



A good-governance framework for urban management

Rathin Biswas^a, Arnab Jana^{a,*}, Kavi Arya^b, Krithi Ramamritham^b

^a Centre for Urban Science and Engineering, Indian Institute of Technology Bombay, Mumbai 400076, India

^b Department of Computer Science Engineering, Indian Institute of Technology Bombay, Mumbai 400076, India



ARTICLE INFO

Keywords:

Governance
Public
Urban Services
Management
Indicator

ABSTRACT

The shift towards capacity building and deteriorating governance, may lead to poor service delivery which is a prime challenge for governing agencies. Different countries follow their own sets of governance parameters and often assess the outcome of policies based on them. In order to compose a uniform good governance framework, we have conducted a comparative analysis among 22 existing governance frameworks across the globe and shortlisted 13 major criteria along with 74 sub-criteria. We explored the method to measure these governance components with the help of various indicators and took expert opinion to distribute weight among these indicators. Finally, the case of Mumbai city is discussed with the examples of direct indicators, which may be used to measure a sub-criteria of any specific criteria. The quantification process is also demonstrated with three specific representative indicators. For example- the contribution towards good-governance has been increased from 0.001218 in 2016 to 0.004466 in 2017, for the indicator “conviction percentage of corruption cases” of sub-criterion “active anti-corruption commission” of criterion “accountability”. Researchers as well as policymakers will be benefitted with the method demonstrated here, which can help in assessing governance of any public service towards further policy amendments.

1. Introduction

Earlier, the meaning of governance was limited to the exercise of political power to manage a nation's affairs (Leftwich, 1993). Almost after two decades, a more generalised and clear definition emerged which states that Governance is the ability of a governing authority to make and enforce rules in order to deliver public services (Fukuyama, 2013). If the objective of an organization head or global leader is to uplift the quality of life, then it is important to measure performance to distinguish good-governance (Rotberg, 2014).

First, we need to understand the components of good governance (Grindle, 2007), since it gives a stage to securitize a set of attributes of institutional initiatives which seems to bring authoritative improvement. Sometimes researchers focused on a specific aspect of governance. The case of environmental governance (Mol, 2009) shows that the necessity of community support (Turner et al., 2014), ecological planning (Li et al., 2017), adaptive management and strong leadership, can benefit both biodiversity and people (Kenward et al., 2011). Development is not exclusive only to the environment or economy, but is an extension of social and several other elements of governance (Han & Lai, 2012). Here comes administrative governance that may be associated with various other aspects of governance.

The fragile local governments usually underestimate the difficulties of improving urban management (Jenkins, 2000). Many have argued that the public-private partnership is key for a successful good-governance (DiGaetano & Strom, 2003; Stoker, 1998). Researchers have carried out an extensive comparative-study on governance among the largest cities (by population in each of 100 countries), where they have considered major components such as privacy or security, usability, content, services, citizen

Peer review under responsibility of Zhejiang University and Chinese Association of Urban Management.

* Corresponding author.

E-mail addresses: arnab.jana@iitb.ac.in, 144420002@iitb.ac.in (A. Jana), kavi@cse.iitb.ac.in (K. Arya), krithi@iitb.ac.in (K. Ramamritham).

<https://doi.org/10.1016/j.jum.2018.12.009>

Received 28 June 2018; Received in revised form 10 November 2018; Accepted 23 December 2018

Available online 02 January 2019

2226-5856/ © 2019 Zhejiang University and Chinese Association of Urban Management. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

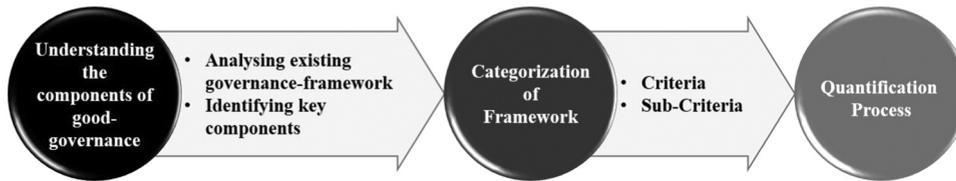


Fig. 1. Methodology followed to establish a good-governance framework.

participation (Holzer & Kim, 2007), but they overlooked the major components such as, effectiveness (Aberbach & Rockman, 1992), intergovernmental relations (Weiss, 2000), etc. Out of these, increasing participation among civic communities is able to address a main challenge to governance such as opposition and resistance towards development caused by resentment towards a centralised planning process (Sturzaker & Verdini, 2017). Researchers have also come up with new components such as- openness and sustainability towards smart city governance (Lee & Hancock, 2012).

In order to generalise the framework across the globe, UNDP (United Nations Development Programme) came up with five good-governance principles that depend on components relevant to this 21st century (Graham, Plumptre, & Amos, 2003). A few years later, they summarised and published another users' guide which demonstrates all the widely-known governance frameworks across the world (Wilde, Narang, Laberge, & Moretto, 2009). These frameworks often overlooked several dimensions that resulted confusion for choosing a specific tool or components. Arguably, further research can identify the indicators of good governance along with an integrated method for assessing urban governance mostly in developing country (Harpham & Boateng, 1997). So it is important to find a theoretical or conceptual framework which is capable of evaluating governance assessment initiatives to bring a general universality among global cities.

Our Focus is to investigate existing administrative governance-frameworks to come up with a set of common components representing a base-framework to represent governance in a holistic manner. We showcase a method that may be used as a toolbox while measuring governance of a city management or comparing it to other cities.

2. Methodology

A simple 3-step methodology (Fig. 1) is followed here. At first, we tried to understand the key components of good-governance by analysing existing governance-frameworks. Then, these components are categorised after passing them through a specified sorting condition, in order to get the final composition of framework that consist of criteria and sub-criteria. Finally, a measurement technique is proposed to quantify our framework.

2.1. Understanding the Components of Good-Governance

United Nations Development Programme (UNDP) has published "A Users' Guide to Measuring Local Governance" where they have specified a total of 22 governance frameworks (Wilde et al., 2009) those are adopted by various countries across the world in order to evaluate governance. We started with analysing these 22 existing UNDP frameworks (Graham et al., 2003; Wilde et al., 2009). The components are called differently in their respective framework, such as indicator, criteria, components, etc. So all components are first generalised and referred to in this paper as "components", irrespective of their level and nomenclature in the respective framework. A total of 218 such components are scrutinized and compared, to find components those are considered by most frameworks. In the next step these components are passed through a filter where they are clubbed together or merged as per their similarity and relative nature in order to get the final 74 key-components.

2.2. Categorisation of framework

All 74 finalized components are broadly categorised based on their representation of a common goal. These broad categories are named here as "Criteria" and the components representing the respective criteria, are named as "Sub-Criteria" of that specific criterion. Each of the key components are further quantified with the help of Measuring Indicators (MI).

