National Urban Digital Mission (NUDM)

Water & Sewerage

KNOWLEDGE STANDARD

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National Urban Digital Mission (NUDM)

Over the past two decades, India has witnessed the role of technology as an enabler for development and progress. India is poised to lead the digital revolution and our cities can be the primary beneficiary. Our ability to seamlessly adopt emerging technologies into urban governance holds the key to a powerful story of transformation in India's journey towards becoming an economic powerhouse. Responding to this pressing necessity, National Institute of Urban Affairs is instituting the Centre for Digital Governance (CDG), an initiative to convene the digital efforts of the Ministry of Housing and Urban Affairs and also consolidate its existing efforts. National Urban Digital Mission (NUDM) launched in February 2021, aims to build a shared digital infrastructure that will strengthen the capacity of the urban ecosystem to solve complex problems at scale and speed. Thus improve the ease of living for citizens through accessible, inclusive, efficient and citizen centric governance across India's 4800 towns and cities. The NUDM inherits the guiding principles of the National Urban Innovation Stack (NUIS) - Strategy and Approach paper, released by MoHUA in 2019 as a vehicle to accelerate the ecosystem for urban transformation.

One of the key deliverables under NUDM is the creation/ adoption of standards which will enable improved information consistency, analytics, secure data access & transfer, smarter business processes; while also enabling diverse stakeholders to collaborate and their corresponding platforms and processes to interoperate seamlessly. The following standards (in various stages of development/ adoption) are applicable for NUDM:

1. Municipal Governance Reference Architecture as a reference blueprint for platforms
2. Knowledge Standards with key data elements and their standardized data interpretation
3. API definitions for standardized integration with the National Dashboard
4. Security Assurance Standards for enabling data privacy controls
5. National meta-data standards for metadata management & data quality enablement at state & national dashboards

Out of these, the Municipal Municipal Governance Reference Architecture[1], Security Assurance standards[2] and Property Tax Knowledge Standard[3] have already been published and are available for download. National Metadata Standard[4] has been published by the Government of India.

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[1] IS 18006 : Part 1 : 2021 - Municipal Governance Reference Architecture available online at https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=18006&id=0

[2] IS 17428 : Part 1 : 2020 - Data Privacy Assurance Part 1- Engineering and Management Requirements and IS17428: Part 2: 20202 - Data Privacy Assurance Part 2 Engineering and Management Guidelines
available online at https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=IS+17428&id=0

[3] IS 18006 : Part 3 : Sec 1 : 2021 - Municipal Governance - Part 3 Property Tax - Section 1 Taxonomy available online at https://standardsbis.bsbedge.com/BIS_SearchStandard.aspx?Standard_Number=18006&id=0

[4] Data Dissemination: National Metadata Structure (NMDS) For Statistical Products available online at http://mospi.nic.in/sites/default/files/main_menu/citizen_charter/National%20Metadata%20Stucture%20-%20v3.pdf

NUDM Knowledge Standards

Need for Knowledge Standards

ULBs across India have different terminology and vocabulary for Urban Governance. This is due to inherited and new state laws and different Municipal Governance system implementations. Lack of uniform knowledge of important data elements and clear vocabulary for urban governance terms, leads to the inability to share & interpret data uniformly and/or compare Urban Local Body (ULB) performances.

Knowledge standards typically have the following applications

- Knowledge standards help us in identifying and categorizing important data elements for a domain
- Knowledge standards help in resolving differences in terminology for Urban Governance
- Knowledge standards can be used to analyze current city domain models, processes, reports & KPIs; thus, retrofitting existing data models with missing data

Governing principles in Design of Knowledge standard

Normally information taxonomy preparation begins by asking the following questions (Earley, 2015)[5] (Earley, 2015):

- What are all of the things that you interact with on a day-to-day basis?
- What are all of the processes that you engage with, applications you interact with, and people you speak to, both internally and externally?
- How do those people, processes and technologies interact?
- Information linkages identification.

To ensure this taxonomy fits the needs of interested stakeholders the following principles have been followed in designing it.

Minimalist: The standards are designed to have minimum base elements common across ULBs to ensure interoperability, harmonization and data driven governance. These can then be adopted and built upon by some ULBs with higher process complexities.

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[5] Earley, S. (2015, August 18). Why Information Taxonomy Must Represent the Landscape of the Business. From www.earley.com: https://www.earley.com/insights/why-information-taxonomy-must-represent-landscape-business

Evolvable: The standard is designed to evolve over a period of time thereby adapting to changing needs and emerging technologies thus making the system comprehensive progressively.

Modular: The classifications and categorizations in the knowledge standard are designed modularly, yet they function together as a whole. They are independent and self-contained and may be combined and configured with similar units to suit disparate contexts. E.g., The Property "Use" element and its sub classifications can be easily reapplied in the context of any Building Plan Approval System or Water & Sewerage System.

Extendible: The standard is designed to be exhaustive and the elements of Urban Governance are positioned in a hierarchy which can accommodate both horizontal and vertical additions. This leaves room wider adoption and innovation to suit contexts of any ecosystem. The end goal is to build a knowledge practice that supports Open Standards with the Data Element taxonomy as a base.

Open: The standard is designed to be 'open' to enable wider ecosystem participation and use.

How to read this document?

Section 2.1 captures Key data elements associated with the Water & Sewerage Data Entity.

Section 2.2 captures key channels of transactions i.e., new connection/ grievance registration/ payment etc.

Section 2.3 captures key stakeholders involved in W&S service delivery

Section 2.4 captures key processes within the W&S domain with clearly defined input & output data elements.

Section 2.5 captures key Reports and KPIs that ULBs and states/UTs are encouraged to use.

All direct sub-classifications and components captured in the taxonomical hierarchy are shown as normal text (For Ex: "2.1.4.1 Residential/ Household")

In processes section (section 2.4),

- Input criteria (whether from citizen or ULB) of the process is shown in *italics text* (For Example "*2.4.1.1 Applicant Details*")
- Output of the process is shown in **Bold text** (For example "**2.5.1.1 Connections Register**")

- Direct sub-classifications or sub-components are shown as normal text (For Example 2.4.4.1.1 Types of Assessment classification has 2.4.4.1.1 Issue of New Connection sub-classification (all depicted in normal text)

Diagrams:

Domain is depicted as ▭ for e.g. Water & Sewerage

Data Entities are depicted as ▭ for e.g. Water & Sewerage

Channels are depicted as ▭ for e.g. W&S Channels

Stakeholders are depicted as ▭ for e.g. Stakeholder Matrix

Processes are depicted as ▭ for e.g. Application Creation, Acknowledgement

Reports & KPIs are depicted as ▭ for e.g. Demand Collection Balance Register

How to use this knowledge standard?

Water & Sewerage Knowledge standard can be used in 3 different ways:

1. Direct application by storing, generating and using these important data elements (entities, stakeholders, processes & reports) in day-to-day operations

Example 1: ULB Officials add channel through which an application was received and ULB type in the W&S application data model while acknowledging and processing the Application/ Assessment request received from the water & sewerage connection application/ CSCs.

Example 2: Application form for a New Connection also collects Property ID (PID) of the property where the connection is requested. This PID can further be used to fetch property details like use, location, ownership, payment details – making need of bulky service forms redundant. This will also result in re-use and harmonization of data across departments.

Example 3: Monitoring of application by their status, their SLB adherence and channels from which the transaction happens and the DCB register empowers ULB Officials to take corrective and preventive steps as needed.

2. Indirect application by using these data elements in evidence-based governance and long-term planning

Example: Analyzing W&S applications by purpose for which the application was made may help the ULB in regulating land use, preventing revenue leakages and planning water conservation subsidy policies. It can also help in planning the inspection schedules better with respect to the types of regulations needed.

3. Information consistency by using these data elements while using and sharing data (via Metadata tags in reports and dashboard)

Example: Consistent use of Data elements, processes, KPIs and their definitions from this Knowledge Standard helps in implementing Information consistency across ULBs. To ensure information consistency, while ULBs may use new or existing platforms while delivering W&S services, they should use Metadata tags from the data elements defined in this knowledge standard.

It may be noted that

1. The data elements described in this knowledge standard are not complete and ULBs may add/ remove data elements as per actual need.
2. ULBs and their technology partners are however against modifying the data elements while using these as Metadata tags i.e., Application ID should be shared as 'Application ID' and not 'App ID' or 'Appln ID' in the ULB reports.

Revisions to the document

This is planned to be a working document. It will be revised regularly to guarantee that the knowledge standard incorporates learnings from various implementations and learning cycles as they progress and remain relevant. Amendments and regular updates to its text and indicators are to be expected on a continuous basis.

No Sub-License Allowed

W&S Knowledge Standard is developed as open standard under NUDM by NIUA. No part(s) of the document can be sublicensed further by any other organization. Any attempted sublicense, whether voluntarily or otherwise, shall be null and void, and will attract penal actions.

Abbreviations

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
CAA	Constitution Amendment Act
CDG	Centre for Digital Governance
CSC	Common Service Centre
DTMF	Dual Tone Multi-Frequency
ICT	Information and Communication Technology
ID	Identification Document/Number
IVR	Interactive Voice Response
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
KPI	Key Performance Indicators
MoHUA	Ministry of Housing & Urban Affairs
NIUA	National Institute of Urban Affairs
NOC	No Objection Certificate
NUDM	National Urban Digital Mission
NUGP	National Urban Governance Platform
NUSP	National Urban Sanitation Policy

PID	Property Identification Number
SLB	Service Level Benchmark
SLG	Service Level Guarantee
SMS	Short Message Service
ULB	Urban Local Body/Bodies
W&S	Water & Sewerage

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1 Water and Sewerage

The Urban Water Supply and Sewerage sector in India is characterized by inefficient delivery of services (including high-unaccounted water and intermittent water supplies) and inadequate coverage with piped water supply and sewerage connections, especially for the urban poor. In addition, poor cost recovery has rendered most of the water utilities in the country as financially unsustainable[6] (The Energy and Resources Institute, 2010). Even though the city level function of water supply is to be devolved to municipalities and other urban local bodies under 74th CAA of 1992, very few have been assigned this function by state governments. A few metropolitan cities like Delhi, Chennai, Hyderabad and Bangalore have semi-autonomous water supply and sewerage (W&S) boards with limited functional autonomy. In cities of Calcutta and Mumbai, separate departments of the ULB handle W&S operations. In some cities like Amritsar and Ahmedabad, the ULB handle the operations and maintenance of W&S while the capital works are the responsibility of the state level parastatal[7] (The Energy and Resources Institute, 2010).

"Sewerage" means night soil and other contents of water closets, latrines, privies, urinals, cesspools or drains, and polluted water from sinks, bathrooms, stables, cattle sheds and other like places and includes trade effluents and discharges from manufactories of all kinds[8] (Centre for Good Governance, 2019)

Water connection includes,

(i) any tank, cistern, hydrant, stand pipe, meter or tap situated on any private property and connected with a water main or pipe belonging to the Municipality; and

(ii) the water pipe connecting such tank, cistern, hydrant, stand pipe, meter or tap with such water main or pipe;

"Watercourse" means and includes any river, stream or channel whether natural or artificial; "water for domestic purposes" shall include water for domestic requirement including drinking water purposes and shall not include water for any trade, manufacture or business or for building purposes, or for watering gardens or for fountains or for any ornamental or mechanical purposes;

[6,7] The Energy and Resources Institute. (2010). Review of current practices in determining user charges and incorporation of economic principles of pricing of urban water supply. Ministry of Urban Development, Government of India. From https://mohua.gov.in/upload/uploadfiles/files/TERI_UC_Report26.pdf

[8] Centre for Good Governance, H. (2019). Telangana Municipalities Act, 2019, A Healthy Blend of Citizen-Centric Governance and Control. Government of Telangana.

MoHUA has initiated a number of programs and activities to address the issues in W&S Sector such as;

- Reforms under JNNURM including transfer of Urban W&S functions to ULBs as per 74th CAA
- Atal Mission for Rejuvenation and Urban Transformation (AMRUT) to ensure that every household has access to a tap with assured supply of water and a sewerage connection
- Service level Benchmarks defined in citizen charters to improve efficiency in the functioning of W&S systems, including governance, finance and institutional capacities etc.
- National Urban Sanitation Policy (NUSP) covering all aspects of urban sanitation and sewerage management

1.1 Background

The 74th Constitutional Amendment had substantially broadened the range of functions to be performed by the elected urban local bodies (ULBs). The Constitution envisages urban local bodies as being totally responsible for all aspects of development, civic services, and environment in the cities, going far beyond the traditional role.

Water and Sewerage is an important revenue source for the Urban Local Bodies and is maintained by various departments at state and ULB Level. The authorities are responsible to provide water and sewerage connection in the designated territory, issue the demand to the owner for making the necessary payment and collection of water and sewerage charges. Once, water and sewerage charge are accomplished the collection process is followed up through appropriate notifications to the citizens. The implementation of water and sewerage service by ULBs comprises of providing new connection, name transfer, usage change, generating demand notice, defaulter notice. In case the citizen fails to pay the W&S charges, the revenue department can disconnect the W&S connection temporarily. Moreover, if the citizen wishes they can request for disconnection as temporary/ permanent disconnection. If the underground drainage connection is disconnected temporarily by the citizen or disconnected by the revenue department, they can pay the arrear amount & other charges and request for reconnection.

