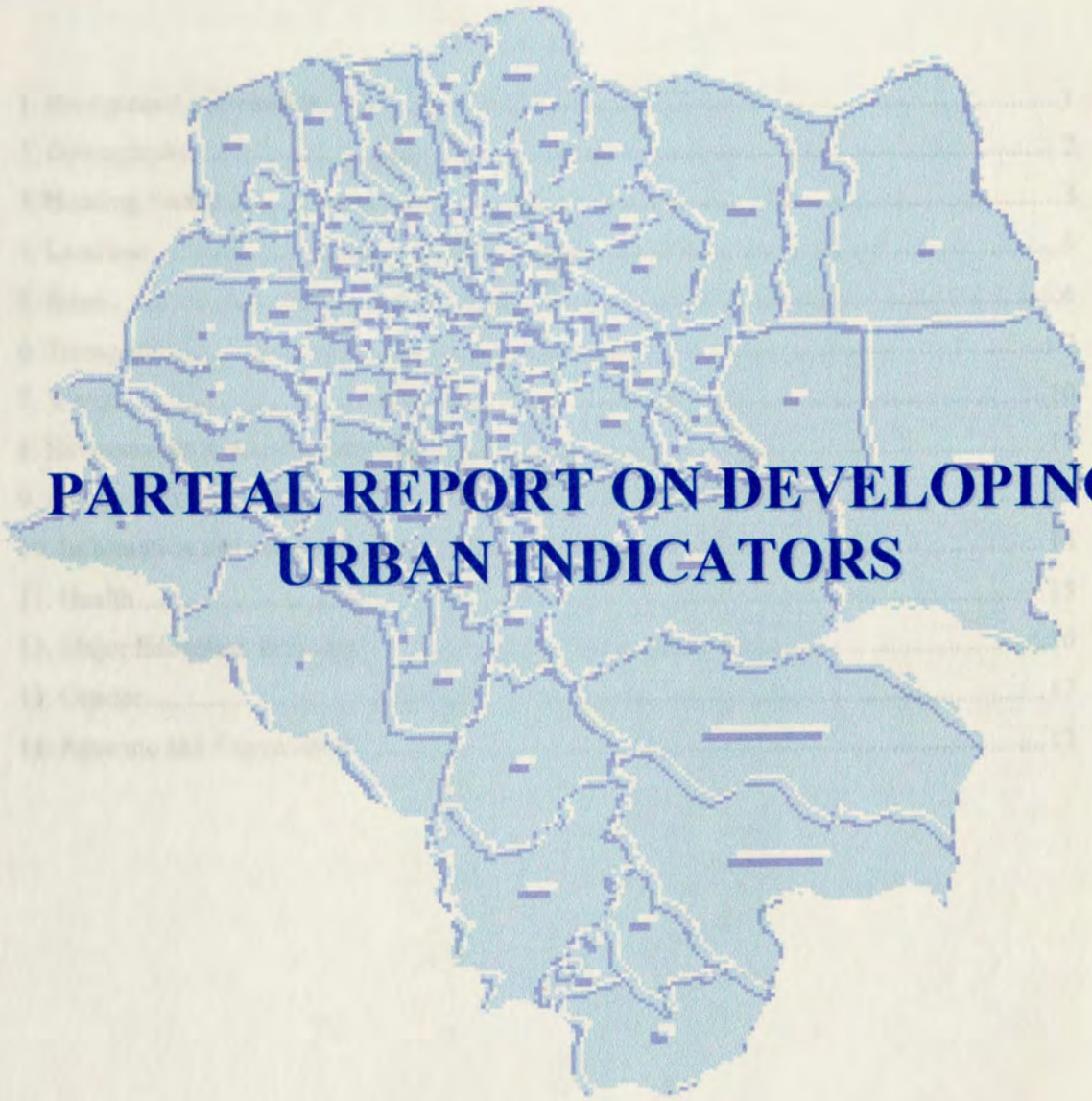

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1. Background information

Addis Ababa being the centre of the country and Africa as well as the sit of many international organisations has a significant role in local, regional and international settings in economic, social, political & administrative perspectives.

However, at present, the city is facing inadequate substandard infrastructure & public facilities, acute shortage of houses, poor sanitation, high level of poverty & unemployment.

The City Government of Addis Ababa, in order to guide the City's development properly and to over come the existing economic, social, and environmental challenges has prepared & started implementing development & works & good governance. Besides, to change the situation and to set an appropriate urban development policy, strategies, programs, and plans relevant to the overcoming of all social and economic problems of the city requires putting appropriate urban indicators.

From this perspective & the advise obtained from UN-Habitat, the city Government of Addis after establishing Local Urban Observatory (LUO), the steering & technical committee and the study team has already started developing urban indicators, which could ultimately form the bases for decision making, policy formation & planning.

Accordingly, some urban indicators, which are developed, based on the data obtained from the respective sectors & the 1994 population census reports are presented here under as follows.

2. Demography

Based on the projection of 1994 population and housing census result, the total population of Addis Ababa is projected to be 2.969 million in 2005, at high variant, of which 52% are female and 48% are male. The average annual growth rate of the population of the city is 2.9%.

Table 2.1 Demographic Indicator

No	Demographic Indicator	Indicator Values
1	Total fertility rate (children per women)	1.9
2	Life Expectancy at Birth • Male • Female	62.8 66.5
3	Annual population growth rate (in %) Rate of natural increase Net migration rate	2.9 1.21 1.69
4	Economic dependency ratio	130.5
5	Sex Ratio (number of male per 100 female)	92
6	Infant mortality rate (the number of deaths of infants under age one per 1000 live births)	50
7	Under five mortality rate (The number of deaths of infants under age five per 1000 live births)	66
8	Crude death rate (the number of deaths per 1000 population)	6.7
9	Crude birth rate (the number of live births per 1000 population)	27.6
10	Female literacy rate	68
11	Female employment rate	36.8

Source: CSA 1994 population and housing census & report on urban bi-annual employment unemployment survey April 2004.

As indicated on table 2.1 above, the overall dependency & sex ratio of the city is 130.5 & 92 male per 100 female respectively.

3. Housing Sector

Based on the information obtained from Urban Information and Documentation Department (UIDD) of the City Government of Addis, the housing unit ratio in the city (i.e., total number of house per total households[1]) is 0.64.

Table 3.1 Housing condition and facilities

No.	Housing indicators	unit of meas	Indicator values
1	**Type of building**		
	• Non storied	%	97.15
	o attached	"	58.14
	o detached	"	39.01
	• Multi Storied		2.66
	o attached	"	1.99
	o detached	"	0.67
2	**Housing ownership**		
	• privately owned	"	34.42
	• Rented from government	"	40.4
	• Rented from private household	"	16.4
	• Others	"	8.78
3	**Construction material**		
	• Wall		
	o Mud and Wood	"	75
	o Stone, Brick, hollblock and Cement	"	15
	o Others	"	10
	• Roof		
	o Corrugated iron sheets	"	96
	o Others	"	4
	• Floor		
	o Mud	"	52.8
	o Wood tiles	"	17.9
	o Cement concrete and brick tiles	"	24.8
	o Others	"	1.9
4	**Housing Facilities**		
	• Toilet		
	o Private with flush	"	8
	o Private without flush	"	18.16
	o Shared	"	48.94
	o No toilet	"	24.9

[1] Total population of the city in 2004 at high variant is 2.870 million. If we assume 5.1 persons in a house, the expected total households, of the city is 2.870 million/5.1 = 562745 & total number of houses in the city are 372,249.