2.3. Quantification process

There are two aspects to consider in order to measure these key components – weightage distribution and measuring-indicators. In case of weightage-distribution, firstly we considered Equal-Weight rule since it can evaluate all alternatives and all attribute values for each alternatives (Payne, Bettman, & Johnson, 1988). However, its limitation over relative importance of each attribute leads us to consider a weighted compensatory process (Payne et al., 1988). Finally, we move forward with the following steps –

- Assigning equal weightage to each criteria,
- Assigning equal weightage to each sub-criteria,
- Assigning weightage to each criteria as per expert opinion.

Table 1
List of governance-framework considered for comparative-analysis.

Approaches towards Governance-assessment	References
Urban Governance Index (UN-HABITAT)	(UN-HABITAT, 2005)
Local Governance Barometer	(Bloom, Sunseri, & Leonard, 2007; PACT, 2015)
Good Governance for Local Development – GOFORGOLD Index (Afghanistan)	(UNDP, 2009)
Local Democracy Assessment Guide (International IDEA)	(IDEA, 2001, 2003; Wilde et al., 2009)
Indicators of Local Democratic Governance (Tocqueville Research Centre & OSI)	(Soós, 2001)
Methodological Guidelines for Local Governance Analysis (UNDP)	(UNDP, 2007)
Governance Index (Kemitraan – Partnership) Indonesia	(Kemitraan Partnership, 2009)
Measuring Municipal Performance – MIDAMOS (Paraguay)	(GAP, 2009a)
Observatory Of Democracy in Central America	(GAP, 2009b)
Strategic Decentralization for Local Development (Mexico)	(Wilde et al., 2009)
Council of Europe’s Guide for Developing Well Being / Progress Indicators with Citizens – Application of the Governance Module in Timisoara (Romania)	(European Commission, 2009)
Citizen Report Cards (Public Affairs Centre, India)	(PAC, 2008)
Social Audit of Local Governance (Bosnia & Herzegovina)	(Wilde et al., 2009)
Social Audit of Governance and Delivery of Public Services (Pakistan)	(Cockcroft et al., 2005)
Local Governance Self-Assessment (Bangladesh)	(Boss, 2009)
Governance for Local Development Index – GOFORDEV Index (Philippines)	(Capuno, Garcia, & Sardalla, 2001)
Assessments Informing Performance Based Grant Systems (UNCDF)	(UNCDF, 2005)
Local Governance Performance Management System (Philippines)	(DILG, 2003)
Index of Responsibility, Transparency and Accountability (Macedonia)	(UNDP, 2008)
Standards of Municipal Transparency (Chile)	(Wilde et al., 2009)
Local Integrity Initiative (Global Integrity)	(Global Integrity, 2008; Wilde et al., 2009)
Methodology for the Assessment of Capacity of Municipalities in Turkey and the Western Balkans to Deliver Services (UNDP)	(UNDP, 2010)

The other aspect is to find suitable measuring-indicators those to be used to quantify each sub-criteria and criteria, as discussed later in this section.

3. Results

3.1. Existing governance frameworks

All the existing governance framework considered in our study for the attribute or property based comparative analysis, are listed in Table 1.

3.2. Composition of framework

The components of the existing frameworks are passed through a filtration process specified under the subsection 2.1. A set of 72 components are finalized and categorised in to 13 criteria as per their common objective. The representing components of each criteria are named here as its sub-criteria. The complete framework consisting of criteria and sub-criteria is shown in Table 2. The last column of this table i.e. Measuring-Indicator (MI) types [Yes/No (Y/N), Direct Indicator (DI) and Likert-Scale (L)] are discussed later. There are certain components, which may fall under more than one criteria. However the categorization is done based on the authors’ understanding of components to the most suited criteria, which is further ratified by various institutional and governments experts.

3.3. Quantification of framework

3.3.1. Weightage distribution

3.3.1.1. *As per experts’ opinion.* A short survey was conducted, where 7 experts enunciated weightage distribution from their expertise. After a short description and other relevant questions, they were asked to prioritise the criteria of governance as per their assumed importance. Their responses were recorded and aggregated to get the weightage-distribution among criteria. Later, the weightage of those criteria are equally divided among the respective sub-criteria. These weightage-distribution as per experts’ opinion are shown in self-explanatory Table 3. The detail weightage distribution among good-governance components is shown in Fig. 2.

Here, N_{ij} represents number of responses for “i”th criterion and “j”th importance, where “i” varies from 1 to 13 specified in Table 3 and “j” varies from 1 to 5 (1 = least important and 5 = most important). Then total score for any specific criterion “i” is

$$S_i = \sum_{j=1}^5 N_{ij} * j \tag{1}$$

Thus the aggregated total score for all the criteria is,

Table 2
The criteria and sub-criteria of good governance framework.

Criteria	Sub-Criteria	MI Type
1. Accountability	1. Regular independent audit.	Y/N
	2. Active anti-corruption commission.	DI
	3. Past financial-year accounts inspected and approved.	Y/N
	4. On time formal publication of contracts, tenders, budget and accounts.	Y/N
2. Transparency	1. Publication of municipal structure, rules, regulations and performance standards of various services, products, etc.	L
	2. Local community leader selection through fair process.	L
	3. Public access to government documents and information.	DI
	4. Public review of budget and financial reports.	L
	5. Feedback or rating on openness and fairness.	L
	6. Availability of all the publicising medium: information centre, public hearing, mobile-app, website, bulletin and banners.	Y/N
3. Participation	1. Participation by local leaders in local governance meeting regularly with higher attendance.	DI
	2. Public forum for sharing view and information.	Y/N
	3. Referenda and citizens' initiatives, plebiscite and people should aware that they can participate in local government.	Y/N
	4. Assessing citizen outreach & their participation towards local governance meeting.	L
	5. Closeness of municipality to their citizen.	L
	6. Community's monitoring level on government project implementation.	L
	7. Programs and training to facilitate promotion of skills & knowledge.	DI
	8. At least 1 civic association per 10000 population with technical capacity.	Y/N
4. Effectiveness	1. Completion of government project within agreed timelines.	L, DI
	2. Timely responsiveness for complaints.	DI
	3. Effectiveness at addressing public problems.	L
	4. Evaluation of municipal management, elected officials and other public & private service providers.	L
	5. Effectiveness in policy implementation.	L
	6. Local government or authority should maintain office hours.	L, DI
5. Equality	1. Unbiased administration or political culture.	L
	2. Citizens' charter.	Y/N, L
	3. Promotion of gender equality.	Y/N
	4. Pro-poor pricing policy.	DI
	5. Inclusive municipality (ethnically and socially vulnerable groups).	Y/N
6. Vision & Planning	1. Consistency between public policy, strategic and development plan.	Y/N, L
	2. Vision statement with integrity which holds target and timeline.	Y/N
	3. Rewarding good administration, as well as penalising the bad.	Y/N
	4. Long-term private-public commitment.	L
	5. Geography and spatial features while planning.	Y/N
7. Sustainability	1. Assessment for the need & possible societal impact of a project or program.	L
	2. Eco-friendly development or program or project.	DI
	3. Detailed economic analysis and optimum use of funds.	L
8. Legitimacy & Bureaucracy	1. Citizen access to justice	Y/N
	2. Codes of conduct.	Y/N
	3. Legally constituted tender board and proper tendering.	Y/N
	4. Law enforcement by municipality along with police & other authority.	L
	5. Citizens have right to organize unions.	Y/N
	6. Compliance to manpower regulations (Min wages meets standards).	DI
	7. In law disclosure of accounts & funding sources.	Y/N
	8. Capacity of the courts to influence local politics.	Y/N
9. Civic Capacity	1. Advocacy or public support or civil dialogue along with community and service provider to make informed and coordinated policy or decision based on reliable information.	L
	2. Publicize minutes from participative body meet even with negative view.	Y/N
	3. Civil society works and keep communication with the private sector, the national & international community and the media.	Y/N
	4. Public evaluation of local representatives.	DI, L
	5. Penalizing/rewarding local representatives through public evaluation.	Y/N
10. Service Delivery	1. Active & dedicated maintenance cell.	Y/N
	2. Public satisfaction survey on quality or level or condition of municipality services & responsive performances.	L
	3. Coverage of services and fulfilment of demand in slums & all public places.	L
	4. Facility for citizen complaints.	DI
	5. 24 h service.	L
	6. Strong educational support and awareness campaign.	L
	7. Need to generate data out of feedback (especially from public domain).	Y/N