1.2 Who is Responsible?

Water being a state subject, the State Governments has primary responsibility for use and control of this resource. The administrative control and responsibility for development of water shared by various state departments, parastatals and urban local bodies. For e.g., Delhi Jal Board and Delhi Municipal Corporations.

As part of National Urban Digital Mission (NUDM), NIUA is also offering a platform NUGP to states which offers Water License Connection Management functionality using Water & Sewerage (W&S) module.

2   Taxonomy for Water and Sewerage

Taxonomy for Water and Sewerage tries to capture the most important entities, their properties, categories, subcategories, parameters, and specifications within this domain as well as other associated areas. Subsections in Section 2 also define all the key terms in the water and sewerage domain comprehensively.

A well-structured W&S taxonomy helps by:

- ✓ Identification and regulation of water supply and sewerage connections enabling effective enforcement and regulation
- ✓ Building accountability and ensuring transparency
- ✓ Identification and process key data elements to enable evidence-based decision & policy making
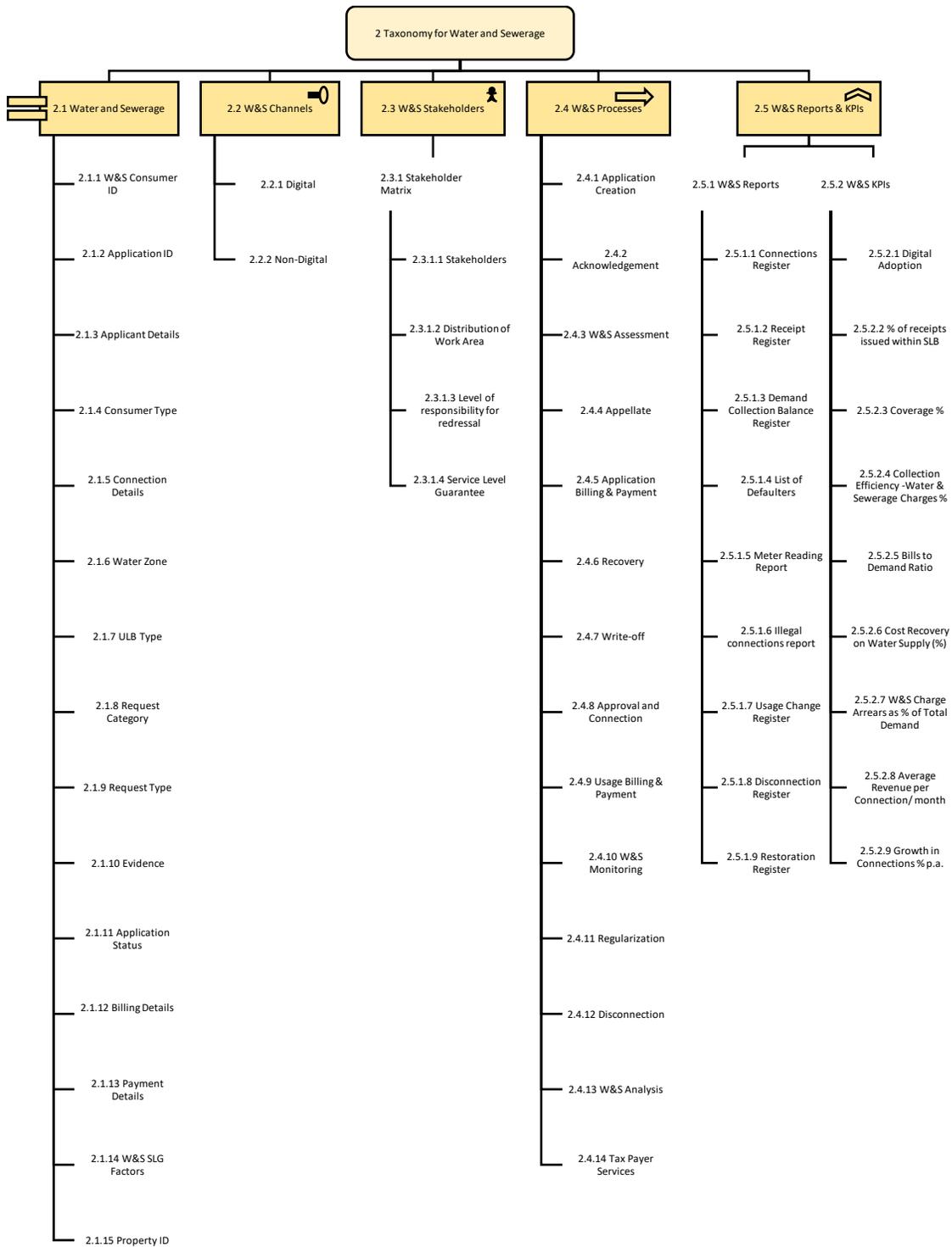
FIGURE 1 TAXONOMY OF WATER & SEWERAGE

2.1 Water and Sewerage

Water & Sewerage is a basic service provided by the ULBs comprises of providing new connection, reconnection, disconnection, billing etc. according to relevant rules and regulations to the citizen. Sub-components in this section describe important components of a water & sewerage data entity.

2.1.1 W&S Consumer ID

Water & Sewerage (W&S) Consumer ID is a unique connection identifier for every individual consumer. Consumer ID may be used to check the bill amount or request a duplicate copy of their bill.

2.1.2 Application ID

An Application ID is an automatic unique application number that will be generated after submitting the application form successfully. The Application ID can be used to check status of the filled application, get duplicate bills, receipts etc.

2.1.3 Applicant Details

Applicant details means the details of a person filling the application form. In terms of water and sewerage connection application, the applicant is the user who needs to fill connection details such as name, age, address, mother's name, father's name, mobile number, email id, billing address, connection address etc.

2.1.4 Consumer Type

Consumer type is the classification of W&S connection based on property use of the plot/ property. This can also be fetched from 'Use' details of the property from the property database using PID.
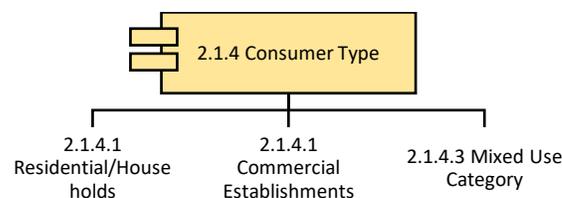
FIGURE 2 TAXONOMY OF CONSUMER TYPE

2.1.4.1 Residential/ Households

Connection to such plot/property which is used purely for residential purpose and include following:

Ministry of Housing and Urban Affairs
Government of India

आज़ादी का
अमृत महोत्सव

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1) Premises used for residence.
2) Hostels of Educational Institutions of the Government, working women's hostels run by the Government.
3) Govt. recognized destitute homes, orphanage homes, charitable homes, blind schools, and schools for physically challenged handicapped persons, spastic children.
4) Place of worship, cremation grounds, cemetery, etc.

2.1.4.2 Commercial Establishments

Connection to plot/property having no residential use and/or in all cases where water is used as input either in processing or in manufacturing or intensive use of water or high footfall of public is in envisaged such as institute, hospitals, schools, offices, office complexes, railway stations/yards, police stations, airport, bus stand, petrol pumps, hostels, restaurants, clubs, marriage halls, industry, cooling plants, factories, ice cream factories, amusement parks, dhobi ghats etc. and other similar activities with high footfall.

2.1.4.3 Mixed Use Category

A category applicable to such premises where a part of the premises under residential use is also used for commercial purposes provided the water use is for non-intensive purposes.

2.1.5   Connection Details

Connection details means the details of the connection which are captured/ created during the lifecycle of the application and W&S connection.
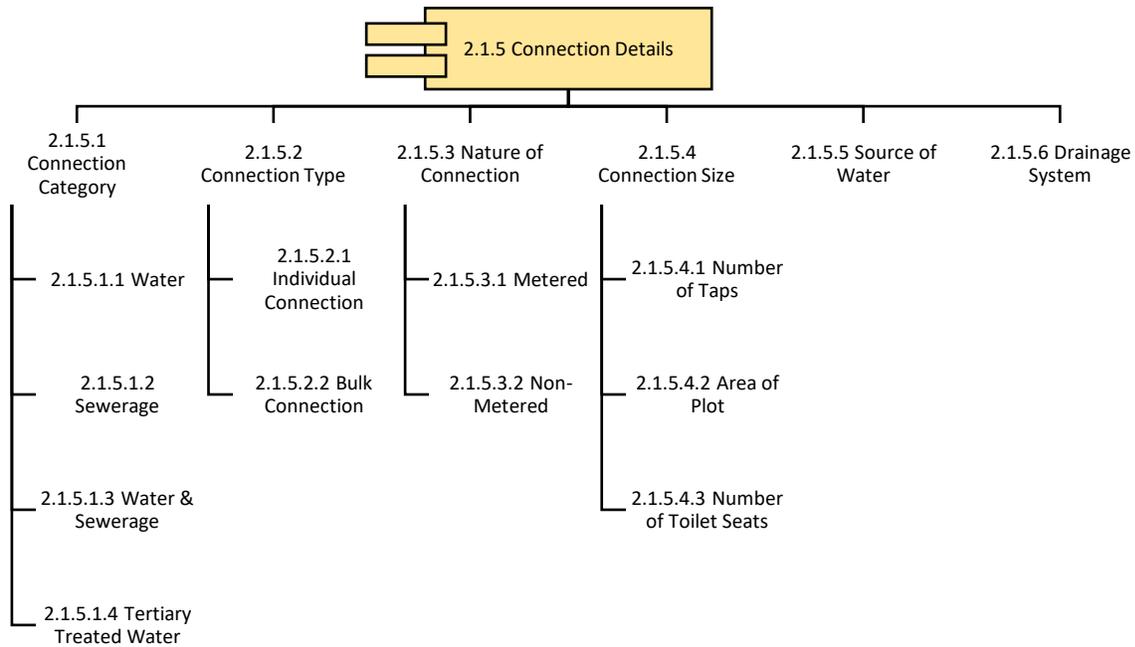
FIGURE 3 TAXONOMY OF CONNECTION DETAILS

2.1.5.1 Connection Category

Connection Category is the classification based on type of connection for which an applicant is applying for example, water connection or sewerage connection, or both or tertiary treated water connection.

2.1.5.1.1 Water

Water means service request related to water supply such as new water connection, water disconnection, user charge etc.

2.1.5.1.2 Sewerage

Sewerage means service request related to sewerage such as new sewer connection, sewer disconnection, etc.

2.1.5.1.3 Water & Sewerage

Water & Sewerage means service request related to both water & sewerage.

2.1.5.1.4 Tertiary Treated Water

Water & sewerage means service request related to supply of tertiary treated water, its disconnection, user charges etc.

2.1.5.2 Connection Type

Connection type is the classification of W&S connection based on dwelling units served by the connection.

2.1.5.2.1 Individual Connection

Individual connection is when one water connection is sanctioned per dwelling unit. Individual water connections may be sanctioned for dwelling units, which fall within the height up to 15 meter in the building.

2.1.5.2.2 Bulk Connection

Any connection of ferrule size of more than quarter of an inch is technically called a bulk connection. In case of Co-Operative Group Housing Societies, commercial complexes having multiple units, offices/ properties, hospitals/ institutions etc. requiring high quantity of water, only a bulk connection is provided for all dwelling units/ multiple units in the same complex

2.1.5.3 Nature of Connection

Nature of connection is the classification based on the consumption usage of connection

2.1.5.3.1 Metered

In a metered connection, your water usage is measured, and you are charged based on the amount of water used.

2.1.5.3.2 Non-Metered

In a non-metered connection, you are usually charged a flat fee, regardless of the water consumption level.

2.1.5.4 Connection Size

Connection size is the classification of connection based on size such as pipe size, number of taps, area of plot and sump capacity for which the connection is applied. Some of these parameters help in connection charge calculation while others help in regular usage charge calculation.

2.1.5.4.1 Number of Taps

Number of taps means the total number of taps for which the connection is applied.

2.1.5.4.2 Area of Plot

Area of plot means the area of the plot for which the connection is applied.

2.1.5.4.3 Number of Toilet Seats

Number of toilet seats means the total number of toilet seats for which the connection is applied.

2.1.5.5 Source of Water

Source of water means the channel through which water has been supplied to the property such as bore well, tube well, or water supplying agency such as Jal board or Municipal Authority.

2.1.5.6 Drainage System

Drainage system refers to the type of system used to collect, treat and discharge waste water from a property. Drainage system in a property could be surface systems, sub surface systems, natural slope systems or gutters.

2.1.6 Water Zone

Water Zone or 'W&S Zone' means the classification of different area or street into value zones for the purpose of determination of unit of measurement value of a water tariff.

2.1.7 ULB Type

Type of Urban Local Body as per the definition of MoHUA such as Nagar Panchayat, Municipal Council or Municipal Corporation[9] (Ministry of Housing and Urban Affairs, 2014).