No.	Housing indicators	unit of meas	Indicator values
	• Kitchen		
	○ Private	"	37.66
	○ Shared	"	35.96
	○ No Kitchen	"	26.38
	• Water		
	○ Housing unit with private water meter connection	"	26.8
	○ Tap water shared meter	"	70.9
	○ Others	"	2.3
	• Electric light		
	○ Housing unit with private electric meter connection	"	45.05
	○ Shared electric meter	"	50.49
	○ No electric light	"	4.46
	• Houses with one room	"	30.7
	• Households with television set	"	75
	• houses with telephone line	"	47
	5. Over –crowding		
	• Household size	No.	5.1
	• Household per housing size	"	1.1
	• Person per room	"	2.1

Source: 1994 Population and housing census & (UIDD) of the City Government of Addis A.A, 2001.

According to the 1994 Population and housing census report, 97% of the total housing stock are non-storied of which 75% are made of mud and wood. Modern construction materials are used only for 15% of the total housing stock (see table 3.1 above).

Regarding the ownership condition of houses in the city, as shown above on table 3.1 above, nearly 40.4% is owned by Government, followed by private owned houses, which accounts about 34.42%.

About 30% of the housing units in Addis Ababa have one room. As it can be depicted on table 2.1 above, most of the houses in the city are deprived of basic facilities. Accordingly, of the total houses, 25% of houses have no toilet facilities and 26% houses have no kitchen facilities.

When we see electric and water connection at housing unit level, about 96% & more than 97% of the housing unit have private as well as shared electric and water meter connection respectively.

4. Land use

The land use pattern of the city is dominated by the existing mixed use built up (31.3%), parks, green along the rivers and forest (23.4%), agriculture (13.8%), mixed up expansion (13.41%) & so on from the total area (54,000 hectare) of the city as shown on the following table.

Table 4.1 Land use indicators

No.	Land use categories	Area /in hectare	Percentage share
1	City centres[2]	1317	2.4
2	Forest	12647	23.4
3	Agriculture	7453	13.8
4	Existing industry	1292	2.4
5	Proposed industry	1846	3.4
6	Mixed use built up	16900	31.3
7	Proposed Social Service	624	1.2
8	Existing social service	514	1.0
9	Reserved	1085	2.0
10	Transport	1029	1.9
11	Mixed use expansion	7243	13.4
12*	Road Network (AS)	2050	3.8
	T O T A L	54000	100

Source: ORAMP December 2002
* Including AS -(Arterial Street only) & excluding local street, Collector Street

According to the table shown above, the area proposed for city centre & road network is 1317 hectare (2.4%) & 2050 hectare (3.8%) respectively of the total area of the city.

Besides, 1085 hectare (2%) of the total area are designated for unforeseen upcoming activities and functions, 1029 hectares (1.9%) of the total area of the city is reserved for different types of transport /air, train and mass transport /terminal.

From the table above, one could tell that the existing social service land use is 514 hectares (1%) and about 624 hectares (1.2%) of the total area of the city is reserved for expansion of these functions.

[2] City centre areas are areas, which are allocated to accommodate major commercial and business service giving institutions, governmental and NGOs, transport centres, high rise building developments, public spaces, civic centres etc.

5. Road

As indicated here under the following table, the total road area coverage of the city in 2004 was 17.62 km^2, which is only 6.1% of the total built up area of the city.

Table 5.1 Road length and area coverage

No	Road Category/ indicators	unit of measur	Annual Trend						
			1998	1999	2000	2001	2002	2003	2004
A	Total asphalt road length	Km	681	684	688	698	716	756	778
1	Principal arterial road	"						308	327
2	sub arterial road	"						118	119
3	Collector road	"						178	180
4	Local road	"						152	152
B	Gravel Road	"	1184	1223	1235	1266	1286	1,300	1,368
C	**Total road length (I+II) = a**	**"**	**1865**	**1907**	**1923**	**1964**	**2002**	**2056**	**2146**
D	Sidewalk Way	Km	199	203	206	207	217	192	252
E	Road Length with drainage	Km	528	530	534	543	551	559	615
F	Total Road Area[2] (a*0. 007km^3)	Km^2	13.06	13.35	13.46	13.75	14.01	14.39	15.02
G	Road length with drainage + sidewalk way*0.003km[4]		2.18	2.20	2.22	2.25	2.30	2.25	2.60
H	**Total Road Coverage (F+G)**	**Km^2**	**15.24**	**15.55**	**15.68**	**16.00**	**16.31**	**16.64**	**17.62**
	Length of road indicators								
	• % of arterial road (1/a)*100	%						15	15.24
	• % of sub arterial road (2/a)*100	"						5.8	5.55
	• % of collector road (3/a)*100	"						8.7	8.38
	• % of local road (4/a)*100	"						7.4	7.08
	Road density indicator								
I	Total built up area	km^2	290	290	290	290	290	290	290
	• % of road density (from the built up area) **F/I*100**	%	5.26	5.36	5.41	5.52	5.63	5.74	6.08
	• % of road density from the total area **F/540km^2*100**	%	2.82	2.88	2.90	2.96	3.02	3.08	3.26

Source: Addis Ababa Roads Authority (AARA)

As indicated on the table above, the total length of roads in the city has increase from 1865 km in 1998 to 2146 km in 2004 of which 778 km (36%) was asphalt roads and the rest 1,368 km (64%) was gravel roads. Once again, as we can see from the table above, roads with walkway[5] & drainage[6] in 2004 had the share of was 11.74% & 28.7% respectively from the total length of roads.

[3] 0.007 km is an average width of roads

[4] 0.003km is an average width of drainage and sidewalk

[5] % of roads with walk way= total length of roads with walkway ÷ total length of roads X100

6. Transport

The metropolitan has a total of 137,536 different cars owned by different owners in 2003. As indicated on the following table, the annual growth rate of vehicles was on average 5.3% from 1997 to 2003 & at high variant with a total population of 2.777 million, there were about 50 cars per 1000 persons.

Table 6.1 Annual trend of vehicle

	Annual Trend						
Type of Vehicle	1997	1998	1999	2000	2001	20002	2003
Total population at high variant (in 1000)	2,291	2,362	2,437	2,516	2,599	2,686	2,777
Taxi (as per registration)	10765	11093	11855	12501	13165	14553	15704
%age share of taxies	**10.67**	**10.77**	**10.78**	**10.84**	**10.85**	**11.29**	**11.42**
Private	41650	41650	44968	46409	48469	51348	54501
%age share of private cars	**41.29**	**40.44**	**40.90**	**40.24**	**39.93**	**39.82**	**39.63**
Commercial	36277	37604	39855	42623	45273	47859	51151
%age share of commercial cars	**35.96**	**36.51**	**36.25**	**36.96**	**37.30**	**37.12**	**37.19**
Government	7820	8041	8360	8503	8827	9128	9731
%age share of Gov't cars	**7.75**	**7.81**	**7.60**	**7.37**	**7.27**	**7.08**	**7.08**
Red cross	730	764	811	859	902	954	1000
%age share of red cross cars	**0.72**	**0.74**	**0.74**	**0.74**	**0.74**	**0.74**	**0.73**
International &NGOs	3635	3847	4102	4429	4742	5094	5449
%age share of Int'l & NGO cars	**3.60**	**3.73**	**3.73**	**3.84**	**3.91**	**3.95**	**3.96**
Total	100877	102999	109951	115324	121378	128936	137536
total no. of cars per 1000	**44**	**44**	**45**	**46**	**47**	**48**	**50**

source: Addis Ababa Transport Authority (AATA)

[6] % of road with drainage connection= total length of roads with drainage connection ÷ total length of roads X100

When we see car ownership as an urban indicator taking into account year 2003, from the total registered vehicles, 39.6% were private, 37.2% were commercial, 11.4% were taxi, 7% were Government and Diplomatic and International Organisations & NGOs owned the remaining 4%.