(continued on next page)

Table 2 (continued)

Criteria	Sub-Criteria	MI Type
11. Efficient Economy	1. Co-funding or incentives for entrepreneurship or any business model.	Y/N
	2. Government budget allocation and efficient expenditure.	L, DI
	3. Collection of associated revenues & including tax (actual & mandate).	L
	4. Precise technical specification of the goods and services in the tender documentation.	Y/N
	5. No contrary audit report & financial irregularities.	Y/N
	6. Effective resources allocation, utilization and management (including cadastre management).	L
	7. Ease in fund transfer for approved programme or project.	L
	8. Regulate economies as per the need towards improvement.	Y/N
12. Relationship	1. Coordination level among local, regional & national administrations.	DI, L
	2. Respect for the rules of power-distribution and harmonious relationship between local, regional & national administrations.	L
	3. Existence of private organizations achieving public objectives.	Y/N
13. Security	1. Quick & active conflict resolution.	L
	2. Predefined territorial boundaries.	Y/N
	3. Security towards land use and land tenure.	Y/N, L
	4. Safe municipality especially for woman, child, old, poor, activist and other vulnerable groups.	L
	5. People feel free to express their opinion in public.	L
	6. Counselling & engagement for identified people with potential social risks.	Y/N

Table 3
Weightage-distribution among Criteria and Sub-Criteria as per Experts'-Opinion.

Criteria (i)	Number of responses (N_{ij})					Final Score for each Criteria (S_i)	Final-Weight for each Criteria (W_i)	Number of Sub-Criteria (n_i)	Final-Weight for each Sub-Criteria (Z_i)
	1 = Least Important	2 = Less Important	3 = Important	4 = More Important	5 = Most Important				
1. Accountability	0	0	1	1	5	32	0.0810	4	0.0203
2. Transparency	0	0	1	1	5	32	0.0810	6	0.0135
3. Participation	0	0	1	2	4	31	0.0785	8	0.0098
4. Effectiveness	0	0	1	1	5	32	0.0810	6	0.0135
5. Equality	0	0	1	2	4	31	0.0785	5	0.0157
6. Vision & Planning	0	0	1	1	5	32	0.0810	5	0.0162
7. Sustainability	0	0	3	0	4	29	0.0734	3	0.0245
8. Legitimacy & Bureaucracy	0	1	2	1	3	27	0.0684	8	0.0085
9. Civic Capacity	0	0	2	2	3	29	0.0734	5	0.0147
10. Service Delivery	0	1	1	1	4	29	0.0734	7	0.0105
11. Efficient Economy	0	0	1	3	3	30	0.0759	8	0.0095
12. Relationship	0	0	1	3	3	30	0.0759	3	0.0253
13. Security	0	0	1	2	4	31	0.0785	6	0.0131

$$T = \sum_{i=1}^{13} S_i \tag{2}$$

Then the final weightage for “i”th criterion is

$$W_i = \frac{S_i}{T} = \frac{\sum_{j=1}^5 N_{ij} * j}{\sum_{i=1}^{13} (\sum_{j=1}^5 N_{ij} * j)} \tag{3}$$

If the “i”th criterion have “ n_i ” number of sub criteria, then the weightage for the respective sub-criteria is

$$Z_i = \frac{W_i}{n_i} \tag{4}$$

3.3.1.2. *As per equal criteria.* In this case, the total weight of 1 to be distributed among the total number of criteria ($\sum i=13$). Hence, final score for all the criterion is,

$$S_{ec} = 1 / \sum i \tag{5}$$

Hence, final score for sub-criteria of criterion “i” is,

$$(Z_{ec})_i = S_{ec} / n_i \tag{6}$$

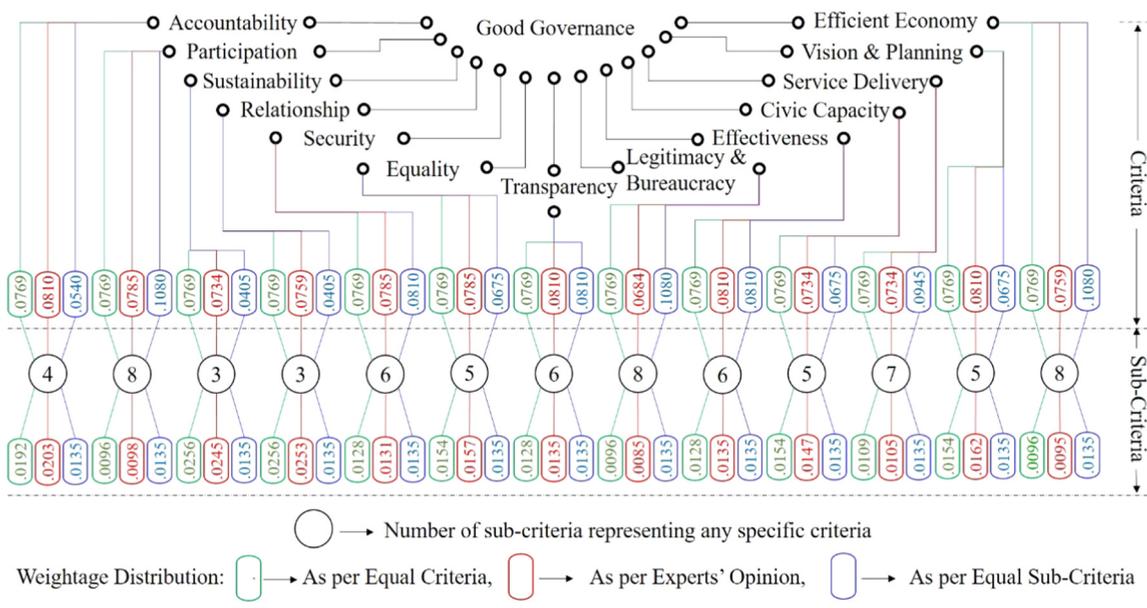


Fig. 2. Good-governance components and weight-distribution among them.