2.1.8 Request Category

Request category is the classification of application is applied based on the duration of connection.
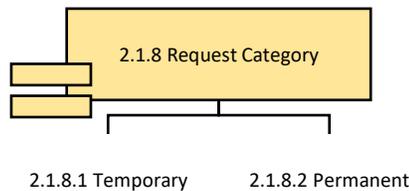
FIGURE 4 TAXONOMY OF REQUEST CATEGORY

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[9] Ministry of Housing and Urban Affairs. (2014). Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. Ministry of Housing and Urban Affairs.

2.1.8.1 Temporary

Temporary is the request category which is applied for the short duration of time i.e., less than a financial year.

2.1.8.2 Permanent

Permanent is the request category which is applied for a longer duration of time.

2.1.9   Request Type

Request type is the classification of application is applied based on the nature of application.
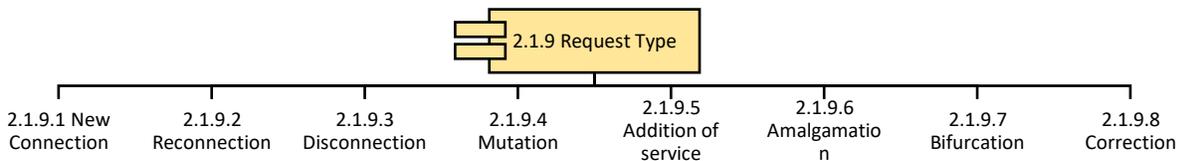
FIGURE 5 TAXONOMY OF REQUEST TYPE

2.1.9.1 New Connection

New connection means an application for registration for fresh water/sewerage connection is to be submitted with requisite documents and registration & processing fee along with applicable one-time fees.

2.1.9.2 Reconnection

The application type to restore the previous water/sewerage connection. The restoration of the connection has to be done within a specific time frame as per the municipal authority. Citizen might use their old application ID and consumer ID in their application.

2.1.9.3 Disconnection

The application type to permanently disconnect the water/sewerage connection. The disconnection of the connection has to be done in a specific time frame as per the municipal authority.

2.1.9.4 Mutation

Mutation means an application type for transfer of title to existing water/sewerage connection.

2.1.9.5 Addition of service

Addition of service means an application type for addition of any other service into the services provided under a consumer ID.

2.1.9.6 Amalgamation

Amalgamation means an application type for merging two or more consumer connections into a single connection.

2.1.9.7 Bifurcation

Bifurcation means an application type when one consumer connection is split into two or more connections.

2.1.9.8 Correction

Correction means an application type for correction of address or applicant related information or usage slabs of an existing water/sewerage connection.

2.1.10 Evidence

Proof of the owner details submitted during application of water/sewerage connection. These can be

- Address proof of the property
- ID proof of the applicant
- Aadhaar card
- Electricity bill
- Property tax receipt
- Layout Plan
- Plumber drawings
- Or any other related document

2.1.11 Application Status

This is the current status of water/sewerage connection application.
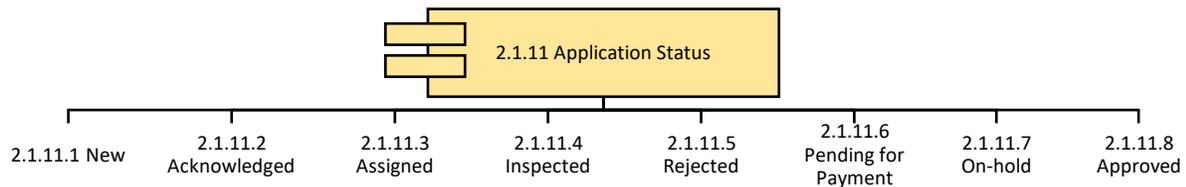
FIGURE 6 TAXONOMY OF APPLICATION STATUS

2.1.11.1   New

It is a type of water/sewerage connection application status, which means that a new water/sewerage connection application has been filed.

2.1.11.2   Acknowledged

It is a type of water/sewerage connection application status, which means that the water/sewerage connection application has been acknowledged by the municipal department.

2.1.11.3   Assigned

It is a type of water/sewerage connection application status, which means that water/sewerage connection application is assigned to inspection team and the inspection is in process.

2.1.11.4   Inspected

It is a type of water/sewerage connection application status, which means that the water/sewerage connection inspection is completed.

2.1.11.5   Rejected

It is a type of water/sewerage connection application status, which means that the water/sewerage connection application is rejected after inspection.

2.1.11.6   Pending for Payment

It is a type of water/sewerage connection application status, which means that the water/sewerage connection application is pending for payment after successful inspection.

2.1.11.7   On-hold

It is a type of water/sewerage connection application status, which means that the water/sewerage connection application is put on hold for a reason.

2.1.11.8   Approved

It is a type of water/sewerage connection application status, which means that the water/sewerage connection application is approved by the ULB.

2.1.12 Billing Details

These are the details of bills generated against an application ID or consumer ID.
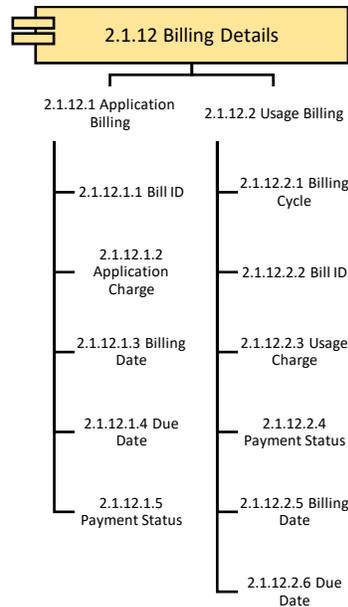
FIGURE 7 TAXONOMY OF BILLING DETAILS

2.1.12.1   Application Billing

These are the details of payment made during the process of application for a new connection or while renewing an old connection. This includes application charge, bill id, billing date, due date and payment status.

2.1.12.1.1   Bill ID

Bill ID is a unique identifier that identifies applicant's bill for accounting purposes.

2.1.12.1.2   Application Charge

This is the amount charged during new application. This may include:

a. Application fee
b. Attachment fee

c. Inspection charges (depending on number of visits)
d. Sewer connection charge
e. Connection security
f. Road restoration charges
g. Development charges for water & sewer
h. Meter charge
i. Disconnection fee

2.1.12.1.3   Billing Date

Billing Date is the date on which bill is generated during the application process.

2.1.12.1.4   Due Date

Due date is the date on which the bill for a particular application is due for the new application. Upon non-payment of bill by the given due date, a surcharge may be levied on the initial demand by the imposition of a penalty.

2.1.12.1.5   Payment Status

Payment status is the status of payment against raised bill.

2.1.12.2   Usage Billing

These are the details of payment made during regular billing cycle.

2.1.12.2.1   Billing Cycle

Billing cycle means the period for which the bill is issued. It may also be called as billing period.

2.1.12.2.2   Bill ID

Refer section 2.1.12.1.1.

2.1.12.2.3   Usage Charge

Usage Charge is the amount that an applicant needs to pay in order to avail continuous water/sewerage service as per their usage. It may consist of:

a. Water Consumption Charge: - Based on the volumetric consumption on monthly basis (only for water connection). This may be a fixed value for non-metered connections
b. Service Charge: - Fixed access charges as per the slabs based on the monthly consumption
c. Sewerage Maintenance Charge
d. Meter Rent if meter has been installed by the ULB.

e. Arrears, if any
f. Surcharge, if payment is not deposited within stipulated time.
g. Other charges as specified in the bill
h. Deductions & rebates

2.1.12.2.4   Payment Status

It is the status of payment against the water/sewerage connection demand generated.

2.1.12.2.5   Billing Date

Billing Date is the date on which bill is generated during the billing cycle.

2.1.12.2.6   Due Date

Due date is the date on which the bill for a particular connection is due for the current billing cycle. Upon non-payment of bill by the given due date, a surcharge may be levied on the initial demand by the imposition of a penalty.

2.1.13 Payment Details

These are the details of payment made by the applicant/ consumer to be captured on accounting system.

2.1.13 Payment Details

2.1.13.1 Receipt ID
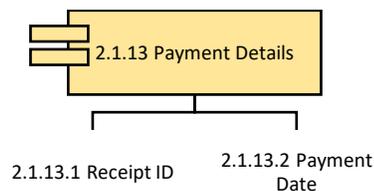
2.1.13.2 Payment Date

FIGURE 8 TAXONOMY OF PAYMENT DETAILS

2.1.13.1   Receipt ID

Receipt ID is a unique identifier which is generated once payment is completed and payment details are captured on accounting system.

2.1.13.2   Payment Date

The date on which the W&S user charges (application or usage) is paid by the applicant.

2.1.14 W&S SLG Factors

These are important time factors associated with a water/sewerage connection application that determine the timeliness aspect of connection request against Service Level Guarantee (SLG) for that ULB. This includes time when application first registered, inspection days, SLG (Service level Guarantee), actual turnaround time, connection installation date and meter reading date.
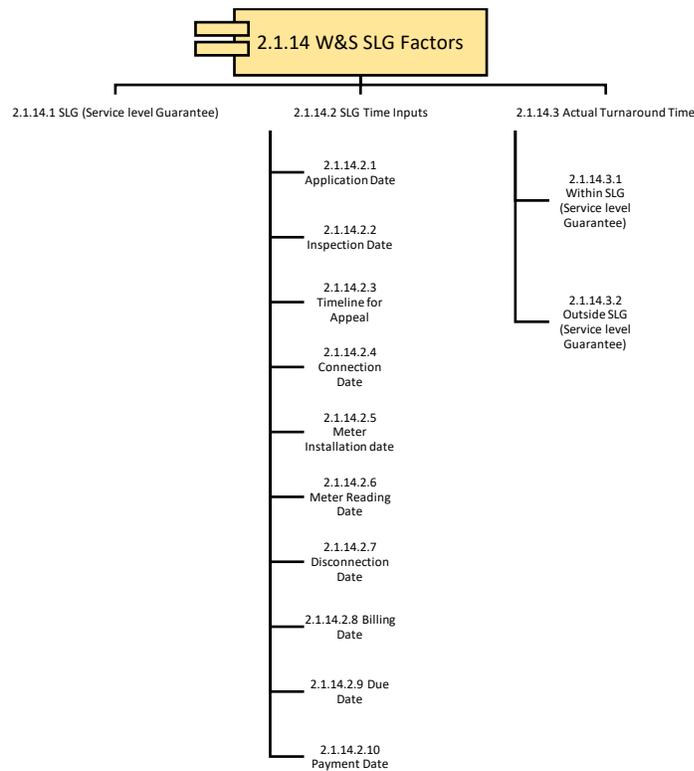
FIGURE 9 TAXONOMY OF W&S SLG FACTORS

2.1.14.1 SLG (Service level Guarantee)

The maximum time that service departments is expected to take to against a W&S service request. Also called expected compliance time set by the ULB in citizen charter or any public disclosed document for a service in which it should be issued or managed. Public sharing of a comparative picture of various SLG in the municipal corporation may introduce competition to improve performance.

2.1.14.2 SLG Time Inputs

These are important dates that help capture service level compliances.

2.1.14.2.1   Application Date

Application date is the date on which the application is first submitted by the citizen.

2.1.14.2.2   Inspection Date

It is the date on which site inspection is conducted by the ULB inspector.

2.1.14.2.3   Timeline for Appeal

This is the timeline mentioned in an assessment notice within which an aggrieved person can appeal to the appellate authority.

2.1.14.2.4   Connection Date

Connection date is the date on which consumer ID is issued to the trade owner by the ULB.

2.1.14.2.5   Meter Installation date

Meter installation date is the date when a connection is approved and a meter is installed by the plumber as per the request by the ULB.

2.1.14.2.6   Meter Reading Date

Meter reading date is the date on which the meter reading is captured by the ULB official as per the billing cycle.

2.1.14.2.7   Disconnection Date

Time of disconnection means recording the time at which the water/sewerage connection is disconnected or the service is discontinued by the ULB.

2.1.14.2.8   Billing Date

Billing Date is the date on which bill is generated during the application process or during billing cycle of service usage.

2.1.14.2.9   Due Date

Due date is the date on which the bill for a particular connection is due during the application process or for the billing cycle as part of regular usage payment. Refer section 2.1.12.1.4 and 2.1.12.2.6.

2.1.14.2.10 Payment Date

The date on which the W&S application fee or usage charges against a bill is paid by the applicant.

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2.1.14.3   Actual Turnaround Time

Actual Turnaround Time is the actual time taken by the ULB for a W&S service.

2.1.14.3.1   Within SLG (Service level Guarantee)

When a W&S service is provided by the ULB within the given SLG (Service level Guarantee) i.e., without exceeding the time period defined.

2.1.14.3.2   Outside SLG (Service level Guarantee)

When a W&S service is provided by the ULB beyond the SLG (Service level Guarantee) i.e., exceeding the time period defined.

2.1.15   Property ID

A property ID (PID) or property tax identification number (PTIN) or Unique Property Identification Code (UPIC) is the unique identification number allotted to a property by the ULB for the purpose of property tax records. Typically, the PID/ PTIN is generated after the first-time enumeration of the property and its verification by the ULB officials. A water/sewerage connection should be linked with property ID to fetch relevant details from municipal property register appropriately and vice versa as well as to identify revenue leakages.