As indicated on table 5.2 below, there was a significant traffic accident reduction from 1998 – 2001 & again a substantial increase starting 2002 onwards. From the total car accidents registered so far (1999-2004), on average 3.5%, 6.3%, 17.2% and 72.9% were death, heavy injury, light injury, and property damage respectively.

Table 6.2 Annual Trend of Traffic Accident

Type of Traffic Accidents	*Unit*		*Annual Trend*						*Average growth rate*
		1998	*1999*	*2000*	*2001*	*2002*	*2003*	*2004*	
Death	No	283	280	300	268	269	319	305	3.6
% of death from the total car accidents		**3.3**	**3.8**	**4.1**	**3.7**	**3.52**	**3.69**	**3.0**	
Heavy Injury	No	487	470	515	499	532	528	563	6.3
% of heavy injury from the total car accidents	%	5.6	6.3	7.1	6.93	6.97		5.56	
Light Injury	No	1527	1409	1358	1347	1309	1360	1483	17.2
% of light injury from the total car accidents	%	17.8	19.18	18.6	18.7	17.17	15.74	14.7	
Property damage	No.	6284	5186	5120	5089	5512	6429	7839	72.9
% of property damage from the total car accidents	%	73.23	70.6	70.2	70.65	72.5	74.44	76.9	
Total car accidents	No	8581	7345	7293	7203	7622	8636	10190	
Annual growth rate of car accidents	%		**-14.4**	**-0.71**	**-1.2**	**5.8**	**13.3**	**18**	

Source: Addis Ababa Traffic Office (AATO)

As on the following table bus population ratio has decreased from 1:16750 in 1998 to 1:6198 in 2004 & also taxi population ratio has decreased from 1:206 to 1:177 in the years under consideration. Besides, bus line has increased by 16.25% from 1999 -2004

Table 6.3 City bus and taxies

No	Indicator Variable	Annual Trend					
		1999	**2000**	**2001**	**2002**	**2003**	**2004**
1	Length of city bus road net Work /Km/	1007.4	1093.6	1093.6	1093.6	1247.7	1213.3
2	Number of city buses	361	401	383	405	462	463
	Population at high variant in 000	2437	2516	2599	2686	2777	2870
	Bus population ratio	**1:6750**	**1:6274**	**1:6786**	**1:6632**	**1:6010**	**1:6198**
	No of taxies	11855	12501	13165	14553	15704	
	Taxi population ratio	**1:206**	**1:201**	**1:197**	**1:185**	**1:177**	
3	Number of Bus Line	80	85	85	85	93	93

Source: Anbesa city bus service enterprise

7. Water

According to the data shown on table 6.1 below, the average annual water production, distribution & the daily water production capacity of the city is 65 million m^3, 46.17 million m^3 & 178.43m^3 respectively. From this, one could easily tell the presence of 30% average water leakage/loss. On the other hand, the average per capita water supply & consumption per day is 69.96 & 38.28 litters per person respectively.

Table 7.1 Water Production, Distribution and Consumption

Indicators	Unit	Annual trend						
		1998	1999	2000	2001	2002	2003	2004
Annual water production	mil.m^3	53.9	64	65.8	63	68.8	67.5	75.8
Water distribution	"	37.7	44.8	50	42.8	45.2	47.3	55.4
annual growth rate of water distribution	**%**		**18.83**	**11.61**	**-14.40**	**5.61**	**4.65**	**17.12**
Leakage/water loss/	**%**	**30**	**30**	**24**	**32**	**34**	**30**	**27**
Water production capacity	'000 m^3	147.67	175.34	180.27	172.6	180.49	184.93	207.67
Annual growth rate of water production capacity	**%**		**18.7**	**2.8**	**-4.3**	**4.6**	**2.5**	**12.3**
Per capita water supply	**L/person**		**72.15**	**72.05**	**67.01**	**71.02**	**65.79**	**71.76**
Per capita water consumption	**"**		**43.87**	**45.08**	**34.46**	**42**	**30.09**	**34.15**

Source: AAWSSA

8. Environment & waste management

Table 8.1 Environment

No.	INDICATORS	Unit of Measurement	Standard	Addis Ababa
1	Industrial point source water pollution indicators			
	• Bio Oxygen Demand (BOD)	mg/lt	80	4475
	• Chemical Oxygen Demand (COD)	mg/lt	250	14702
	• Suspended Solid (SS)	mg/lt	100	1563
	• Treatment Plant (PB)	mg/lt	0.5	4
	• Capital chromium (Cr)	mg/lt	2	6
2	Non point source water pollution indicators			
	• Bio Oxygen Demand (BOD)	mg/lt	clean water is < 10	400
	• Chemical Oxygen Demand (COD)	mg/lt	clean water is < 10	630
	• Suspended Solid (SS)	mg/lt		575
	• E.coli	mpn/100ml	clan water has mpn value 1to 2	30-100,000,000
3	Density of public parks	m^2/capita	6	0.66
4	Change in total green area	ha	na	12%
5	Environment protection expenditure			1% of GRDP

8.2 Waste management

The total amount of solid waste generated daily in 2003 as indicated on table 7.1 was 2297m^3 of which 65% was collected and 10% recycled and composted. While 25% of the total solid waste generated was illegally dumped. Once more again, as shown on the table below, household, industries and institutions & street weeping which accounts 76%, 18% and 6% respectively were the main sources of solid waste generated in the year under consideration.

Table 8.2 Waste generation, collection and disposal (2003)

Indicators	Indicator values
%age share of waste management expenditure to total budget	1%
Annual solid waste generated	838,430 m^3
Daily total solid waste generated	2,297 m^3
Daily per capita solid waste generated	0.252 kg
Source of solid waste • Household • Industries and Institution • Street sweeping	 76% 18% 6%
Daily solid waste collection capacity	1,482 m^3
Annual solid waste collection capacity	540,788.72 m^3
Solid waste disposal • Collected • Illegal dumping • Recycled • Composted	 65% 25% 5% 5%
Total number of vehicles engaged in waste disposal	77
Number of garbage collection containers	999
Daily liquid waste generated	800,000 m^3
Daily liquid waste collection capacity	8000 m^3
Daily per capita liquid waste generated	0.279 m^3

source: Sanitation, beautification and parks development agency, 2003

The total daily liquid waste generated was 800000 m^3, in 2003 while the daily collection capacity was 8000 m^3 (1%) and the per capita production was 0.279. m^3

9. Energy Consumption

Table 9.1 Energy consumption

Indicators	Measur	Annual %age share of energy consumption					
		1999	2000	2001	2002	2003	2004
%age energy consumption from							
• Alternative sources of energy	%	46.51	47.88	48.58	46.72	48.65	49.05
• Petroleum	%	43.77	41.94	41.42	42.44	40.17	39.19
• Power	%	9.72	10.18	10.01	10.84	11.19	11.76
Electricity per capita consumption	kwh	277	281	272	305	310	322

Source: EEPCo, EPE & Ethiopian Rural Energy Dev't and Promotion Centre

The main stay of energy consumption of the city from 1999 – 2004 were alternative & petroleum sources of energy. Besides, electricity per capita consumption of the residents of the city has shown an increasing tendency reaching 322 kwh in 2004.