The detail distribution is shown in Fig. 2 and Table 4.

3.3.1.3. *As per equal sub-criteria.* In this case, the total weight of 1 to be distributed among the total number of sub-criteria ($\sum n_i=74$). Hence, final score for all the sub-criterion is,

$$Z_{es} = 1 / \sum n_i \tag{7}$$

Hence, final score for “i” th criterion,

$$(S_{es})_i = Z_{es} * n_i \tag{8}$$

The detail distribution is shown in Fig. 2: Good-governance components and weight-distribution among them Fig. 2 and Table 4.

3.3.2. *Measuring indicators*

In order to measure the framework, we quantified all the criteria, and the representative sub-criteria. By closely observing Table 2, we realise that some sub-criteria can be measured by Direct Indicators, and the rest can be evaluated through field-survey by either of two ways – Yes/No questionnaire and Likert-scale based opinion, maintaining any of the weightage distribution process specified earlier. We have derived the Direct Indicator (DI) as per available data from a secondary source. DI and Likert Scale (L) can be a measure on 0–10 scale by categorising the value with respect to reference or benchmark, whereas Yes/No questionnaire (Y/N)

Table 4
Weightage-distribution as per equal criteria or sub-criteria.

Criteria (i)	Number of Sub-Criteria (n_i)	Weightage Distribution as per Equal Criteria		Weightage Distribution as per Equal Sub-Criteria	
		Final weigh for each Criteria S_{ec}	Final weight for each Sub-criteria (Z_{ec}) _i	Final weight for each Sub-Criteria Z_{es}	Final weight for each Criteria (S_{es}) _i
1. Accountability	4	0.0769	0.0192	0.0135	0.0540
2. Transparency	6	0.0769	0.0128	0.0135	0.0810
3. Participation	8	0.0769	0.0096	0.0135	0.1080
4. Effectiveness	6	0.0769	0.0128	0.0135	0.0810
5. Equality	5	0.0769	0.0154	0.0135	0.0675
6. Vision & Planning	5	0.0769	0.0154	0.0135	0.0675
7. Sustainability	3	0.0769	0.0256	0.0135	0.0405
8. Legitimacy & Bureaucracy	8	0.0769	0.0096	0.0135	0.1080
9. Civic Capacity	5	0.0769	0.0154	0.0135	0.0675
10. Service Delivery	7	0.0769	0.0109	0.0135	0.0945
11. Efficient Economy	8	0.0769	0.0096	0.0135	0.1080
12. Relationship	3	0.0769	0.0256	0.0135	0.0405
13. Security	6	0.0769	0.0128	0.0135	0.0810

Table 5
Examples of one measuring indicator per criteria that measures one of the respective sub-criteria.

Criteria	Sub-Criteria	One of the measuring indicators (DI)	Figure Number	Reference
Accountability	Active anti-corruption commission.	Conviction percentage of corruption cases	Fig. 3(a)	(Anti Corruption Bureau, 2017; Naidu, 2017) (TII, 2017)
Transparency	Public access to government documents and information.	Percentage of second-appeal through 'Right To Information' (RTI) Act for any same appeal	Fig. 3(b)	
Participation	Participation by local leaders in local governance meeting regularly with higher attendance.	Participation score of councillors based on their attendance and number of meeting	Fig. 3(c)	(Janaagraha, 2013, 2014, 2015, 2016) (Prajya, 2017)
Effectiveness	Timely responsiveness for complaints.	Average resolving-time for any complaints as compared with citizen charter	Fig. 3(d)	
Equality	Pro-poor pricing policy	Affordable housing (dwelling) as per the demand by different income groups	Fig. 3(e)	(Govt. of Maharashtra, 2016) (Moneycontrol, 2017)
Vision & Planning	Vision statement with integrity which holds target and timeline.	Creating 1 million affordable housing units and proving water, sanitation and health for all slum-dwellers in Mumbai by 2034		
Sustainability	Eco-friendly development or program or project.	Per capita open-space difference as compared to provision	Fig. 3(f)	(MMR-EIS; MoUD, 2014)
Legitimacy & Bureaucracy	Codes of conduct.	Number and percentage of preferred-claims over prosecution on minimum-wages-cases.	Fig. 4(a)	(Indiastat, 2016)
Civic Capacity	Public evaluation of local representatives.	Report card of Mumbai's Councillors	Fig. 4(b)	(Prajya, 2015)
Service Delivery	Facility for citizen complaints.	Percentage of action-taken complaints on total number of received complaints in Mumbai Municipal Corporation	Fig. 4(c)	(Prajya, 2017)
Efficient Economy	Government budget allocation and efficient expenditure.	Budget estimates of Mumbai municipal corporation	Fig. 4(d)	(MCGM, 2014, 2015, 2016, 2017)
Relationship	Coordination level among local, regional & national administrations.	Time required to get construction-permit in Mumbai	Fig. 4(e)	(FICCI, 2014; World Bank, 2009, 2013, 2017)
Security	Safe municipality especially for woman, child, old, poor, activist and other vulnerable groups.	Percentage of crime against women, children and senior citizen	Fig. 4(f)	(NCRB, 2014, 2017)