2.2   W&S Channels

Channel / Mode / Method through which water/sewerage connection application is being registered by the citizen or information and response is shared by the ULBs.
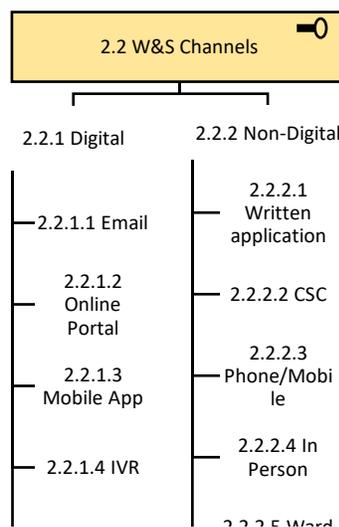
FIGURE 10 TAXONOMY OF W&S CHANNELS

2.2.1 Digital

Digital means an electronic way to collect, store, process and transmit data in the desired form. In the context of water/sewerage connection, this refers to processes and corresponding data used by the authority and the individual for water/sewerage connection which is requested or generated in digital form for the purpose of recording, allocation, assessment, follow up, and appeal.

2.2.1.1 Email

Electronic media for transfer of messages and information through internet.

2.2.1.2 Online Portal

Web portals or web application refers to the websites developed for water/sewerage management. This broadly includes an assessment calculator, W&S data, owner's information and facility to pay the water/sewerage charge through payment gateways linked to the portals. These portals also include a water/sewerage system.

2.2.1.3 Mobile App

A mobile application, also referred to as a mobile app or simply an app, is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch.

2.2.1.4 IVR

Interactive voice response (IVR) is a technology that allows humans to interact with a computer-operated phone system through the use of voice and DTMF tones input via a keypad. The call center operator will listen to the IVR recorded water/sewerage connection request and register the same in the system. He may contact the citizen in case information provided is insufficient or any clarification required.

2.2.1.5 Social Media

Social media are interactive technologies that allow the creation or sharing/exchange of information, ideas, interests, and other forms of expression via virtual communities and networks such as twitter, WhatsApp, Facebook etc.

2.2.2 Non-Digital

These are other means (non-digital) by which a request for W&S is captured.

2.2.2.1 Written application

A written application refers to a channel for water/sewerage connection which includes a letter in a prescribed format, addressing to Municipal Commissioner, requesting for new or renewal of water/sewerage connection.

2.2.2.2 CSC

A Common Service Center (CSC) is an information and communication technology (ICT) access point created under the National e-Governance Project of the Indian government.

2.2.2.3 Phone/Mobile

Mobile telephone, also called mobile, is a portable device for connecting to a telecommunications network in order to transmit and receive voice, video, or other data.

2.2.2.4 In Person

A person/s can walk in to the municipal office/ ward office to submit their water/sewerage connection application.

2.2.2.5 Ward Employees

Ward employees are the employees of municipal council or municipal authority, concerned with administrative wards of the city. In terms of water/sewerage connection an application can be submitted through the respective ward employees when they visit an applicant.

2.3 W&S Stakeholders

W&S stakeholders are the stakeholders involved in planning, implementation and maintenance of W&S function. Participation by all relevant stakeholders ensures sharing a common understanding and involvement in the decision-making process as well as accountability in urban governance. Participation by all stakeholders leads to empowerment and to joint ownership and harmonized access to information connecting multiple urban departments to serve citizens better.

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                         ┌─────────────────────────┐  ☃
                         │   2.3 W&S Stakeholders   │
                         └─────────────────────────┘
                                     │
                           2.3.1 Stakeholder Matrix
          ┌──────────────────┬──────────────┬──────────────────┐
   2.3.1.1 Stakeholders   2.3.1.2 Distribution of   2.3.1.3 Level of    2.3.1.4 Service Level
                          Work Area              responsibility for        Guarantee
                                                     redressal
      │
      ├── 2.3.1.1.1 Citizen
      │
      ├── 2.3.1.1.2 Assessor
      │
      ├── 2.3.1.1.3 Inspection Officer
      │
      ├── 2.3.1.1.4 Appellate Authority
      │
      ├── 2.3.1.1.5 Municipal Commissioner
      │
      ├── 2.3.1.1.6 Plumbers
      │
      └── 2.3.1.1.7 Parastatals
```

FIGURE 11 TAXONOMY OF W&S STAKEHOLDERS

2.3.1   Stakeholder Matrix

Stakeholder matrix captures distribution of work area, level of responsibility and Service Level Guarantee of various stakeholders within the ULB and/ or contracted organizations based on ward / locality/jurisdiction, service / issue category.

2.3.1.1 Stakeholders

This refers to the types of stakeholders who are involved in a W&S system such as the citizen, assessor, inspectors, appellate authority and Municipal Commissioner.

2.3.1.1.1 Citizen

Citizen means the originator of the water/sewerage connection application who requests the service.

2.3.1.1.2 Assessor

An assessor is a ULB official who determines the value of a water/sewerage charge for revenue purposes. The figures that assessors derive are used to calculate future water/sewerage tariff rate.

2.3.1.1.3 Inspection Officer

Inspection officer is the ULB official assigned to inspect property with respect to conformance to inspection checklist.

2.3.1.1.4 Appellate Authority

Appellate Authority is the authority or representative of the authority assigned to review the procedures and decisions or assessment of water/sewerage charge to make sure that the proceedings were fair and that the proper law/regulation are applied appropriately.

2.3.1.1.5 Municipal Commissioner

Commissioner of the ULB or municipal body means an officer appointed by the Government, and includes an Additional Director, a Joint Director, Deputy Director, or any other officer of the Government authorized by it to perform the functions of the Commissioner and Director of Municipal Administration.

2.3.1.1.6 Plumbers

Plumbers means a person whose job is to put in or repair water pipes, baths, toilets, meters etc. post approval of connection request. A list of plumbers is maintained by the ULB for day-to-day operations.

2.3.1.1.7 Parastatals

Parastatals are institutions/organizations, which are wholly or partially owned and managed by the government (either autonomous or quasi-governmental).

2.3.1.2 Distribution of Work Area

This refers to the ward and/or sectors within ULB for which each of the stakeholders are responsible for.

2.3.1.3 Level of responsibility for redressal

In order to ensure that applications are resolved within the prescribed time norm, escalation levels of responsibility for redressal is mapped.

2.3.1.4 Service Level Guarantee

Refer section 2.1.14.1.

2.4 W&S Processes

W&S Processes are a series of actions or steps taken in order to achieve a timely delivery of water/sewerage connections by the ULBs such as water/sewerage connection application creation, acknowledgement, assessment, disconnection, restoration, appellate, billing & payment, approval & allocation.

```
                                    ┌─ 2.4.1 Application Creation
                                    │
                                    ├─ 2.4.2 Acknowledgement
                                    │
                                    ├─ 2.4.3 W&S Assessment
                                    │
                                    ├─ 2.4.4 Appellate
                                    │
                                    ├─ 2.4.5 Application
                                    │  Billing & Payment
                                    │
                                    ├─ 2.4.7 Recovery
                                    │
                    ┌─────────────┐ ├─ 2.4.8 Write-off
                    │ 2.4 W&S     │⇨│
                    │ Processes   │─┼─ 2.4.9 Approval & Connection
                    └─────────────┘ │
                                    ├─ 2.4.6 Usage Billing & Payment
                                    │
                                    ├─ 2.4.10 W&S Monitoring
                                    │
                                    ├─ 2.4.11 Regularization
                                    │
                                    ├─ 2.4.12 Disconnection
                                    │
                                    ├─ 2.4.13 W&S Analysis
                                    │
                                    └─ 2.4.14 Tax Payer Services
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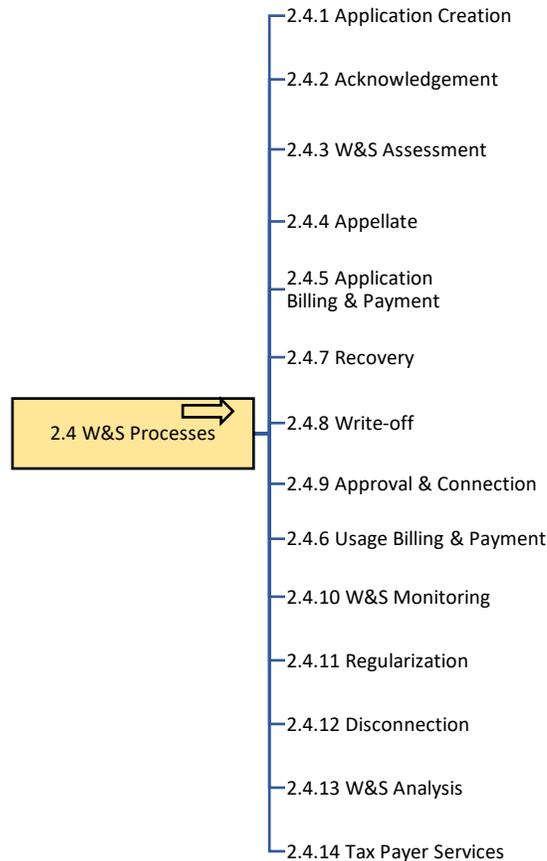
FIGURE 12 TAXONOMY OF W&S PROCESSES

2.4.1 Application Creation

A process by which an application is created for water/sewerage connection at the municipal authority such as new water/sewerage connection, renewal of water/sewerage connection or transfer of water/sewerage connection.
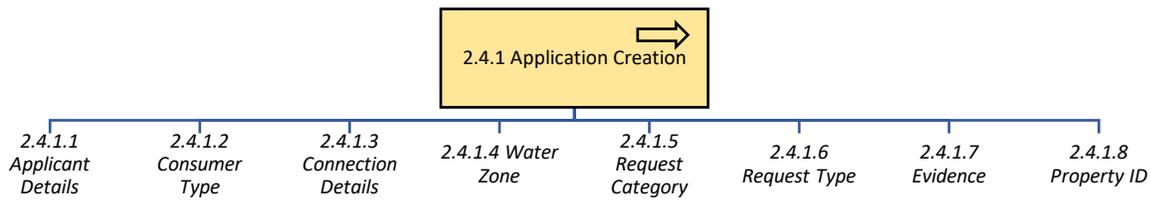
FIGURE 13 TAXONOMY OF APPLICATION CREATION

2.4.1.1 Applicant Details

Refer section 2.1.3.

2.4.1.2 Consumer Type

Refer section 2.1.4.

2.4.1.3 Connection Details

Refer section 2.1.5.

2.4.1.4 Water Zone

Refer section 2.1.6.

2.4.1.5 Request Category

Refer section 2.1.8.

2.4.1.6 Request Type

Refer section 2.1.9.

2.4.1.7 Evidence

Refer section 2.1.10.

2.4.1.8 Property ID

Refer section 2.1.15.