Table 9.2 Electric power consumption by sectors

Sectors	Measu	Annual %age share of power consumption						Average
		1999	2000	2001	2002	2003	2004	
Household	%	48.48	47.79	47.40	46.88	43.77	44.63	46.48
Commerce	%	26.23	27.43	28.37	29.61	29.86	29.86	27.66
Industry	%	24.60	24.37	23.73	22.80	24.24	24.24	24.58
Street	%	0.69	0.41	0.50	0.70	1.26	1.26	0.76

Source: EEPCo

When we see sectorial electric power consumption pattern in the city from 1999-2004, it was the household sector which, has consumed about 47% followed by commercial and industrial sectors with a share of 28% & 25% respectively.

10. Information and communication

Table 10.1 Information and communication sector service trend of Addis Ababa & their respective Estimates.

No	Indicators	Unit	annual trend					
			1999	2000	2001	2002	2003	2004
	Total Population of Addis Ababa (At High Variant in 000)	No	2,437	2,516	2,599	2,686	2,777	2,870
1	Landline (LL) telephone delivered	No	119,220	132,856	204,343	226,449	264,754	na*
	Growth Rate			11.4%	53.8%	10.8%	16.9%	na
	• Per 1000 people		49LL	53LL	79LL	84LL	95LL	na
2	Mobile Phone (MP) distributed	No	6,740	17,757	27,532	42,910	51,234	131,333
	Growth rate	%	na	163	55	58.8	19.4	156
	• Per 1000 people		3MP	7MP	11MP	16MP	18MP	48MP
3	Fax line delivered	No	2,403	2,815	2,986	3,230	3,371	3,545
	Growth Rate	%		17	6.1	8.2	4.4	5.2
	• Per 1000 people	no.	1FM	1FM	1FM	1FM	1FM	1FM
4	Internet subscribers (IS)	No	2,312	2,206	2,070	6,900	9,847	11,576
	Growth gate	%		-5	-6	233	43	18
	• Per 10000 people	Ratio	9 IS	8.8 IS	8 IS	25.7 IS	35.5 IS	40.3
5	Postal Box (PB) delivered	No	59,830	62,210	71,613	72,579	76,444	na
	Growth Rate	%		3.9	15	1.3	5.3	na
	• Per 1000 people	Ratio	25PB	25PB	28PB	27PB	28PB	na
6	Television set owned	No	na	na	na	350,000	422,000	na
	Growth rate	%	na	na	na	na	21%	na
	• Per 1000 people	Ratio	na	na	na	130TS	152TS	

Source: ETCo, Post office, Ethipian televsion and radio enterprise

The delivery service of landline and mobile phones has shown a remarkable increase from year to year. For instance, the landline telephone, which was 49 per 1000 people in 1999, has reached 95 per 1000 people in 2003 and mobile phone, which was 3 per 1000 people in 1999, has increased to 48 per 1000 people.

* na data not available

11. Health

As indicated on the following table, a physician & a nurse in 1999 were serving for 3863 & 42617 people while in 2004 they had served 3521 & 1596 people respectively. When we see, hospital bed ratio, one bed in 1999 was assigned for about 895 people and in 2004 it has served for about 868 people.

Table 11.1 Major Health Indicators

No	Health indicators	Unit	Annual health trends					
			1999	2000	2001	2002	2003	2004
	Population at high variant in thousands	No	2,437	2,516	2,599	2,686	2,777	2,870
1	DPT_3 immunization Coverage	"	103.2	64.6	56.5	71.2	78.0	80.0
2	Measles (immunization coverage)	"	87.7	54.2	49.8	61.3	65.3	70.7
3	TT_2 coverage	"	57.8	63.1	56.7	59.3	58.4	72.6
4	Antenatal care service	"	72.7	87.2	92.3	82.9	80.4	82.1
5	Postnatal health service coverage	"	11.7	-	14.3	15.7	17.4	19.5
6	Hospital delivery service	"				32.6	32.9	56.4
7	Family planning/contraceptive prevalence rate	"				40	41.2	42
8	Physicians	"	630	616	721	714	818	815
	Physicians to population	ratio	1:3863	1:4084	1:3604	1:3761	1:3994	1:3521
9	Nurses	No	931	1100	1205	1513	1864	1798
	Nurse to population ratio	Ratio	1:4261	1:2287	1:2156	1:1772	1:1489	1:1596
10	Number of hospitals	No	14	15	18	19	22	24
11	Number of hospital Beds	No	2720	2695	3002	3046	3195	3307
	Hospital bed to population	Ratio	1:895	1:933	1:865	1:882	1:869	1:868
12	No of clinics	No	323	339	349	355	385	400
	• Private	No	312	328	340	346	376	391
	• Gov't	No	11	11	9	9	9	9
	Clinic population ratio	ratio	1:7545	1:7422	!:7447	1:7566	1:7213	1:7175
13	Number of Health Posts	"	28	29	37	46	44	44
14	Number of Health Centres	"	20	20	21	23	24	26
	Health service coverage	%	61%	59%	60%	64%	64.5%	68%
15	HIV prevalence	%	17.8%	17.3%	15.2%	15.6%	13.2%	12.4%

Source: Bureau of Health

N.B

- DPT_3 - is a vaccine given for children under one year of age.
- TT_2- is a vaccine given for pregnant women (in our case) to care the mother and her newborn baby before and after birth.
- Reliable information was not available on contraceptive prevalence rate and delivery before the year 2001.
- Physicians, nurses and hospital beds data include all private and government facilities
- Potential health coverage rate is calculated including NGO health centres

12. Major Education Indicator

Table 12.1 Major education indicators

Education Indicator	Unit	Annual Trend				
Access indicators		2000	2001	2002	2003	2004
• Gross enrolment rate at primary (grade 1-8)	%	92.3	100	107	110	112.6
• Net enrollment at primary (grade 1-8)	%	72	84.1	88.3	91.5	92
• Gross enrolment rate at secondary (grade 9-10)	%	44	47	55.6	63	68.1
• Net enrolment rate at secondary (grade 9-12)	%	36	37	27.4	31.7	35.4
Quality indicators						
• Teacher to student ratio at KG	Ratio	1:25	1:24	1:23	1:22	1:20
• Teacher to student ratio at primary grade (1-8)	"	1:46	1:45	1:43	1:41	1:39
• Teacher to student ratio at secondary (9-10)	"				1:47	1:43
• Dropout rates at primary	%	2.63	1.4	1	1.3	
Efficiency indicators						
• Section to student ratio at primary	Ratio	1:67	1:65	1:63	1:61	1:59
• Section to student ratio at secondary	"	1:75	1:77	1:82	1:77	1:71
• Total primary school dropouts rate	%	2.8	1.3	1	1.4	
• Primary school dropout for girls rate	%	2.7	0.8	1	1.7	
• Primary school repetition rate	%	9.1	9.1	7.8	8.9	
• Primary school repetition rate for girls	%	9.7	9.6	8	9.3	
• Primary school text book student ratio	Ratio			1:2	1:2	1:1
• Secondary school text book student ratio	Ratio			1:3	1:2	1:1