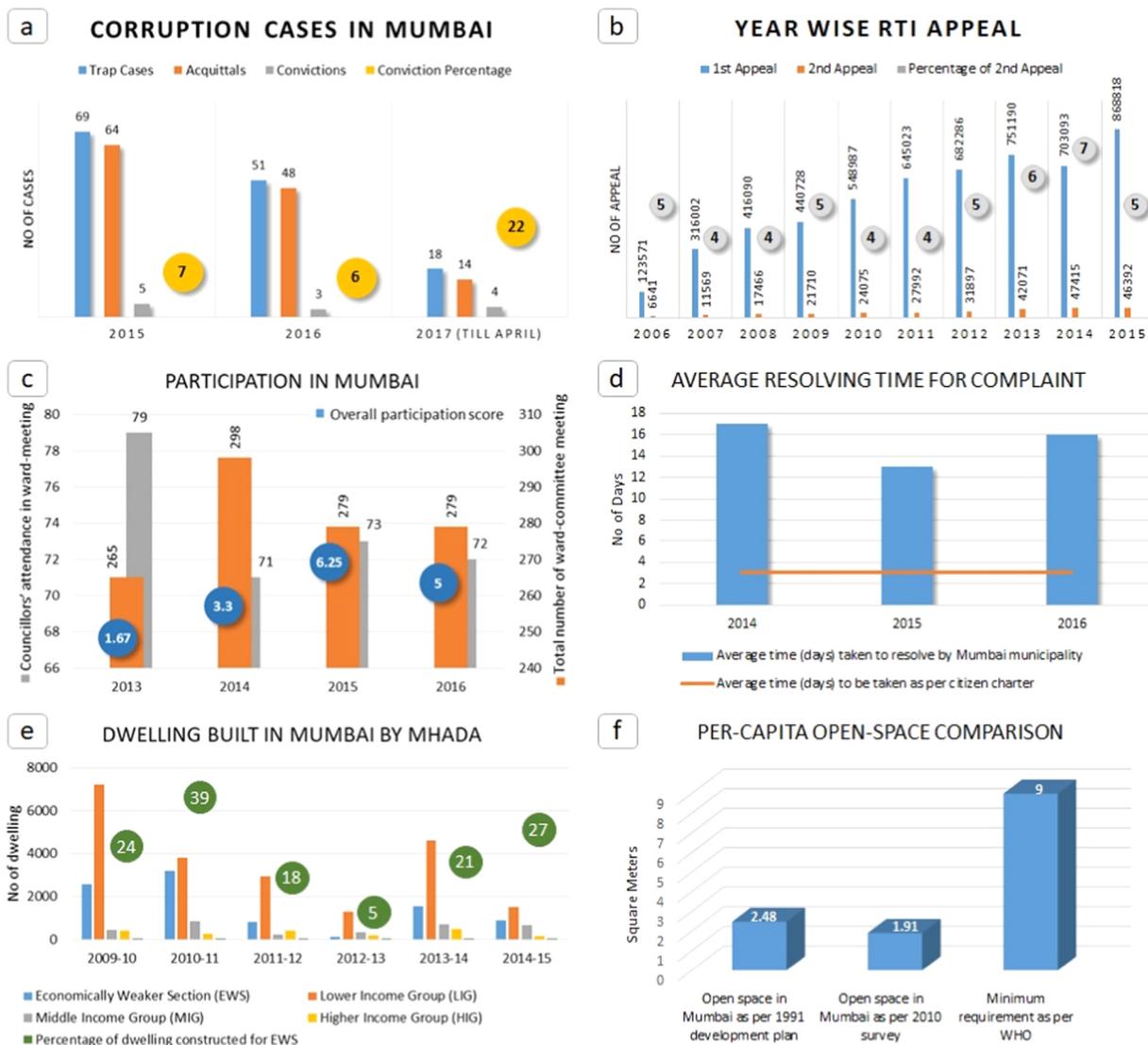


Fig. 3. Example of one of the Direct-Indicator from the Criteria- (a) Accountability, (b) Transparency, (c) Participation, (d) Effectiveness, (e) Equality, (f) Sustainability.

can be measured with binary value, i.e. 0 or 10. Sometimes one indicator may be evaluated by multiple evaluation types. In that case, authors or researchers or surveyor should consider the easiest possible evaluation type. We strongly recommend considering expert opinion while assigning a weightage. However evaluation types should be a mix of all three types (DI, Y/N and L) depending on the best-suit while measuring indicators. The type of measuring-indicators (MI) are suggested in the last column of Table 2.

4. Illustration using Mumbai as an example

In this section, the case of Mumbai city is demonstrated, where we specified an example of Direct-Indicators from each of the criteria (Table 5) that may be used to measure a representative sub-criteria.

These direct indicators can be evaluated by categorising their value with respect to a specific base-reference or benchmark. For example, “Active anti-corruption commission” is one of the sub-criteria of criteria “Accountability”, which may be measured by a direct indicator, i.e. “Conviction percentage of corruption cases” (Fig. 3a). Conviction rate of 0% means, the anti-corruption commission is not working actively. On the other hand 100% conviction means that the anti-corruption commission is working actively, which is a positive most scenario for this sub-criterion of criterion “Accountability”. Fig. 3a shows that the conviction percentage of corruption cases is 7, 6 and 22 for the year 2015, 2016 and 2017 respectively. Thus while measuring governance framework for Mumbai, the final contribution by this sub-criteria will be $((6/100) \cdot 0.0203) = 0.001218$ out of total 1 (calculated considering experts’ opinion) for the year of 2016 and $((22/100) \cdot 0.0203) = 0.004466$ for the year of 2017. This clearly demonstrates that the