2.4.2   Acknowledgement

The process to acknowledge the new registration/renewal by the ULBs. An acknowledgement slip or receipt is generated post acknowledgement of the application.

```
                          ┌─────────────────────────┐
                          │  2.4.2 Acknowledgement ⇒ │
                          └─────────────────────────┘
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| 2.4.2.1 ULB Type | 2.4.2.2 W&S Channel | **2.4.2.3 Application ID** | 2.4.2.4 Application Status | **2.4.2.5 Connection Register** | **2.4.2.6 SMS & Notification** |
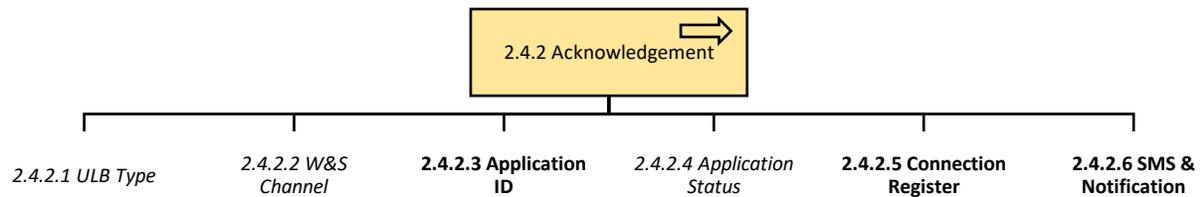
FIGURE 14 TAXONOMY OF ACKNOWLEDGEMENT

2.4.2.1 ULB Type

Refer section 2.1.7.

2.4.2.2 W&S Channel

Refer section 2.2.

2.4.2.3 Application ID

Refer section 2.1.2.

2.4.2.4 Application Status

Refer section 2.1.11.

2.4.2.5 Connection Register

Refer section 2.5.1.1.

2.4.2.6 SMS & Notification

These are the notifications sent to citizens informing them about the connection request being submitted on system.

2.4.3 W&S Assessment

The process by which the documents were scrutinized by the revenue/water/sewerage department with the support of other related departments.
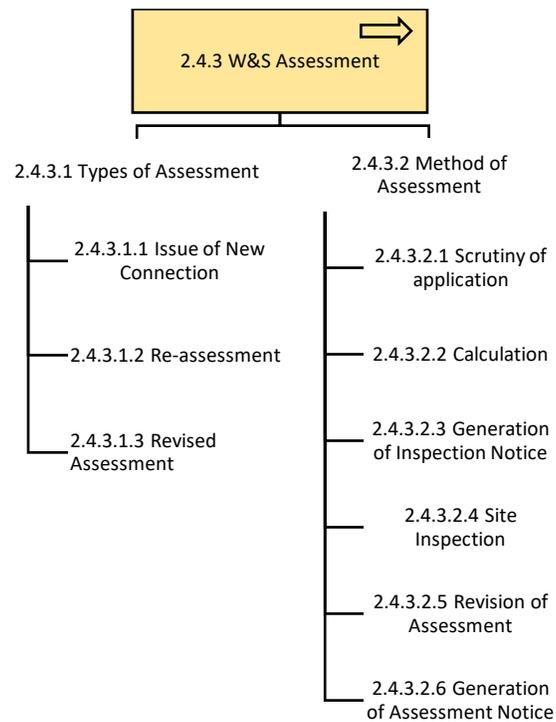
FIGURE 15 TAXONOMY OF W&S ASSESSMENT

2.4.3.1 Types of Assessment

Types of assessment is the classification of assessment processes undertaken to provide water/sewerage service.
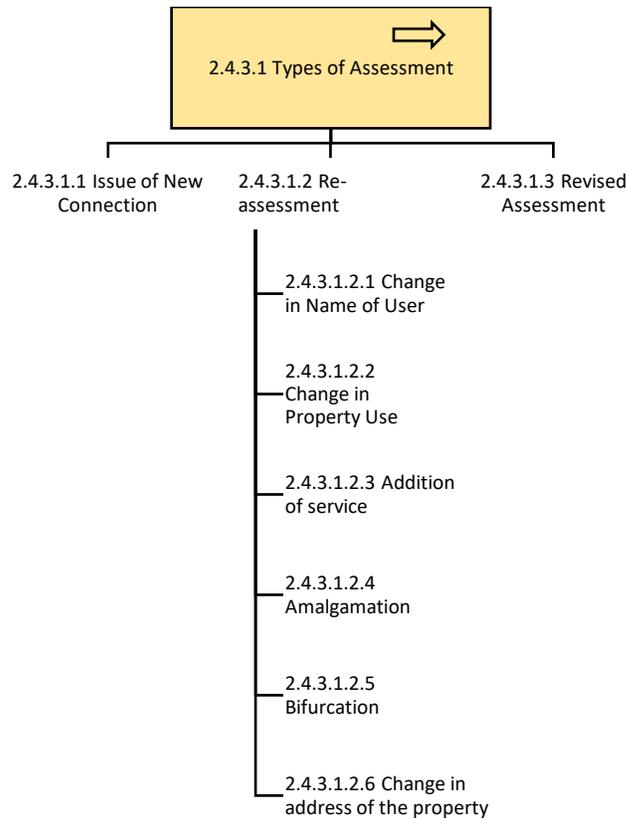
FIGURE 16 TAXONOMY OF TYPES OF ASSESSMENT

2.4.3.1.1 Issue of New Connection

Assessment process undertaken while approving a connection for the first time.

2.4.3.1.2 Re-assessment

Assessment process undertaken to determine new charge based on the change in the usage of an existing connection or change in the applicant details.

2.4.3.1.2.1   Change in Name of User

Assessment process undertaken during change in name of user.

2.4.3.1.2.2   Change in Property Use

Assessment process undertaken during change in type of property use which is mentioned in the application.

2.4.3.1.2.3   Addition of service

Assessment process undertaken during addition of any other service.

2.4.3.1.2.4   Amalgamation

Assessment process undertaken when two or more consumer connections are merged into a single connection.

2.4.3.1.2.5   Bifurcation

Assessment process undertaken one consume connection is split into two or more connections.

2.4.3.1.2.6   Change in address of the property

Assessment process undertaken when there is change in address of the property which is mentioned in the application.

2.4.3.1.3 Revised Assessment

Assessment process undertaken during changing the usage value for a water/sewerage connection based on the periodic increase in rates (based on Local acts) or based on noticed changes in the W&S factors. Revised assessment may also take place after appellate decision to change the W&S usage amount.

2.4.3.2 Method of Assessment

This means different methods undertaken by the assessor to assess the water/sewerage connection application based on W&S factors.
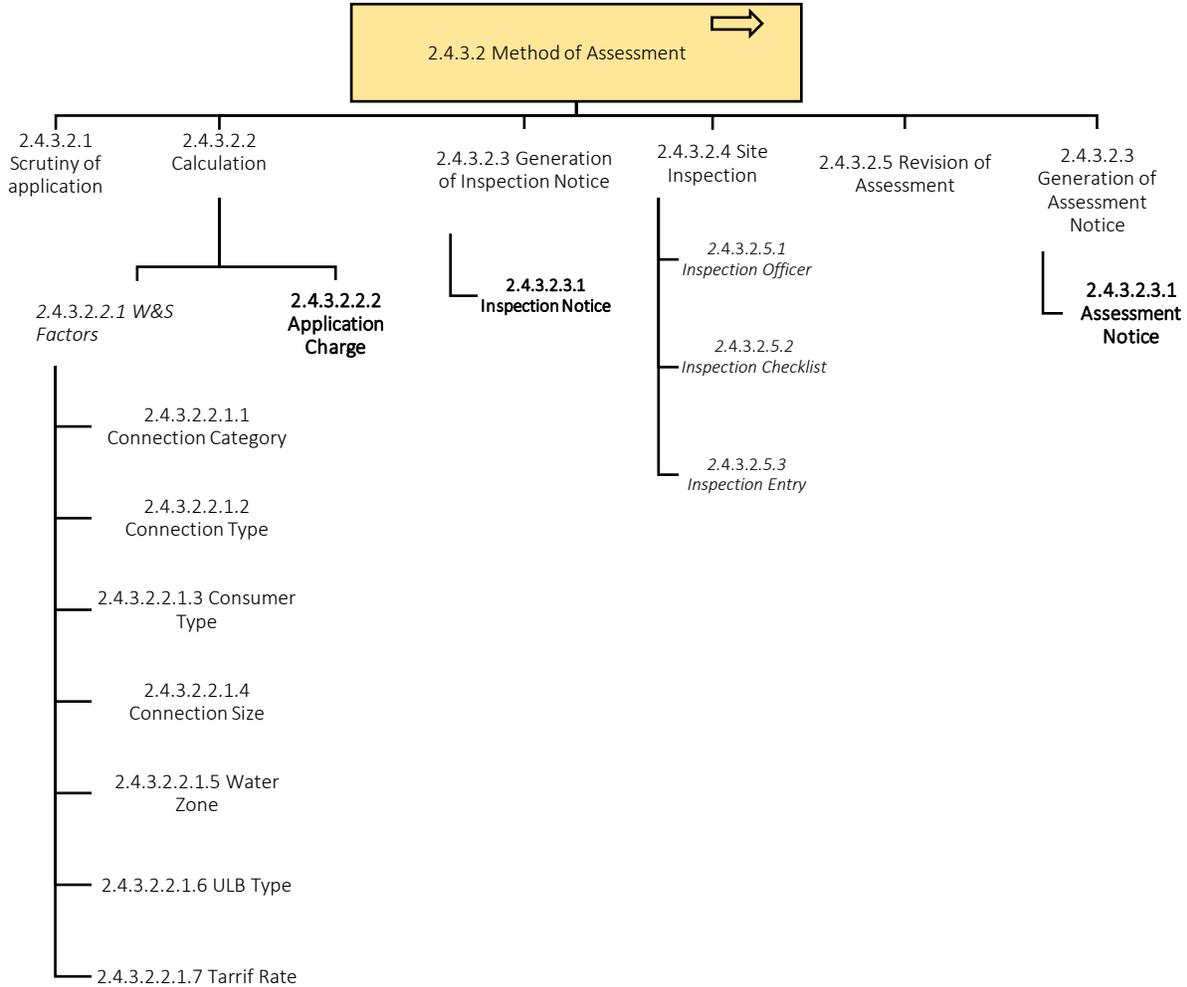
FIGURE 17 TAXONOMY OF METHOD OF ASSESSMENT

2.4.3.2.1 Scrutiny of Application

It is the assessment conducted on the application as soon as it's been applied by the citizen by the assessing officer. During the initial assessment, scrutiny of documents may be done by the ULB officials and appropriate inspection fees, application charge and inspection notice are generated.

2.4.3.2.2 Calculation

Calculation is the process of calculating the fees for applied connection based on the specified criteria as mention in their Municipal Act or as decided by the Municipal Commissioner for water/sewerage connection requests. W&S calculation process comprises the use of any one or combination of methods using various W&S factors such as connection type, connection size, connection category etc.

2.4.3.2.2.1 W&S Factors

These are the factors associated with a water/sewerage connection and used in W&S assessment for calculation of application charge amount.

2.4.3.2.2.1.1 Connection Category

Refer section 2.1.5.1.

2.4.3.2.2.1.2 Connection Type

Refer section 2.1.5.2.

2.4.3.2.2.1.3 Consumer Type

Refer section 2.1.4.

2.4.3.2.2.1.4 Connection Size

Refer section 2.1.5.4.

2.4.3.2.2.1.5 Water Zone

Refer section 2.1.6.

2.4.3.2.2.1.6 ULB type

Refer section 2.1.7.

2.4.3.2.2.1.7 Tariff Rate

Tariff rate is the per unit charge determined for the water/sewerage connection. It is one of the factors that determine water/sewerage bill.

2.4.3.2.2.2 Application Charge

Refer section 2.1.12.1.2.

2.4.3.2.3 Generation of Inspection Notice

This is the process in which Inspection notice is the notice shared with citizen.

2.4.3.2.3.1 Inspection Notice

Inspection notice is the notice served to the citizen notifying them about the planned time of inspection-by-inspection officer.

2.4.3.2.4 Site Inspection

It is the ground inspection conducted post initial assessment, an ULB Inspector (water or sewerage inspector) is assigned to verify the application.

2.4.3.2.4.1 *Inspection Officer*

Refer section 2.3.1.1.3.

2.4.3.2.4.2 *Inspection Checklist*

Inspection checklist is used by ULB inspector to check conformance to relevant rules, safety measures and guidelines, any illegal activity, etc.

2.4.3.2.4.3 *Inspection Entry*

It means reporting the details of inspection post ground inspection by the inspector such as inspection time, details, notes etc.

2.4.3.2.5 Revision of Assessment

Revised assessment notice is the notice served to the citizen indicating the revised usage value of water/sewerage connection assessed on basis of the actual ground inspection. Thereafter a revised assessment notice is shared with the citizen.

2.4.3.2.6 Generation of Assessment Notice

This is the process in which assessment notice is generated and shared with citizen.

2.4.3.2.6.1 Assessment Notice

Assessment notice is the notice served to the citizen indicating the application charge value of water/sewerage connection post inspection of property. This notice is not considered as the final bill. The assessment notice is the interim notice to confirm the charges of the water/sewerage connection.

2.4.4   Appellate

Appellate is the process followed after the assessment are presented and the citizen is aggrieved by the fixation or the charging of the water/sewerage charge. The appeal process kicks off with a simple appeal letter or through grievance redressal application.
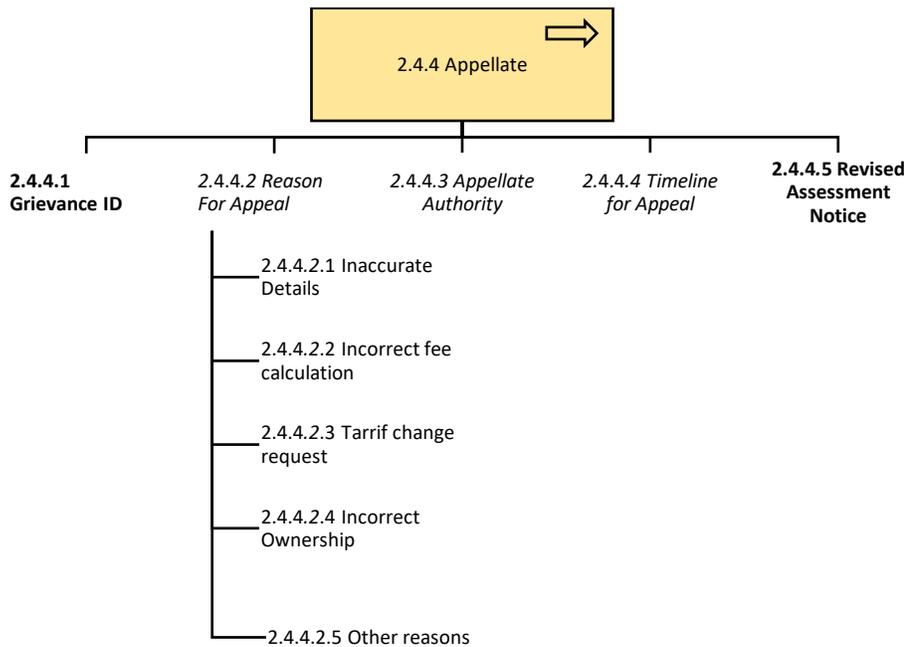
FIGURE 18 TAXONOMY OF APPELLATE

2.4.4.1 Grievance ID

Grievance ID is a unique identification number allotted to the grievance by the ULB for the purpose of grievance recording, allocation, assessment, follow up, and appeal.

2.4.4.2 Reasons for Appeal

Reason for Appeal is the reasons as captured in assessment notice or usage bill because of which an aggrieved person appeals to the appellate authority for necessary redressal.

2.4.4.2.1 Inaccurate Details

This means the aggrieved person has appealed given the reason of inaccurate details such as incorrect name, owner name, business name, type of trade etc. in an assessment notice.

2.4.4.2.2 Incorrect fee calculation

This means the aggrieved person has appealed given the reason of incorrect charge calculation in an assessment notice.

2.4.4.2.3 Tariff change request

This means the request to change the tariff if the tariff mentioned in the usage bill is different than the tariff published or applicable by the citizen.

2.4.4.2.4 Incorrect Ownership

This means the aggrieved person has appealed given the reason of incorrect ownership in an assessment notice.

2.4.4.2.5 Other reasons