Source: Bureau of Education of Addis Ababa

13. Gender

Table 13.1 Empowerment and school Enrolment Ratio by Sex

Role in Political Activities	Percentage		Role in Economic Activities*	Percentage		School ** Enrolment	Percentage	
	Female	Male		Female	Male		Female	Male
Regional Council Representative	16.55	83.45	Agriculture	30.64	69.36	KG	48.4	83.45
Wereda Council Representative	22.55	77.45	Industry	30.17	69.83	Primary	53.6	46.4
Kebele Council Representative	45.50	54.50	Retail	34.53	65.47	Secondar	49.8	50.2
			Service	32.53	67.46	Technical and Vocational	44.8	55.2
			Wholesale	18.77	81.23			

Source:* Demographic and Socioeconomic Profile of Addis Ababa March 2002
**Addis Ababa Education Bureau

14. Revenue and Expenditure

Table 20: Annual Trend of Revenue and Expenditure of The City Administration

	Unit	Annual Trend in Million					
		1999	2000	2001	2002	2003	2004
Revenue	Birr	692.76	806.15	869.73	987.32	955.41	1786.4
Growth Rate	%		16.36	7.8	13.5	-3.2	87.0
Expenditure		670.57	640.91	898.09	1021.59	961.35	1483.60
Growth Rate			-4.4	40.0	13.8	-6.0	54.32

Urban Indicator Check List

BOFED
March 2005
Addis Ababa

Table of Content

Introduction

Addis Ababa, the capital city of Ethiopia and the seat of African Union, U.N Economic Commission for Africa and many other international organizations has a significant role in the local, national and international setting in economic, socio-cultural, political and administrative perspectives.

However, the city is currently facing almost all sorts of urbanization problems like that of inadequate substandard infrastructure and public facilities, un balanced distribution of services, acute shortage of housing, poor environmental sanitation, high poverty and unemployment.

Therefore, to change the situation and to set an appropriate urban development policy, strategies and programs relevant to the city, knowing the city's development stage level, the available resources and potentials, development challenges, organizational structure and other related issues are compulsory.

Further more, the urban policy, strategy and program formulation at the national, regional and local levels, must take in to account a great diversity of requirements of social, political, economic and geopolitical nature.

In this regard when we see the past development planning experiences of the city administration, due to the unavailability and inadequacy of basic data sources and study documents, absence of an **Urban Indicators** the city administration has failed to attain its development targets as desired.

Hence, to ameliorate the situation and for planning & coordinating city's Development towards the best practices or model cities around the globe, having an **Urban Indicators** is the most important if not the only means for leading & managing the City on the right development track. In order to implement the Strategic development plan of the Addis Ababa city administration and to set an appropriate urban development Policies, strategies and program relevant to the city, there is a need of urban Indicator.

Accordingly, to develop the urban Indicator for Addis Ababa City the variable, source of data and the method of estimation have been identified and are presented here under as follow

1) Information and Communication

No	Indicators	Methods of Estimation	Source of Data
1	**Access to information indicators**		
	• No. of daily news papers	Daily news papers/1000 people	Primary data, CSA, Ministry of Information and Bureau of Information and Culture
	• No. of radios	Radios/1000 people	
	• No. of television sets	Television sets/1000 people	
	• No of libraries (private public & others	Arithmetic	Bureau of Information and Culture and other possible sources
	• Library population ratio	Total population/total library	
2	**Communications indicators**		
	• No. of landline telephone delivered	Landline telephones delivered /1000 people	ETCo
	• No. of mobile phones delivered	Mobile phones delivered /1000 people	
	• No. of internet lines delivered	Internet lines delivered /10,000 people	
	• No of public telephones installed	Public phones installed /1000 people	
	• No. of fax lines delivered	Fax lines delivered /1000 people	
	• Post boxes service	Postal boxes service /1000 people	Federal post office

2) Urban Agriculture

No	Indicators	Methods of Estimation	Source of Data
1	**Agricultural production Indicators**		
	• Crop production index	Agricultural Production of the current year relative to the Base year	CSA, Publications, Urban Agriculture Office and other possible sources
	• Food production index	Food crops production of the current year relative to the Base year	
	• Livestock production Index	Livestock production of the current year relative to the Base year	
	• Agricultural productivity	$\frac{Agricultural\ Value\ Added}{Total\ Numberof\ Workers\ engaged\ in}$	
	• Horticultural production index	Horticulture production of the current year relative to the base year	"
2	**Agricultural household population indicators**		
	• Crop holding to agricultural household population ratio	$\frac{Crop\ holding}{Total\ agrarian\ houshold} * 100$	"
	• Livestock holding to agricultural household population ratio	$\frac{Livestock\ holding}{Total\ agrarian\ houshold} * 100$	

3) Financial Institutions

No	Indicators	Methods of Estimation	Source of Data
1	**Bank service quality indicators**		
	• Banks to population ratio	Total population / Total no. of banks	CSA, public & private banks, publications and other possible sources
	• Bank customers ratio	Total no of customers / Total no. of banks	"
2	**Insurance service quality indicators**		
	• Insurances to population ratio	Total population / Total no. of insurances	"
	• Insurance customers ratio	Total no. of customers / Total insurances	
3	**Micro-finance and credit associations service quality indicators**		
	• Micro-finance & credit associations to population ratio	Total micro-finance & credit asso. / Total population	"
	• Micro finance customers ratio	Total no. of customers / Total no of micro finance institutions	
	• Credit associations customers ratio	Total no. of customers / Total no of credit associations	
4	**Capital profit indicators**		
	• Profit margin rate	Arithmetic	"
5	**Reserve money indicators**		
	• % of liquid money • % of bank deposits	Arithmetic	"

6	**Loan portfolio indicators**		
	• % age share of housing loan	Housing loan/total loan*100	"
	• % age share of industrial loan	Industrial loan/total loan*100	"
	• % age share of service loan	Service loan/total loan*100	"

4) Regional Aggregates

No	Indicators	Methods of Estimation	Source of Data
1	**Economic performance indicators**		
	• GRDP[1]	Value Added Approach, Income Approach and Expenditure Approach	GRDP estimate of A.A City
	• Annual growth rate[2]	$\frac{RGRDP_t - RGRDP_0}{RGRDP_0} * 100$	"
	• Average growth rate	$\left(\sqrt[t]{\frac{RGRDP_t}{RGRDP_0}} - 1\right) * 100$	"
	• Per capita RGDP	$RGDP / Total\ Population$	"
	• Consumption-income ratio	$Consumption\ Expenditure / Disposable\ Income$	Expenditure side of GRDP Estimation
	• Unemployment rate	$\frac{Total\ Unemployed\ People}{Economically\ active\ Population} * 100$	CSA
	• Annual inflation rate [3]	$\frac{PI_t - PI_{t-1}}{PI_{t-1}} * 100$	"

[1] GRDP implies Gross Regional Domestic Product
[2] RGRDP implies Real GRDP, t stands for current year and 0 stands for base year
[3] PI designates Price Index

• Average inflation rate	$\left(\sqrt[t]{\frac{PI_t}{PI_0}}-1\right)*100$	"
• Expenditure-revenue ratio	$\frac{Government\ Expenditure}{Government\ Revenue}$	BoFED
• % age share of agriculture	$Agricultural\ value\ added/_{GRDP}*100$	GRDP Estimate Report
• % age share of industry sector	$Industrial\ Output/_{GRDP}*100$	"
• % age share of service sector	$Service\ sector\ Output/_{GRDP}*100$	"
• Absolute poverty line	The minimum amount of money required for the fulfilment of basic necessities per specific period of time	MoFED, ECA, National Bank of Ethiopia Annual Report
• Number of people below absolute poverty line	Enumeration	CSA
• Employment contribution % age share of service	Employed people in service sector /total economic sector employment*100	Bureau of trade and industry
• Employment contribution % age share of industry	Employed people in industrial sector /total economic sector employment*100	"
• Employment contribution % age share of agriculture	Employed people in agricultural sector /total economic sector employment*100	Office of agriculture