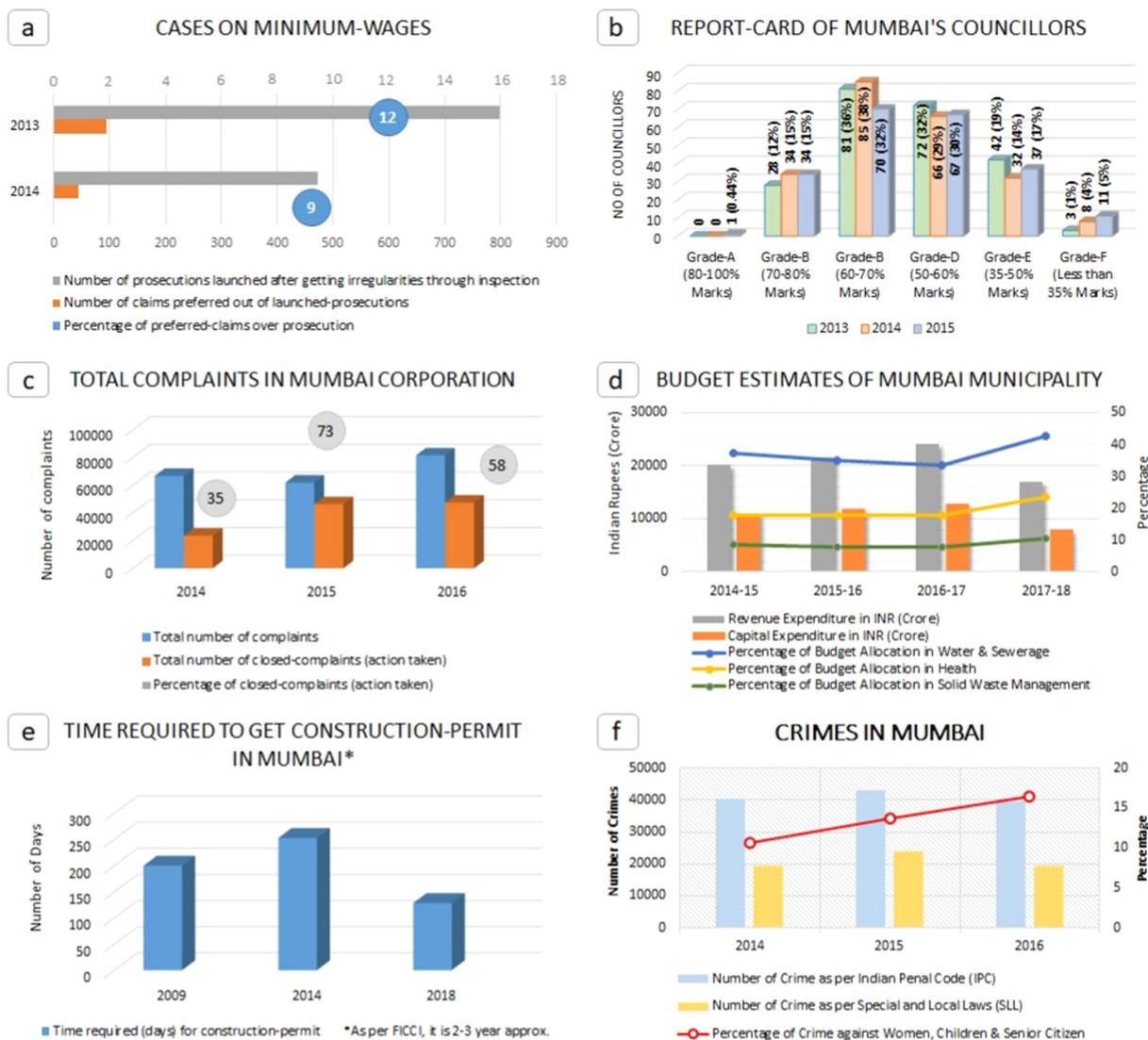


Fig. 4. Example of one of the Direct-Indicator from the Criteria- (a) Legitimacy & Bureaucracy, (b) Civic Capacity, (c) Service Delivery, (d) Efficient Economy, (e) Relationship, (f) Security.

increment of conviction percentage from 2016 to 2017, results an increment in contribution by the sub-criteria ‘active anti-corruption commission’, which further contributes to the criteria ‘accountability’. Thus it contributes towards better good-governance in 2017 as compared to 2016, in case of this specific indicator of respective sub-criteria of respective criteria. However, it need to measure all the sub-criteria through their representative indicators in order to get overall governance level.

Let’s discuss another example. “Timely responsiveness for complaints” is one of the sub-criteria of criteria “Effectiveness”, which may be measured by a direct indicator, i.e. “Average resolving-time for any complaints as compared with citizen charter” (Fig. 3d). As per the citizen charter, average resolution time for a complaint should be 3 days or minimum, whereas it was 17 days in 2014, 13 days in 2015 and 16 days in 2016 for Mumbai. Now the difference between citizen charter and actual time taken can be categorised and scored on a scale of 0–10. For example- if the difference is 0 then it will attract a score of 10 out of 10 and this score can be reduced by 1 for a difference of each 2 days. That means if the difference becomes 20 or higher, then it will attract a score of 0 out of 10. Fig. 3d shows that the difference of average resolving time is 14, 10 and 13 for the respective year of 2014, 2015 and 2016 respectively. So score for this sub-criteria of criteria “Effectiveness” is 3 out of 10 in the year of 2014, 5 out of 10 in the year of 2015 and 3.5 out of 10 in the year of 2016. Thus while measuring governance framework for Mumbai, the final contribution by this sub-criteria will be $((3.5/10) \times 0.0135) = 0.004725$ out of total 1 (calculated considering experts’ opinion) for the year 2016.

Let’s have a look at one more example. “Facility for citizen complaints” is one of the sub-criteria of criteria “Service Delivery”, which may be measured by a direct indicator, i.e. “Percentage of action-taken complaints on total number of received complaints in Mumbai Municipal Corporation” (Fig. 4c). If the action-taken complaint is 0%, then the facility of citizen-complaints is at its worst. If

it is 100% then the facility of citizen-complaints is at its best. Fig. 4c shows that the authority have taken action on 35%, 73% and 58% of total received complaints for the respective year of 2014, 2015 and 2016 respectively. Thus while measuring governance framework for Mumbai, the final contribution by this sub-criterion will be $((58/100)*0.0105) = 0.00609$ out of total 1 (calculated considering experts' opinion) for the year of 2016.

Here, we have shown the example of quantification of three direct indicators, which can be followed to measure a representative direct-indicator for a specific sub-criterion of a specific criterion. All the direct indicators can be categorised and measured with the same way keeping a reference line as base. Though the quantification of all the direct-indicators are not shown here, but Figs. 3 and 4 represent the available data of potential direct indicator from each criterion, which may help further to quantify the direct-indicators. The quantifying only of the direct-indicators, will not represent the overall governance. In order to do so, there is a need of full-fledged qualitative and quantitative study in order to gather other measuring indicators (Likert-scale or Yes/No based). The difficulty in this kind of research is data availability. Here, we have articulated all the suggested direct-indicators as per few of the readily available data, since open data resources can be useful to understand urban management (Chakraborty, Wilson, Sarraf, & Jana, 2015). If data relating to direct-indicators is not available, then weightage may be redistributed over other representative measuring-indicators which may be evaluated by Y/N-questionnaire or Likert-scale through various surveys, interviews and interactions. This study doesn't quantify Mumbai's overall governance-score. That will be further extension of this study along with a comparison with other Mega-cities.

The study is intended to respond a major challenge of urban management, i.e. administrative governance. While earlier frameworks often overlooked several dimensions that resulted confusion for choosing a specific tool, our study provides a theoretical or conceptual framework considering past and present governance assessment initiatives to bring the general universality. The main results or contribution of this study is showcased in three parts. Firstly- understanding the existing governance frameworks, secondly- composition of framework through identifying key components along with criteria and sub-criteria and finally- illustrating a few example of quantification process. Thus our study helps in assessing urban management from its governance point of view. Upon availability of required data, it can identify both the strengths and weaknesses for any city, zone or even country's management level. The stakeholders can further compare the governance level with the help of key components specified in this framework, across the space or institution.

5. Conclusion

Identifying indicators to measure governance is a major challenge in urban management. In order to bring the universality, comparability and ranking of services across geographical areas or governing organisations, we have created a good-governance framework which is able to assess services with the help of primary and secondary data collection. We compared 22 existing frameworks and developed a good governance framework along with its criteria and sub-criteria. Important criteria are: accountability, transparency, participation, effectiveness, equality, sustainability, vision & planning, legitimacy & bureaucracy, civic capacity, service delivery, efficient economy, relationship and security. We explored the measuring indicators and demonstrated three types of weightage distribution, out of which experts' opinion is highly recommended. We have demonstrated the usefulness of our toolbox by showing a set of indicators and a few of their scoring techniques, which can measure the quality of city governance. The method used to develop the indicator and the demonstration of applicability, can be helpful for researchers and decision makers, being useful as an assessment procedure. Our study helps in assessing urban management from its general administrative governance point of view. Researchers and other stakeholders may keep it as a base for assessing urban management for a region or institution. However the major limitation lies on data availability- stakeholders need to be flexible while choosing measuring indicators so that the data for that indicator is either readily available or can be assessed through surveys.

Acknowledgements

We wish to thank various government officials, institutional experts, citizens and other stakeholders for providing us valuable insights from their day-to-day experience. We also wish to thank the anonymous reviewers of this paper for their precious time and insight.

Funding sources

This work is supported by 'Ministry of Human Resource Development (MHRD)', Government of India.