This means the aggrieved person has appealed given the any other reason as per the assessment notice.

2.4.4.3 Appellate Authority

Appellate Authority is the authority or representative of the authority assigned to review the procedures and decisions or assessment of W&S to make sure that the proceedings were fair and that the proper law/ regulation are applied appropriately.

2.4.4.4 Timeline for Appeal

Refer section .

2.4.4.5 Revised Assessment Notice

Revised assessment notice is the notice served to the citizen indicating the revised usage value of water/sewerage connection assessed on basis of the revised assessment.

2.4.5   Application Billing & Payment

Application Billing & Payment is the process of generating bill (demand) against the calculated W&S application charge by the ULB and subsequent payment of the same by the citizen.

FIGURE 19 TAXONOMY OF APPLICATION BILLING & PAYMENT

2.4.5.1 Application Billing

The process by which a connection fee bill is generated before scrutiny of application.

2.4.5.1.1 Application Bill

It is the initial bill generated for the application/connection for the applied water/sewerage connection. Application bill constitutes of application processing fee and inspection fee amount.

2.4.5.1.1.1   Bill ID

Refer section 2.1.12.1.1.

2.4.5.1.1.2   Application Charge

Refer section 2.1.12.1.2.

2.4.5.1.1.3   Billing Date

Refer section 2.1.12.1.3.

2.4.5.1.1.4   Due Date

Refer section 2.1.12.1.4.

2.4.5.1.1.5   Payment Status

Refer section 2.1.12.1.5.

2.4.5.1.2 Demand Collection Balance Register

Refer section 2.5.1.3.

2.4.5.2   Demand notice Generation

This is the process in which bill (demand) is generated and served to the citizen.

2.4.5.3 Payment

Payment is the voluntary tender of money or its equivalent or of things of value by citizen against the bill generated.

2.4.5.3.1 Receipt ID

Refer section 2.1.13.1.

2.4.5.3.2 *Mode of Payment*

It means mode of payment of bill amount by the citizen.

2.4.5.3.2.1   Digital Payment

A digital payment occurs when the payment for processing the application and water/sewerage charge could be done via digital and electronic medium, such as using debit card, credit card, payment gateway etc.

2.4.5.3.2.2 Non-Digital Payment

Non-digital payment refers to the mode of payment of money in physical form like cash, demand draft, cheque etc.

2.4.5.3.3 *Payment date*

Refer section 2.1.13.2.

2.4.5.3.4 Demand Collection Balance Register

Refer section 2.5.1.3.

2.4.5.3.5 Receipt Register

Refer section 2.5.1.2.

2.4.6 Recovery

Recovery means, recovery of charge from the citizen or defaulters. In some cases, recovery may be in terms of impounding any movable or immovable asset of the defaulter. Few methods of recovery in water/sewerage are:

- by presenting a bill
- by serving a written notice of demand
- by a suit
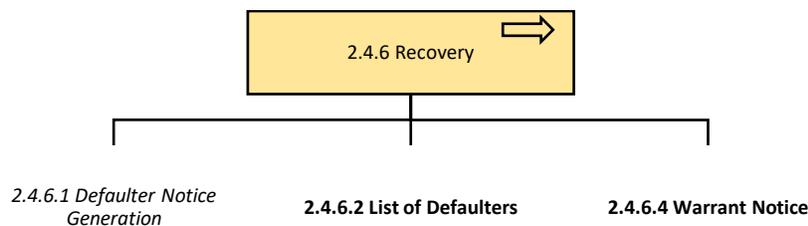
FIGURE 20 TAXONOMY OF RECOVERY

2.4.6.1 Defaulters Notice Generation

This means generation and service of notice to the defaulters who have not paid the bill by the due date. In these cases, bills are amended to include penalties or late fee for defaulting.

2.4.6.2 Defaulter's Register

Refer section 2.5.1.4.

2.4.6.3 Warrant Notice

Warrant notice is the repeat bill that is served by the authority on the service seeker for recovery.

2.4.7   Write-off

Write-Off of water/sewerage charge is the process of deductions or exemptions of charge, in compliance with any law, or through the guidelines of the ULB or the court of law.

2.4.8   Approval and Connection

The process of approving the applied application for water/sewerage connection post assessment and inspection and allocation of connection by the municipal commissioner of the ULBs.
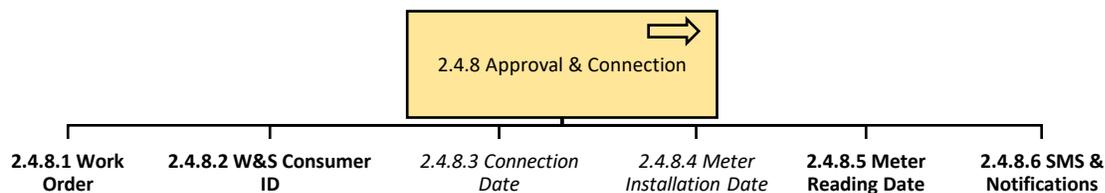
FIGURE 21 TAXONOMY OF APPROVAL & CONNECTION

2.4.8.1 Work Order

A work order is a document describing an authorized task to be completed by a field service, maintenance, or inspection worker. Work orders provide basic information such as a description of the task, the estimated completion date, and the name of the individual assigned to the task. A work order for installation of meter is intimated post approval of water/sewerage connection request.

2.4.8.2 W&S Consumer ID

Refer section 2.1.1.

2.4.8.3 Connection Date

Refer section 2.1.14.2.4.

2.4.8.4 Meter Installation date

Refer section 2.1.14.2.5.

2.4.8.5 Meter Reading Date

Refer section 2.1.14.2.6.

2.4.8.6 SMS & Notifications

Refer section 2.4.2.6.

2.4.9   Usage Billing & Payment

Application Billing & Payment is the process of generating bill (demand) against the calculated W&S application charge by the ULB and subsequent payment of the same by the citizen.
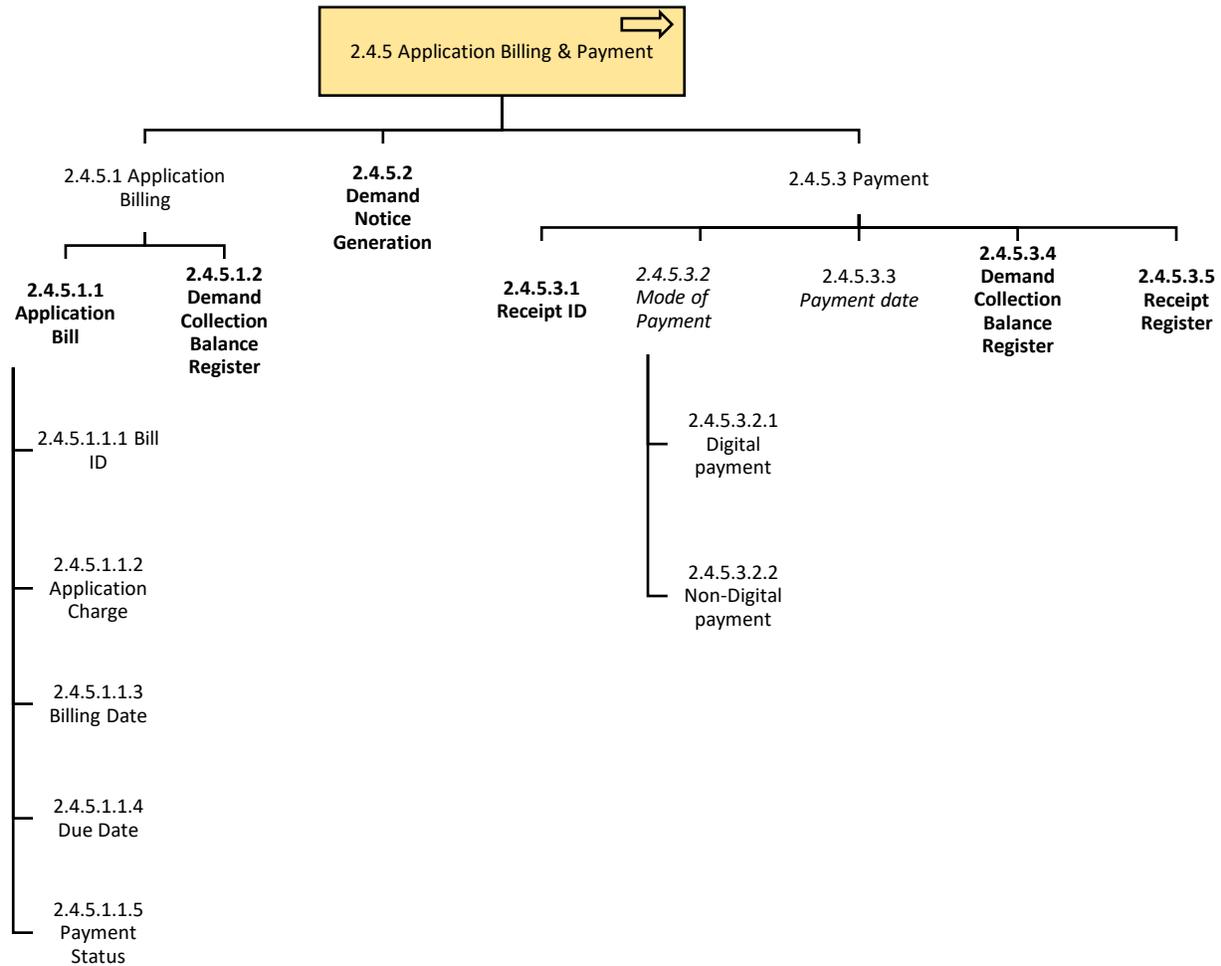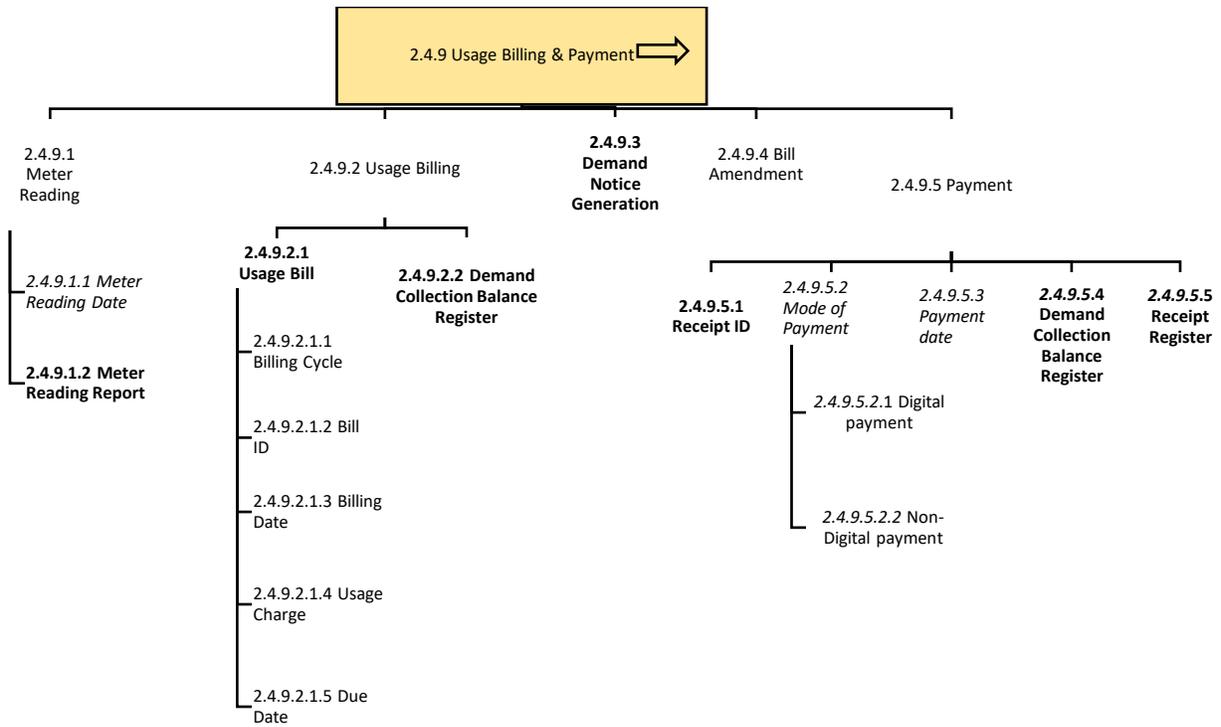
FIGURE 22 TAXONOMY OF USAGE BILLING & PAYMENT

2.4.9.1 Meter Reading

Meter reading means the reading taken by the ULB inspector during their inspections as per the billing cycle. The reading is taken from the meters at the billing address. This may be skipped for non-metered connections.

2.4.9.1.1 *Meter Reading Date*

Refer section 2.1.14.2.6.

2.4.9.1.2 Meter Reading Report

Refer section 2.5.1.6.

2.4.9.2 Usage Billing

The process by which a usage bill is generated based on water/sewerage usage post.

2.4.9.2.1 Usage Bill

It means the final bill generated in reference to water/sewerage connection based on the usage value for the connection.

2.4.9.2.1.1 Billing Cycle

Refer section 2.1.12.2.1.

2.4.9.2.1.2 Bill ID

Refer section 2.1.12.1.1.

2.4.9.2.1.3 Billing Date

Refer section 2.1.12.2.5.

2.4.9.2.1.4 Usage Charge

Refer section 2.1.12.2.3.

2.4.9.2.1.5 Due Date

Refer section 2.1.12.2.6.

2.4.9.2.2 Demand Collection Balance Register

Refer section 2.5.1.3.

2.4.9.3 Demand notice Generation

Refer section 2.4.5.2.

2.4.9.4 Bill Amendment

Bill amendment is the process of amending connection user bill when applicant notices a discrepancy in the calculation of the bill and submits a request for amendment or when the ULB realizes discrepancy in the calculation of bill and amends it.

2.4.9.5 Payment

Refer section 2.4.5.3.

2.4.9.5.1 Receipt ID

Refer section 2.4.5.3.2.

2.4.9.5.2 *Mode of Payment*

Refer section 2.4.5.3.1.

2.4.9.5.2.1 Digital Payment

Refer section 2.4.5.3.1.1.

2.4.9.5.2.2 Non-Digital Payment

Refer section 2.4.5.3.1.2.

2.4.9.5.3 *Payment date*

Refer section 2.1.14.2.10.

2.4.9.5.4 Demand Collection Balance Register

Refer section 2.5.1.3.

2.4.9.5.5 Receipt Register

Refer section 2.5.1.2.

2.4.10 W&S Monitoring

W&S monitoring is the monitoring process undertaken by the ULB officials from the time a water/sewerage connection request application is lodged on system until it's approved and remains valid. The water/sewerage charge and associated revenue are monitored based on purpose of water/sewerage, Service Level Benchmarks, regulation purpose and need for renewal.
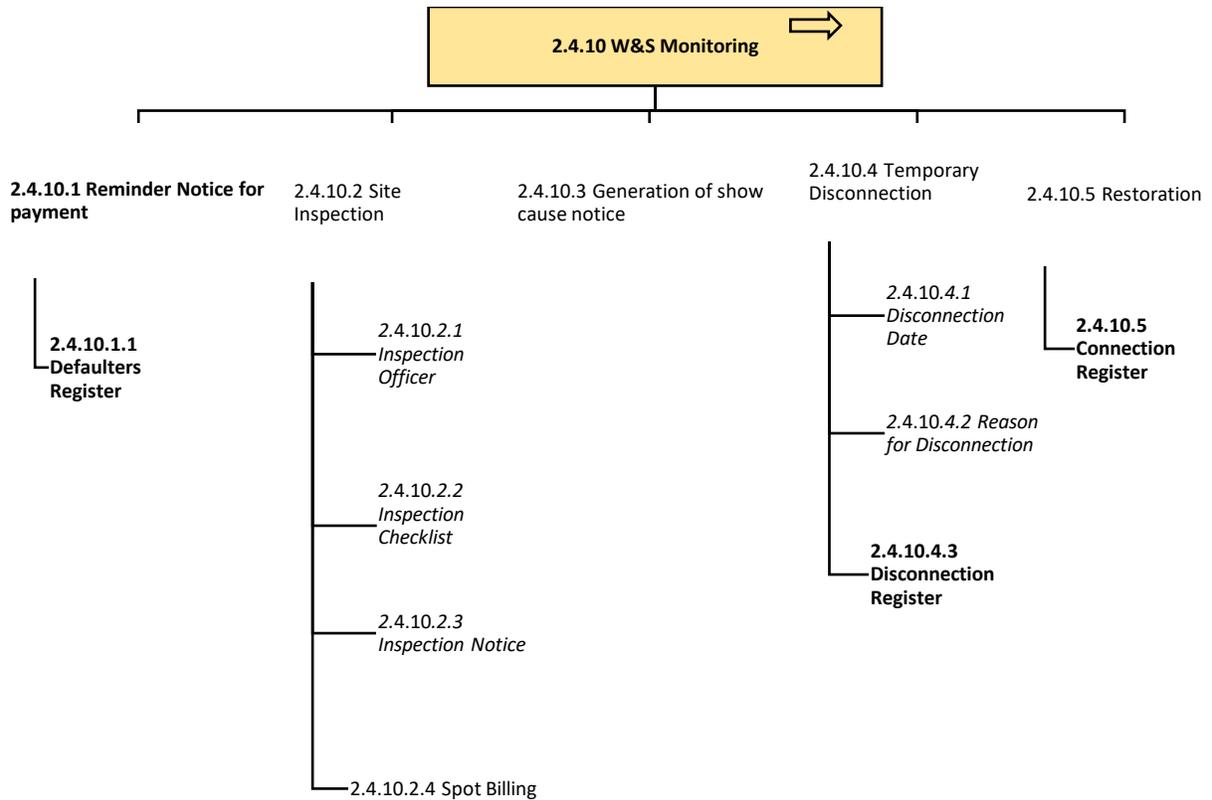
FIGURE 23 TAXONOMY OF W&S MONITORING

2.4.10.1   Reminder Notice for payment

The process of issuing a notice for renewal by the ULBs to the applicant for payment of overdue water/sewerage bills. The notice may be issued via SMS, Email, or by sending physical letter to the citizen.

2.4.10.1.1   Defaulters Register

Refer section 2.5.1.4.

2.4.10.2   Site Inspection

Site Inspection is the process by the ULB officials to check that the connection is not illegal and is as per the relevant rules, safety measures and guidelines. This form of inspection may occur

whenever the ULB find suitable. Show Cause Notice can be issued to following citizen if citizen violates the rules or if a complaint is raised against it.