5) Industry

No	Indicators	Methods of Estimation	Source of data
1	**Industrial output growth indicators**		
	• Annual growth rate	$\frac{GIP_t - GIP_{t-1}}{GIP_{t-1}} * 100$	GRDP estimates
	• Average growth rate	$\left(\sqrt[t]{\frac{GIP_t}{GIP_0}} - 1\right) * 100$	
2	**Industrial output share indicators by scale**		
	• % age share of small scale industry	$\frac{Total\ Outputs\ of\ small\ scale\ industries}{Total\ industrial\ output} * 100$	"
	• % age of medium scale industry	$\frac{Total\ Outputs\ of\ medium\ scale\ industries}{Total\ industrial\ output} * 100$	
	• % age of large scale industry	$\frac{Total\ Outputs\ of\ large\ scale\ industries}{Total\ industrial\ output} * 100$	

6.Tourism, hotel, sports and culture

No.	Indicators	Method of Estimation of Formula applied	Source of data
	Tourism indicators		
	• Tourist arrival per year	Arithmetic	
	• No of hotels with 3 stars and above		
	Sports and culture centres indicator		
	• Availability of museums, theatres/cinema halls and standardised sports field		

7. Social Security

No	Indicators	Method of estimation of formula applied	Source of data
1	**Access to social service indictors**		
	• No of elder lies receiving care and support	No beneficiaries per 1000	GO, NGO, social service institutions & CSA
	• No of disabled persons receiving care and support	No beneficiaries per 1000	"
	• No of orphans receiving care and support	No beneficiaries per 1000 people of the same group	"
	• No of street children receiving care and support	"	"
	• Improvement of living conditions of beneficiaries	No of beneficiaries whose living condition is improved	

7) Health

No.	Indicators	**Method of Estimation**	Source of data
1	**Health service access indicators**		
	Potential health service coverage	$\frac{Number\ of\ people\ covered\ by\ health\ sector}{Total\ population} * 100$	MoH, CSA BoH
	Number of people per primary health care unit (PHCU)	$\frac{Total\ population}{PHCU} * 100$	
	Full immunization Coverage for children (Measles, DPT3, BCG)	$\frac{Total\ number\ of\ fully\ immunized\ children}{Total\ target\ population} * 100$	
	Immunization Coverage for pregnant women (TT2)	$\frac{Total\ number\ of\ immunized\ pregnant\ women}{Total\ target\ population} * 100$	
	Antenatal service coverage	$\frac{Total\ served\ population}{Total\ expected\ pregnancy} * 100$	
	Postnatal service coverage	$\frac{Total\ served\ population}{Total\ expected\ delivery} * 100$	
	Hospital delivery coverage	Total served pregnant women/total expected delivery *100	
2	**Health service quality indicators**		
	Population to physicians ratio	$\frac{Total\ population}{Total\ number\ of\ physicians}$	
	Population to nurses ratio	$\frac{Total\ population}{Total\ number\ of\ nurses}$	
	Population to health assistants ratio	$\frac{Total\ population}{Total\ number\ of\ health\ assistants}$	
	Population to beds ratio	$\frac{Total\ population}{Total\ number\ deds}$	

3	**Family Planning indicator**		
4	• Prevalence rate of contraceptives	$\frac{Total\ number\ of\ users\ at\ T_t - Total\ number\ of\ users\ at\ T_{t-1}}{Total\ number\ of\ users\ at\ T_{t-1}} * 100$	
5	**HIV/AIDS prevalence & Anti Retroviral (ARV) access indicator**		
	Prevalence rate of HIV/AIDS	$\frac{Total\ number\ of\ Infected\ at\ T_t - Total\ number\ of\ \text{infected at } T_{t-1}}{Total\ number\ of\ \text{infected at } T_{t-1}} *$	
	Proportion of ARV coverage	$\frac{Total\ ARV\ users}{Total\ \text{inf}\ ected} * 100$	

8) Education

No	Indicators	Method of Estimation /Formula	Source of Data
1	**Education access indicators**		
	Literacy rate	No. of people at age 15 & over who are literate/total no. of people at age 15 & over*100	
	Gross enrolment rates at KG	$\frac{\text{Total number of children in KG}}{\text{Total number of population aged } 4-6} * 100$	MoE,BoE ,CSA
	Gross enrolment rates at grade 1-8	$\frac{\text{Total number of student enrolled in grade } 1-8}{\text{Total number of school age population at that level}} * 100$	
	Gross enrolment rates at grade 9-10	$\frac{\text{Total number of student enrolled in grade } 9-10}{\text{Total number of school age population at that level}} * 100$	
	Gross enrolment rates at grade 11-12	$\frac{\text{Total number of student enrolled in grade } 11-12}{\text{Total number of school age population at that level}} * 100$	
	Net enrolment rates at KG	$\frac{\text{Total number of children aged } (4-6) \text{ enrolled in KG}}{\text{Total population aged } 4-6} * 100$	"
	Net enrolment rates at grade 1-8	$\frac{\text{Total number of students aged } (7-14) \text{ enrolled in grade } 1-8}{\text{Total number of school age population at that level}} * 100$	
	Net enrolment rates at grade 9-12	$\frac{\text{Total number of students aged } (15-18) \text{ enrolled in grade } 9-12}{\text{Total number of school age population at that level}} * 100$	
	Girls educ. participation at diff.level	Total no. of girls attending school at different level/total no. of students at	"
	Boys educ. participation at diff.level	Total no. of boy attending school at different level/total no. of students at	"

2	**Education quality indicators**		**BoE**
	Teachers to students ratio at KG	$\frac{\text{Total number of children enrolled in KG}}{\text{Total number of qualified teachers for that level}}$	
	Teachers to students ratio at primary first cycle	$\frac{\text{Total number of children enrolled in KG}}{\text{Total number of qualified teachers for that level}}$	
	Teachers to students ratio at primary second cycle	$\frac{\text{Total number of children enrolled in KG}}{\text{Total number of qualified teachers for that level}}$	
	Teachers to students ratio at secondary first cycle	$\frac{\text{Total number of children enrolled in KG}}{\text{Total number of qualified teachers for that level}}$	
	School to students ratio at different level	Total no. of school at different level/total no. of students enrolled at different	
3	**Education efficiency indicators**		
	Teachers education level	Total no. teachers with certain qualification/ total no. of teachers	"
	Text books student ratio at different level	Total no. text books at different level/ total no. of students at different level	"
	Technical schools student ratio	Total no. of technical schools/ total no. of technical students	"
	Sections to students ratio at different levels of education	$\frac{\text{Total number of enrolled in Primary school}}{\text{Total number of sections in primary school}}$	MoE,BoECSA
		$\frac{\text{Total number of enrolled in secondary school}}{\text{Total number of sections in secondary school}}$	
	Increase or decrease in repetition and dropout rates (at different levels of education) in a consecutive years	$\frac{\text{Total no of dropouts at } T_t - \text{total no of dropouts at } T_{t-1}}{\text{total no of dropouts at } T_{t-1}} * 100$	