References

- Aberbach, J. D., & Rockman, B. A. (1992). Does governance matter—and if so, how? Process, performance, and outcomes. *Governance*, 5(2), 135–153.
- Anti Corruption Bureau, M. (2017). *Year wise statistics of Anti Corruption Bureau, Maharashtra. Mumbai*. Retrieved from (<http://www.acbmaharashtra.gov.in/Statistics.asp>).
- Bloom, E., Sunseri, A., & Leonard, A. (2007). *Measuring and strengthening local governance capacity*. The Local Governance Barometer.
- Boss, M. (2009). *Local governance self-assessment*.
- Capuno, J. J., Garcia, M. M. S., & Sardalla, J. S. (2001). Promoting local development through good governance: A partial assessment of the GOFORDEV Index. *Issues Letters*, 10(3), 1–10.
- Chakraborty, A., Wilson, B., Sarraf, S., & Jana, A. (2015). Open data for informal settlements: Toward a user's guide for urban managers and planners. *Journal of Urban*

- Management, 4(2), 74–91.
- Cockcroft, A., Andersson, N., Omer, K., Ansari, N., Khan, A., Chaudhry, U. U., & Saeed, S. (2005). *Social audit of governance and delivery of public services*. Islamabad: CIET and Devolution Trust for Community Empowerment Pakistan 2004/05, national report).
- DiGaetano, A., & Strom, E. (2003). Comparative urban governance: An integrated approach. *Urban Affairs Review*, 38(3), 356–395.
- DILG (2003). Local Governance Performance Management System (LGPMS) (Philippines). Retrieved November 18, 2017, from <<http://www.gaportal.org/resources/detail/local-governance-performance-management-system-lgpm-philippines>>.
- European Commission (2009). Council of Europe's Guide to Developing Well-Being / Progress Indicators with Citizens - Application of the Governance Module in Timisoara (Romania). Retrieved November 15, 2017, from <<http://www.gaportal.org/resources/detail/council-of-europe-s-guide-to-developing-well-being-progress-indicators-with-citizens-application-of>>.
- FICCI (2014). *Approval process for real estate projects in Maharashtra (Mumbai) suggestions to streamline the system*. Retrieved from <<http://ficci.in/spdocument/20140/Real-Estate.pdf>>.
- Fukuyama, F. (2013). What is governance? *Governance*, 26(3), 347–368.
- GAP. (2009a). Measuring Municipal Performance MIDAMOS (Paraguay). Retrieved November 11, 2017, from <<http://www.gaportal.org/resources/detail/measuring-municipal-performance-midamos-paraguay>>.
- GAP (2009b). *Observatory of Democracy in Central America: System of Legal and institutional governance indicators for Central America*. Retrieved November 7, 2017, from <<http://www.gaportal.org/resources/detail/observatory-of-democracy-in-central-america-system-of-legal-and-institutional-governance-indicators>>.
- Global Integrity (2008). *Local integrity initiative*. Retrieved from <<https://www.globalintegrity.org/wp-content/uploads/2013/08/Liberial-Local-Governance-Toolkit-Methodology.pdf>>.
- Govt. of Maharashtra (2016). Economic Survey of Maharashtra 2016-17. Mumbai. Retrieved from <https://mahades.maharashtra.gov.in/files/publication/ESM_Eng2016_17.pdf>.
- Graham, J., Plumptre, T. W., & Amos, B. (2003). *Principles for good governance in the 21st century*. Institute on governance Ottawa.
- Grindle, M. S. (2007). Good enough governance revisited. *Development Policy Review*, 25(5), 533–574.
- Han, H., & Lai, S.-K. (2012). National land use management in China: An analytical framework. *Journal of Urban Management*, 1(1), 3–38.
- Harpham, T., & Boateng, K. A. (1997). Urban governance in relation to the operation of urban services in developing countries. *Habitat International*, 21(1), 65–77.
- Holzer, M., & Kim, S.-T. (2007). *Digital governance in municipalities worldwide (2007): A longitudinal assessment of municipal websites throughout the world*.
- IDEA (2001). *Local democracy assessment guide*. Retrieved from <<http://gaportal.org/resources/detail/local-democracy-assessment-guide>>.
- IDEA (2003). *Democracy at the local level*. Retrieved from <<http://unpan1.un.org/intradoc/groups/public/documents/UNTC/UNPAN014977.pdf>>.
- Indiatat (2016). ENFORCEMENT OF MINIMUM WAGES ACT, 194, 8, 1996, –2016. Retrieved December 28, 2017, from <<https://www.indiatat.com/labourandworkforce/380987/minimumwages19912015/19325/enforcementofminimumwagesact194819962016/717355/stats.aspx>>.
- Janaagraha (2013). *Annual survey of India's city-systems 2013: Transforming cities and citizenship*. Retrieved from <<http://www.janaagraha.org/files/publications/ASICS-Report-Online-2013.pdf>>.
- Janaagraha (2014). *Annual Survey of India's States city-systems 2014: Shaping India's states urban agenda*. Retrieved from <<http://janaagraha.org/asics/images/Annual-Survey-of-Indias-City-Systems-2014.pdf>>.
- Janaagraha (2015). *Annual survey of India's states city-systems 2015: Shaping India's states urban agenda*. Retrieved from <<http://www.janaagraha.org/files/publications/ASICS-2015.pdf>>.
- Janaagraha (2016). *Annual survey of India's states city-systems 2016: Shaping India's states urban agenda*. Retrieved from <<http://www.janaagraha.org/reports/ASICS-2016.pdf>>.
- Jenkins, P. (2000). Urban management, urban poverty and urban governance: Planning and land management in Maputo. *Environment and Urbanization*, 12(1), 137–152.
- Kemitraan Partnership (2009). Governance Index (Indonesia). Retrieved November 10, 2017, from <<http://kemitraan.or.id/igi/index.php/framework/conceptual>>.
- Kenward, R. E., Whittingham, M. J., Arampatzis, S., Manos, B. D., Hahn, T., Terry, A., ... Donlan, M. (2011). Identifying governance strategies that effectively support ecosystem services, resource sustainability, and biodiversity. *Proceedings of the National Academy of Sciences USA*, 108(13), 5308–5312.
- Lee, J.-H., & Hancock, M. (2012). Toward a framework for smart cities: A comparison of Seoul, San Francisco and Amsterdam. Research Paper, Yonsei University and Stanford University.
- Leftwich, A. (1993). Governance, democracy and development in the Third World. *Third World Quarterly*, 14(3), 605–624.
- Li, Y., Qiu, J., Zhao, B., Pavao-Zuckerman, M., Bruns, A., Qureshi, S., ... Li, Y. (2017). Quantifying urban ecological governance: A suite of indices characterizes the ecological planning implications of rapid coastal urbanization. *Ecological Indicators*, 72, 225–233.
- MCGM (2014). BUDGET ESTIMATES A,B&G 2014-15. Mumbai. Retrieved from <<http://www.mcgm.gov.in/irj/go/km/docs/documents/MCGM%20Department%20List/Chief%20Accountant%20Finance/Budget/Budget%20Estimate%202014-2015/M.C.Speech/ABG-English%20Speech-Final-2014-15.pdf>>.
- MCGM (2015). BUDGET ESTIMATES A,B&G 2015-16. Mumbai. Retrieved from <<http://www.mcgm.gov.in/irj/go/km/docs/documents/MCGM%20Department%20List/Chief%20Accountant%20Finance/Budget/Budget%20Estimate%202015-2016/1.M.C%27s%20Speech/English%20Speech%20Budget%20A,B,G.pdf>>.
- MCGM (2016). BUDGET ESTIMATES A,B&G 2016–2017. Mumbai.
- MCGM (2017). BUDGET ESTIMATES A,B&G 2017-18. Mumbai. Retrieved from <<http://www.mcgm.gov.in/irj/go/km/docs/documents/MCGM%20Department%20List/Chief%20Accountant%20Finance/Budget/Budget%20Estimate%202017-2018/1.MC%27s%20Speech/Budget%20A%20CB%20CG/ENGLISH%20SPEECH.pdf>>.
- MMR-EIS. (n.d.). Inventorisation of Open spaces & Water Bodies in Greater Mumbai. Retrieved from <<https://www.mmreis.org.in/images/research/Open-Spaces-Water-Bodies.pdf>>.
- Mol, A. P. J. (2009). Urban environmental governance innovations in China. *Current Opinion in Environmental Sustainability*, 1(1), 96–100.
- Moneycontrol (2017). *Mumbai DP 2034: Here is BMC's master plan to transform Maximum City* Www.Moneycontrol.Com. Retrieved from <<http://www.moneycontrol.com/news/india/mumbai-development-plan-heres-how-new-development-plan-transform-mumbai-city-2342567.html>>.
- MoUD (2014). *Urban Greening Guidelines* Retrieved from <[http://moud.gov.in/upload/uploadfiles/files/G%202014\(2\).pdf](http://moud.gov.in/upload/uploadfiles/files/G%202014(2).pdf)>.
- Naidu, J. S. (2017). *Fewer complaints of corruption in Mumbai this year*. Hindustan Times Retrieved from <<http://www.hindustantimes.com/mumbai-news/fewer-complaints-of-corruption-in-mumbai-this-year/story-dk4DhnNsx0vLJbbTA8clvJ.html>>.
- NCRB (2014). *Crime in India 2013 statistics*. Retrieved from <<http://ncrb.nic.in/StatPublications/CI/CI2013/Statistics-2013.pdf>>.
- NCRB (2017). *Crime in India 2016 statistics* Retrieved from <<http://ncrb.nic.in/StatPublications/CI/CI2016/pdfs/Crime%20Statistics%202016.pdf>>.
- PAC (2008). *Citizen report cards. Bangalore* Retrieved from <http://indiagovernance.gov.in/files/public_affairs_centers.pdf>.
- PACT (2015). *Implementing the local governance barometer in South Sudan* Retrieved from <<http://www.pactworld.org/Implementing%20the%20local%20governance%20barometer%20in%20South%20Sudan>>.
- Payne, J. W., Bettman, J. R., & Johnson, E. J. (1988). Adaptive strategy selection in decision making. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 14(3), 534.
- Praja (2015). MUMBAI REPORT CARD: Municipal Councillors 2015. Mumbai. Retrieved from <http://praja.org/praja_docs/praja_downloads/Councillors%20Report%20Card_2015.pdf>.
- Praja (2017). Report on Civic Issues Registered by Citizens and Deliberations done by Municipal Councillors in Mumbai (March 2012 to December 2016). Retrieved from <http://www.praja.org/praja_docs/praja_downloads/Report%20on%20Civic%20Issues%20Registered%20by%20Citizens%20and%20Deliberations%20done%20by%20Municipal%20Councillors%20in%20Mumbai.pdf>.
- Rotberg, R. I. (2014). Good governance means performance and results. *Governance*, 27(3), 511–518.
- Soós, G. (2001). *The indicators of local democratic governance project: Concepts and hypotheses*. Retrieved from <http://pdc.ceu.hu/archive/00006944/01/LGI_Indicators-of-Local-Democracy_2001.pdf>.
- Stoker, G. (1998). *Public-private partnerships and urban governance. Partnerships in urban governance*. Springer:34–51.
- Sturzaker, J., & Verdini, G. (2017). Opposition and resistance: Governance challenges around urban growth in China and the UK. *Journal of Urban Management*, 6(1),