2.4.10.2.1   *Inspection Officer*

Refer section 2.4.3.2.4.1.

2.4.10.2.2   *Inspection Checklist*

Refer section 2.4.3.2.4.2.

2.4.10.2.3   *Inspection Notice*

Refer section 2.4.3.2.3.1.

2.4.10.2.4   Spot Billing

Spot Billing is done for taking penalty against non-compliance during inspection. Similar bill is generated with its bill ID, bill date and bill amount. This only goes under Miscellaneous Receipts of Receipt Register in ULB Accounts and not in DCB Register.

2.4.10.3   Generation of Show Cause Notice

The process of issuing the Show Cause Notice to W&S consumers. It is given to the offender for his actions by asking him to defend the charges made against him/her by explanations. By serving this notice an opportunity is given to the offender for his/her actions by asking them to defend the charges made against him by explanations and reasons by writing and as well as personal hearing. If the offender clears himself that whatever he/she has done is right, then the charges/ actions will be dropped against him/her. Connections of citizen who fail to clear charges is disconnected.

2.4.10.4   Temporary Disconnection

The process by which a water/sewerage connection is disconnected for the short period of time as per the rule /law by the ULB or as requested by the citizen. The temporary disconnection can be restored post clearing the reason for disconnection.

2.4.10.4.1   *Disconnection Date*

Time of disconnection means recording the time at which the water/sewerage connection is disconnected or the service is discontinued.

2.4.10.4.2   *Reason for Disconnection*

This means recording the reason for which the water/sewerage connection is disconnected by the ULB.

2.4.10.4.3   Disconnection Register

Refer section 2.5.1.9.

2.4.10.5   Restoration

The process by which a disconnected water/sewerage connection is restored.

2.4.10.5.1   Connection Register

Refer section 2.5.1.1.

2.4.11 Regularization

The process by which an unauthorized connection can be regularized, subject to the technical legal feasibility and a payment of following charges: -

a) Penalty
b) Average User Charges for the respective Category for the past three years.
c) Water/ Sewerage Development Charges, as applicable.
d) Usual initial charges such as opening fee, advance and Road Restoration Charges, dues on property etc.
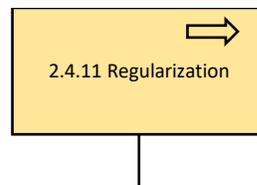
FIGURE 24 TAXONOMY OF REGULARIZATION

2.4.11.1   Connection Register

Refer section 2.5.1.1.

2.4.12 Disconnection

The process of disconnection the water/sewerage connection for the citizen. The disconnection of the water/sewerage connection is done when there is no satisfactory response received from the citizen for which show-cause notice was issued.
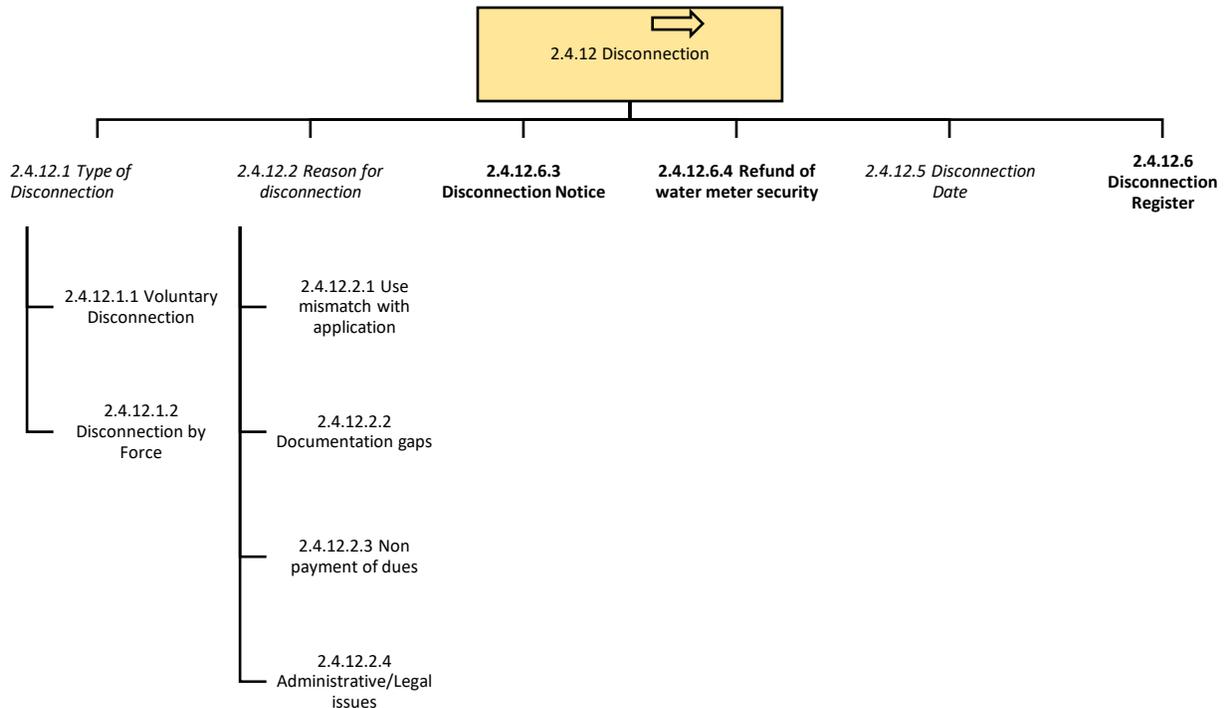
FIGURE 25 TAXONOMY OF DISCONNECTION

2.4.12.1   Type of Disconnection

Type of disconnection captures classification of disconnection such as voluntary cancellation or cancellation by force

2.4.12.1.1   Voluntary Disconnection

This means disconnection of water/sewerage connection by the citizen.

2.4.12.1.2   Disconnection by Force

This means disconnection of water/sewerage connection by force by giving reason for disconnection such as non-payment, legal issues, documentation gaps, or any other reason

2.4.12.2   Reason for disconnection

Refer section 2.4.10.4.2.

2.4.12.2.1   Use mismatch with application

ULB may disconnect the connection if the use of the property mentioned in application didn't match the use of the property during site inspection

2.4.12.2.2   Documentation gaps

ULB may disconnect the connection if there are any documentation gaps in the application submitted post show cause notice

2.4.12.2.3   Non-payment of dues

ULB may disconnect the connection if there are any dues pending as per the bills generated post show cause notice

2.4.12.2.4   Administrative/Legal issues

ULB may disconnect the connection if there are any administrative/legal issues

2.4.12.3   Disconnection Notice

Disconnection notice is issued to defaulters who have not paid the W&S charges within the given time limit mentioned in the defaulter notice. The notice has information about date from which the connection will be disconnected.

2.4.12.4   Refund of water meter security

This means the request to refund the meter security deposit post disconnection by the citizen.

2.4.12.5   Disconnection Date

Refer section 2.1.14.2.7.

2.4.12.6   Disconnection Register

Refer section 2.5.1.9.

2.4.13   W&S Analysis

W&S analysis is the process through which all water/sewerage connection requests are analyzed to check quality of service and become aware of (and eventually rectify) any deficiency in services. This helps in improving the efficiency, accountability, responsiveness and transparency of a ULB, ultimately leading to improvement in service delivery.
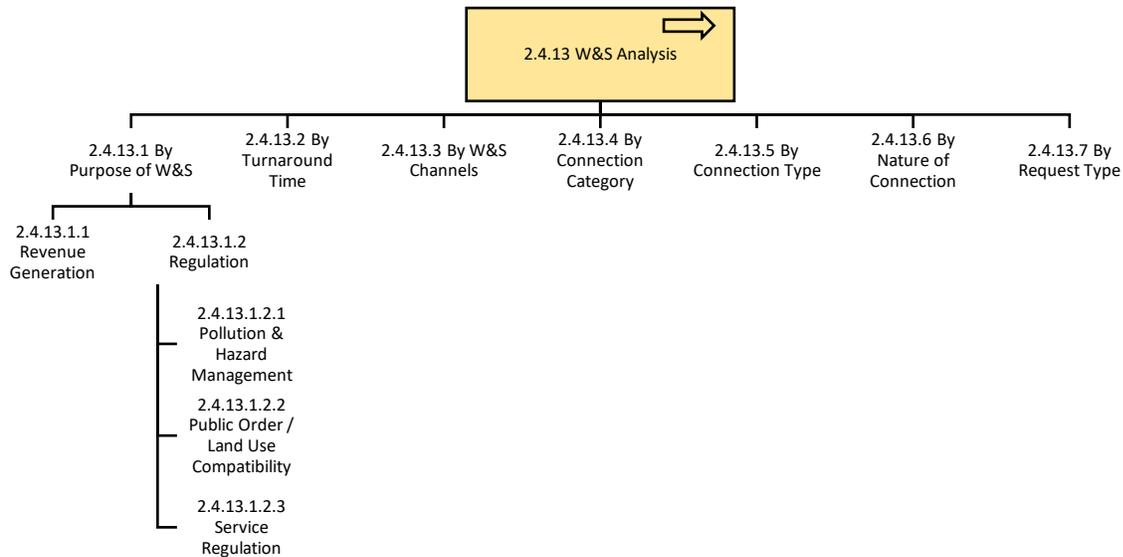
FIGURE 26 TAXONOMY OF W&S ANALYSIS

2.4.13.1   By Purpose of W&S

This means analysis of W&S connection requests based on the aim or intention of issuing connections by the ULBs for e.g., Revenue Generation, Regulation and Service Regulation.

2.4.13.1.1   Revenue Generation

ULBs generate revenue through various sources such as trade license, building plan/license approval fees, rent from shops/markets/commercial establishments, water charges, parking fee, cable laying charges etc. to provide timely services and basic infrastructure. Water and sewerage charges is one of the key sources of revenue generation for the ULB and monitoring user charges from W&S helps ULBs in improving its self-sufficiency.

2.4.13.1.2   Regulation

Regulation is the management of offensive and dangerous practices by the ULBs

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NIUA
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2.4.13.1.2.1 Pollution & Hazard Management

Regulating water and sewerage related pollution and hazard management by conducting timely inspections. There are many approaches that could be adopted in water and sewerage pollution control and management. It could be through prevention, practice efforts or join a project/program; Regulation and monitoring or engaging in control measures by reducing or minimizing waste. Prevention of overflow, contamination, dispose of waste, use of chemicals, wastage of water, etc. This analysis is done by mapping inspection entries and grievances with W&S maps.

2.4.13.1.2.2 Public Order / Land Use Compatibility

Regulation and enforcement as per public order and land use defined by the rule of law. This analysis may be done by mapping W&S connections with different land use cartogram maps.

2.4.13.1.2.3 Service Regulation

Regulation of service as per the rule or law of the ULB. This analysis is done by checking ULB performance against different SLB criteria.

2.4.13.2 By Turnaround Time

Refer section 2.1.14.3.

2.4.13.3 By W&S Channels

Refer section 2.2.

2.4.13.4 By Connection Category

Refer section 2.1.5.1.

2.4.13.5 By Connection Type

Refer section 2.1.5.2.

2.4.13.6 By Nature of Connection

Refer section 2.1.5.3.

2.4.13.7 By Request Type

Refer section 2.1.9.

2.4.14   Tax Payer Services

These are the services availed to all tax payers in a municipality. In the context of water/sewerage service, these are grievance redressal, no due certificate, NOCs, duplicate bills, extension of temp connections, change of defective meter, tariff change request, refund of water meter security, transfer of connection and apply for property creation.
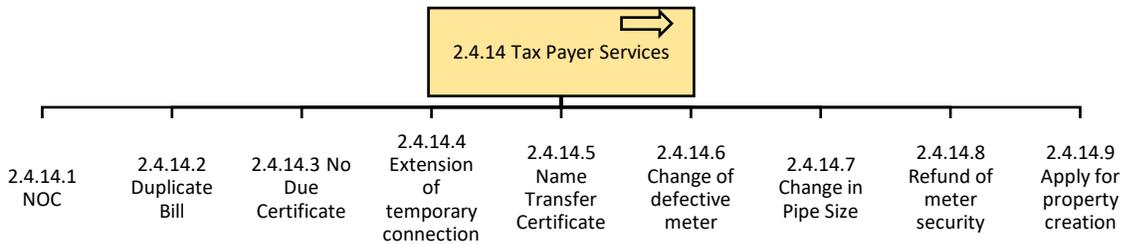
FIGURE 27 TAX PAYER SERVICES

2.4.14.1   NOC