		$\frac{\text{Average no of repetitors b/n grade } 4-8 \text{ at } T_t - \text{Average no of repetitors b/n grade } 4-8 \text{ at } T_{t-1}}{\text{Average no of repetitorsb/ngrade} 4-8 \text{ at} T_{t-1}} * 100$	
	Repetition and dropout rates	The ratio of total no. of students that repeat or dropout at the end of a certain academic year to the total no. of students enrolled in that academic year in a given level	
4	**Education equity indicator**		
	• Gender parity index	$\frac{\text{Female Enrollment rate}}{\text{Male Enrollment rate}}$	

9. Housing

No	Indicators	Method of Estimation of Formula applied	Source of data
1	**House crowding indicators**		CSA UIDD[4]
	Housing unit ratio	Total No. of households / Total No. of houses	
	House hold size	Total no of population / total no of houses	"
	Household per housing unit	Total no of households / total no of housing unit	"
	Person per room	Total no of population/ total no of rooms	"
2	**Housing conditions indicators**		
	% of housing unit by construction materials	Houses by construction materials × 100 / Total No. of houses	"
	% of houses in good condition	houses in good condition × 100 / Total No. of houses	"
	% of houses in fair condition	Total No. of fair houses × 100 / Total No. of houses	CSA UIDD
	% of houses need major maintenance	Houses, which need major maintenance × 100	"

[4] Urban Information and Documentation Department

No	Indicators	Method of Estimation of Formula applied	Source of data
		Total no. of houses	
	% of houses beyond maintenance	Houses beyond maintenance × 100 Total No. of houses	"
3	**Housing prices indicators**		
	House price to income ratio	Median house price × 100 Median annual income of household	"
	House rent to income ratio	Median annual house rent × 100 Median annual income	"
4	**Housing ownership indicators**		
	% of houses owned by government	No. of houses owned by government × 100 Total No. of houses	"
	% of houses owned by private	No. of houses owned by private × 100 Total No. of houses	"
	% of houses owned by others		
5	**Slum area house indicators**		
	% of households living in slum area	Total no. of households living in slum area × 100 Total no. of households	"
	% of population living in slum area	No. of population living in slum area × 100 Total no. of population	"
6	**Access to basic facilities indicators**		
	% of houses with private toilet facility	Houses with private toilet facility × 100 Total No. of houses	"
	% of houses with shared toilet facility	houses with shared toilet facility × 100 Total No. of houses	"
	% of houses with private kitchen facility	houses with private kitchen facility × 100 Total No. of houses	"
	% of houses with shared kitchen facility	houses with shared kitchen facility × 100 Total No. of houses	"

No	Indicators	Method of Estimation of Formula applied	Source of data
	% of houses with private meter water	Total No. of houses with private meter water × 100 Total No. of houses	CSA WSSA
	% of houses with shared water meter	Total No. of houses with shared meter water × 100 Total No. of houses	"
	% of houses with other sources of water	Total No. of houses with other sources of water × 100 Total No. of houses	"
	% of houses with private electric meter	Total no. of houses with private electric meter × 100 Total no. of houses	CSA EEPCo
	% of houses with shared electric meter	Total no. of houses with shared electric meter × 100 Total no. of houses	"
	% of houses with private bathrooms	Total No. of houses with private Bathrooms × 100 Total No. of houses	CSA/UIDD

10. Water

No	Indicators	Method of Estimation	Source of data
1	**Water production indicator**		
	Annual trend of water production	Water production by source × 100 Total water production	AAWSA
2	**Water production capacity indicator**		
	Annual growth rate	$P_t - P_i / p_i * 100$	"
3	**Water supply indicators**		"
	% of water supply by source	Water supply by source × 100 Total water supply	"
	per capita water supply	Amount of water produced per day Total No. of population	"
	Demand satisfaction	daily water supplied X100 The set daily per capita demand X population	

4	**water consumption indicator**		
	• per capita water consumption	Amount of water consumed per day Total no. of population	
5	**water leakage indicator**		
	• % of water leakage or water loss rate	Amount of water leakage per day X 100 Total water production per day	"
6	**water distribution indicator**		
	• Annual growth rate (no. of connections	P_t-P_r/p_i *100	"
7	**Efficiency indicator**		
	% of unaccounted for water	Total water production-billed volume X100 Total water production	"
8	**Quality indicator**		
	• % of bacteriological free water		
9	**Service delivery indicators**		
	connection time	data	
	No of connection made	"	
	Repair time	"	
10	**Sludge removal indictors**		
	• Removal of waste water by vacuum trucks	"	
	• time of sewer removal	"	
	• Treatment capacity	"	
11	**Financial management indicators**		
	• Bill collection efficiency	% of bills collected	
	• Working ratio (cost – revenue ratio)	total operating cost total operating revenue	
	• Cost - control	Total personnel cost total operating cost	
	• Average operational cost	Total operation cost Total amount of water produced (m^3)	

11. ROAD AND TANSPORT

No	Indicators	Method of Estimation of Formula applied	Source of data
1	**Length of road indicators**		
	• % of arterial road	Total length of arterial road * 100 / Total length of road	AACRA CSA
	• % of sub arterial road	Total length of sub arterial road * 100 / Total length of road	AACRA CSA
	• % of collector road	Total length of collector road * 100 / Total length of road	"
	• % of local road	Total length local road * 100 / Total length of road	
	• % of road with walk way	Total length of road with walk way * 100 / Total length of road	"
	• % of road with drainage connection	Total length of road with connection * 100 / Total length of road	"
2	**Road density indicator**		
	• % of road density or road coverage from the total area	Total road coverage * 100 / Total area of the city	"
3	**Transport mobility indicator**		
	• Travel Time Index	Average speed of road way travel during peak period x 100 / Average speed during period of no traffic congestion	AATA
4	**Mode of transport**		
	• % of private car users to and from	Total no of private car users/ total work trip*100	
	• % of public transport users to and from	Total no of public cars users/ total work trip*100	
	• % of service users to and from	Total no of service car users/ total work trips*100	
	• % of people walking on foot to and from	Total no of people walking on foot/ total work trips*100	
5	**Bus lanes indicator**		
	• % of bus lanes from city road net work		
6	**length of public transport net work**		

	• % of public transport net work from city surface area	public transport coverage × 100 total city surface area	
7	**Pick traffic flow indicator**		
	• Rate of traffic congestion	No. of urban peak time vehicles in measurement year × 100 No. of urban peak time vehicles of previous year	AATA
8	**Car ownership indicators**		
	Cars 1000 people	Total no. cars × 1000 Total no. of population	
	% of cars owned by public	No. of cars owned by public × 100 Total no. of cars	
	% of cars owned by private	No. of cars owned by private × 100 Total no. of cars	
	% of cars owned by others	No. of cars owned by private × 100 Total no. of cars	
9	**City buses & taxies indicators**		
	• City buses population ratio	No. of city buses Total population	
	• City taxies population ratio	No. of city taxies Total population	
10	**Car accident indicators**		
	• Annual growth rate of car accidents	p_t-p_o/p_o*100 No of years	office work
	• % of death rate from the total car accidents	Total car death accidents/total car accidents*100	"
	• % of heavy injury rate from the total car accidents	Total car heavy injury accidents/total car accidents*100	"
	• % of light injury rate from the total car accidents	Total car light injury accidents/total car accidents*100	"
	• % of property damage rate from the total car accidents	Total car property damage accidents/total car accidents*100	"