30–41.

- TII (2017). *State transparency report*. Retrieved from <<http://www.transparencyindia.org/pdf/State-Transparency-Report.pdf>>.
- Turner, R. A., Fitzsimmons, C., Forster, J., Mahon, R., Peterson, A., & Stead, S. M. (2014). Measuring good governance for complex ecosystems: Perceptions of coral reef-dependent communities in the Caribbean. *Global Environmental Change*, 29, 105–117.
- UN-HABITAT (2005). Urban Governance Index. Retrieved November 1, 2017, from <<http://mirror.unhabitat.org/content.asp?Typeid=19&catid=25&cid=2167>>.
- UNCDF (2005). Assessments Informing Performance Based Grant Systems (PBGS). Retrieved November 5, 2017, from <<http://www.gaportal.org/resources/detail/assessments-informing-performance-based-grant-systems-pbgs>>.
- UNDP (2007). *Methodological guidelines for local governance analysis*. Retrieved from <<http://www.gaportal.org/resources/detail/methodological-guidelines-for-local-governance-analysis>>.
- UNDP (2008). *Index of responsibility, transparency and accountability (Macedonia)* Retrieved November 20, 2017, from <<http://gaportal.org/resources/detail/index-of-responsibilitytransparency-and-accountability-macedonia>>.
- UNDP (2009). *Good governance for local development - GOFORGOLD index* Retrieved November 20, 2017, from <<http://www.gaportal.org/resources/detail/good-governance-for-local-development-goforgold-index>>.
- UNDP (2010). *Methodology for the assessment of municipal capacities in Turkey and the Western Balkans to deliver services*. Retrieved from <http://www.gaportal.org/sites/default/files/Local_Service_Delivery_Capacity_Assessment_methodology.pdf>.
- Weiss, T. G. (2000). Governance, good governance and global governance: Conceptual and actual challenges. *Third World Quarterly*, 21(5), 795–814.
- Wilde, A., Narang, S., Laberge, M., & Moretto, L. (2009). *A users' guide to measuring local governance* Retrieved from <http://www.undp.org/content/dam/aplaws/publication/en/publications/democratic-governance/dg-publications-for-website/a-users-guide-to-measuring-local-governance-/LG_Guide.pdf>.
- World Bank (2009). *Doing Business in India 2009*. Retrieved from <<http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Subnational-Reports/DB09-Sub-India.pdf>>.
- World Bank (2013). *Doing Business 2014 India* Retrieved from <<https://openknowledge.worldbank.org/bitstream/handle/10986/18500/828620India0IND0Box>>.
- World Bank (2017). *Doing Business 2018 India*. Retrieved from <<http://www.doingbusiness.org/~media/WBG/DoingBusiness/Documents/Profiles/Country/IND.pdf>>.