13. ENERGY

No.	Indicators	Method of Estimation	Source of data
1	**Energy supply indicators**		
	% of energy supply from power	Amount of energy supply from power × 100 / Total energy supply	**EEPCo**
	% of energy supply from alternative sources of energy	Amount of energy supply from alternative sources of energy × 100 / Total energy supply	ERERSC
	% of energy supply from petroleum	Amount of energy supply from petroleum × 100 / Total energy supply	**EPE**
2	**Energy consumption indicators**		
	% of energy consumption from power	Amount of energy consumption from power × 100 / Total energy consumption	**EEPCo**
	% of energy consumption from alternative sources of energy	Amount of energy consumption from alternative sources of energy × 100 / Total energy consumption	**ERERSC**
	% of energy supply from petroleum	Amount of energy consumption from petroleum × 100 / Total energy consumption	**EPE**
3	**Electric consumption indicators**		
	Electric per capita consumption	Total electricity consumption × 100 / Total population	
	Electric consumption by sectors		
	• % of household electric consumption	Household electric power consumption × 100 / Total power consumption	**EEPCo**
	• % of industrial electric consumption	Industry electric power consumption × 100 / Total power consumption	"
	• % of commercial electric consumption	Commercial electric power consumption × 100 / Total power consumption	"
	• % of street electric consumption	Street electric power consumption × 100 / Total power consumption	"

14. LANDUSE

No.	Indicators	Method of Estimation	Source of data
1	**Area coverage indicators**		
	• % of mixed use built up area coverage	Total mixed use area coverage X100 / Total area	Office of the General Manager
	• % of transport area coverage	Total transport area coverage X100 / Total area	"
	• % of residential area coverage	Total residential area coverage × 100 / Total area	"
	• % of industrial area coverage	Total industrial area coverage × 100 / Total area	"
	• % of social area coverage	Total social area coverage × 100 / Total area	
	• % of green area coverage	Total Green area coverage × 100 / Total area	"
	• % of commercial area coverage	Total commercial area coverage × 100 / Total area	"
	• % of potential area coverage	Total potential area coverage × 100 / Total area	"
	• % of agricultural area coverage	Agricultural area coverage × 100 / Total area	"

15. DEMOGRAPHY

No.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
1	**Population size**	Arithmetic	Office work
2	**Urban population density**	• Total urban population / Total urban area	
		• Core area in habitat per hectare of land	City physical plan dep't
		• Intermediate in habitat per hectare of land	City physical plan dep't
		• Expansion in habitat per hectare of land	City physical plan dep't
3	**Mortality indicators**		
	Infant mortality rate	No. of infant deaths under age one per 1000	BOH/CSA/DHS
	• Child mortality rate	No. of child deaths under age five per 1000	CSA
	• Maternal mortality rate	No. of mothers death per 1000 live births	BOH/CSA
	• Life expectancy	Life table- survivorship method	CSA
	• Crude death rate	No. of live deaths per 1000	CSA
4	**Fertility indicators**		
	Total fertility rate	No. of children born alive per women age 15-49	CSA
	Crude birth rate	No. of live births per 1000	CSA
5	**Growth indicators**		
	• Annual growth rate	Birth-death+ net migration*100	CSA
6	**Economic dependency ratio**	Total population/ economically active population (age 10-64)	
7	**Sex indicator**		
	Sex ratio	No of male per 100 female	

16. Gender issues

NO.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
1	**Empowerment indicators**		
	• % of female empowerment	Politically empowered female/total empowered population*100	WAB/CSC/CSA
	• % of male empowerment	Politically empowered male/total empowered population*100	
2	**Employment indicators**		
	• % of female unemployment	No. of female employed/economically active female population (age 10-64)	LSA Bureau
	• % of male unemployment	No. of male employed/total male population	
3	**Participation in economic activities indicators**		
	• % of female participated in different economic activities	No. of female employed/total economically active population*100	
	• % of male participated in different economic activities	No. of male employed/ total economically active population*100	

18. ENVIRONMENT & WASTE MANAGMENT

18.1 ENVIRONMENT

No.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
1	**Industrial point source water pollution indicators**		AAEPA
	• Bio Oxygen Demand (BOD)	MG per litter (mg/l)	
	• Chemical Oxygen Demand (COD)	MG per litter (mg/l)	AAEPA
	• Suspended Solid (SS)	MG per litter (mg/l)	AAEPA
	• Treatment Plant (PB)	MG per litter (mg/l)	AAEPA
	• Capital chromium (Cr)	MG per litter (mg/l)	AAEPA
2	**Non point source water pollution indicators**		
	• Bio Oxygen Demand (BOD)	MG per litter (mg/l)	AAEPA
	• Chemical Oxygen Demand (COD)	MG per litter (mg/l)	AAEPA
	• Suspended Solid (SS)	MG per litter (mg/l)	AAEPA
	• E.coli	MNP per 100 ml (MNP/100ml)	AAEPA
3	Density of public parks	MG per litter (mg/l)	AAEPA
4	Change in total green area	Annual loss/ gain of land under green cover	AAEPA
5	Environment protection expenditure	Environment protection expenditure/Total budget	EPA/BoFED

18.2 SOLID AND LIQUIED WASTE MANAGMENT

No.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
1	**Waste Generated indicators**		
	• Daily solid waste generated	Solid waste generated per day	SEPA
	• Daily liquid waste generated	liquid waste generated per day	
	• daily per capita solid waste generated	Total solid waste generated/population	SEPA
	• daily per capita liquid waste generated	Total liquid waste generated/population	
2	**Waste disposal indicators**		
	% of Solid Waste Disposal	total solid waste disposed/total generated solid waste	SEPA
	% of liquid Waste Disposal	total liquid waste disposed/total volume of liquid waste	
	No. of Vehicles engaged in solid waste disposal	No. of vehicles engaged in solid waste disposal /total no. of vehicles	SEPA
	Solid waste collection container household ratio	Total no. of containers/total no. of households	
3	**Expenditure on waste management indicators**		
	• Total waste management expenditure	Waste management expend./total budget	SEPA/BoFED
4	**Solid & liquid waste recycled indicators**		
	• Percentage of liquid waste recycled	Liquid waste recycled/total liquid waste	SEPA/WSSA
	• Percentage of solid waste recycled	Solid waste recycled/total solid waste	SEPA/WSSA
5	**Public toilet seats indicators**		
	• Public toilet population ratio	Public toilet/total population	SEPA/WSSA

No.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
1	**Waste Generated indicators**		
	• Daily solid waste generated	Solid waste generated per day	SEPA
	• Daily liquid waste generated	liquid waste generated per day	
	• daily per capita solid waste generated	Total solid waste generated/population	SEPA
	• daily per capita liquid waste generated	Total liquid waste generated/population	
2	**Waste disposal indicators**		
	% of Solid Waste Disposal	total solid waste disposed/total generated solid waste	SEPA
	% of liquid Waste Disposal	total liquid waste disposed/total volume of liquid waste	
	No. of Vehicles engaged in solid waste disposal	No. of vehicles engaged in solid waste disposal /total no. of vehicles	SEPA
	Solid waste collection container household ratio	Total no. of containers/total no. of households	
3	**Expenditure on waste management indicators**		
	• Total waste management expenditure	Waste management expend./total budget	SEPA/BoFED
4	**Solid & liquid waste recycled**		

No.	INDICATORS	METHODS OF ESTIMATION	POSSIBLE SOURCES
	indicators		
	• Percentage of liquid waste recycled	Liquid waste recycled/total liquid waste	SEPA/WSSA
	• Percentage of solid waste recycled	Solid waste recycled/total solid waste	SEPA/WSSA
5	**Public toilet seats indicators**		
	• Public toilet population ratio	Public toilet/total population	SEPA/WSSA