No Objection Certificate (NOC) is a legal document, issued by the ULB or an individual to say that they have no objection to the mentioned details in the document. Following NOCs may be needed for water/sewerage connection:

- NOC from finance department
- NOC from landlord
- NOC from property tax department

2.4.14.2   Duplicate Bill

These are duplicate copies of water/sewerage that an applicant can ask for.

2.4.14.3   No Due Certificate

This certificate is issued to the consumers who has duly paid their charges for the W&S connection.

2.4.14.4   Extension of temporary connection

This is a request to extend the temporary connection, which was approved and is working by the citizen.

2.4.14.5   Name Transfer Certificate

The name transfer Certificate is authorized confirmation provided by the ULBs to the consumer on change of ownership from old owner to new owner.

2.4.14.6   Change of defective meter

This means the request to change the meter if the meter installed is defective by the citizen.

2.4.14.7   Change in Pipe Size

This means to request the change in installed pipe size if the water pressure is not as per the requirement.

2.4.14.8   Refund of meter security

Refer section 2.4.12.4.

2.4.14.9   Apply for property creation

This means the request to create a PID in case there is no existing PID against the mentioned address as per the connection application by the citizen.

2.5   W&S Reports & KPIs

W&S Reports and KPIs are document that presents information in an organized format for various stakeholders especially in the form of an official document, after thorough investigation or consideration by an appointed person or body at the ULB.

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                    ┌──────────────────────────────────┐
                    │     2.5 W&S Reports & KPIs     ⌃⌃ │
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                              │
              ┌───────────────┴───────────────┐

      2.5.1 W&S Reports                2.5.2 W&S KPIs


         2.5.1.1                         2.5.2.1 Digital
       Connections                          Adoption
         Register

                                          2.5.2.2 % of
      2.5.1.2 Receipt                     receipts issued
        Register                           within SLB

      2.5.1.3 Demand                      2.5.2.3 Coverage
    Collection Balance                          %
        Register
                                         2.5.2.4 Collection
      2.5.1.4 Defaulters                 Efficiency -Water
        Register                           & Sewerage
                                            Charges %

      2.5.1.5 Meter                       2.5.2.5 Bills to
      Reading Report                      Demand Ratio


      2.5.1.6 Illegal                      2.5.2.6 Cost
       connections                        Recovery on
         report                         Water Supply (%)

                                          2.5.2.7 W&S
      2.5.1.7 Usage                     Charge Arrears as
     Change Register                       % of Total
                                             Demand

         2.5.1.8                         2.5.2.8 Average
      Disconnection                       Revenue per
        Register                          Connection/
                                             month

         2.5.1.9                         2.5.2.9 Growth in
       Restoration                        Connections %
        Register                              p.a.
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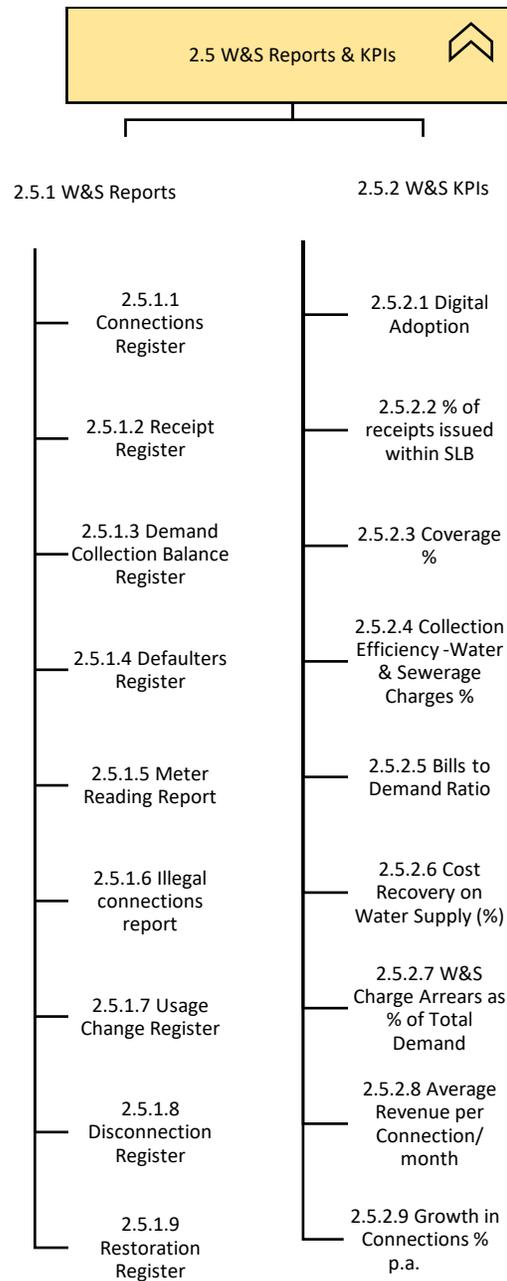
FIGURE 28 TAXONOMY OF REPORTS & KPIS

2.5.1   W&S Reports

The W&S Reports notifies the Urban Local Body about the complete information of all water/sewerage connection which are applied through various governance channels. These reports should be maintained by the ULBs.

2.5.1.1 Connections Register

Connection Register provides the information about the total number of connections that are registered to their respective ULBs. The connections allocated is categorized based on the connection type and this report gives the clear idea about the details like connection type, applicant details, applicant location, total number of connections, pending connections, disconnected connections, temporary disconnections, renewals and amount collected.

2.5.1.2 Receipt Register

Receipt Register provides the detail from all cash receipts, such as deposit date, consumer ID, connection category, request type, amount, status and any information that has been entered in the comments field.

2.5.1.3 Demand Collection Balance Register

This report provides details about demand, collection, balance and collection percentage details.

2.5.1.4 List of Defaulters

List of Defaulters or Defaulters register provide details of water/sewerage charge defaulters, as on date. Defaulter is a person or body that has not paid last or previous years property tax. This covers assessment number, owner details, property details, demand year and arrears

2.5.1.5 Meter Reading Report

This report provides details about meter reading, date of meter reading, unit, usage, number of defective meters etc.

2.5.1.6 Illegal connections report

This report provides details about number of illegal connections by location, size, area, type etc.

2.5.1.7 Usage Change Register

This register enlists the information about the consumers whose usage has been changed.

2.5.1.8 Disconnection Register

The register provided information about the consumers whose W&S connection has been disconnected. The disconnection may be on the request from consumers or the revenue department.

2.5.1.9 Restoration Register

The Restoration Register provides information about the list of restorations in the ULB. The restoration is based on the consumer request.

2.5.2   W&S KPIs

This refers to KPIs that should be captured for W&S management

2.5.2.1 Digital Adoption

Digital Adoption means attaining a state where an individual is capable enough to utilize an application, software, or tools to its fullest capacity or the potential to carry out a variety of digital processes. Digital adoption of W&S can be measured in the following terms:

- % of citizens using digital channels for W&S charge payment
- % of citizens using digital channels for accessing services
- % volume of applications from different channels
- % of connections allocated digitally within SLB

2.5.2.2 Percentage of receipts issued within SLB

This means percentage of receipts (connection usage bills) issued within the agreed SLB parameters (time, priority, others as needed).

2.5.2.3 Coverage percentage

This means percentage of households covered with water & sewerage connections. This is also referred as 'universal coverage' and is covered as part of ULB service level benchmarking.

2.5.2.4 Collection Efficiency -Water & Sewerage Charges percentage

This means percentage of collections within the agreed SLB parameters as per billing period.

2.5.2.5 Bills to Demand Ratio

This means comparing the number of generated bills with respect to number of demands generated for the applied connection request to account collections by the W&S charges.

2.5.2.6 Cost Recovery on Water Supply (percentage)

This means percentage of cost recovery on water supply connection with respect to CAPEX spending on the water & sewerage assets within assigned time frame.

2.5.2.7 W&S Charge Arrears as percentage of Total Demand

This mean percentage of water & sewerage charge arrears with respect to total demand raised within assigned time frame.

2.5.2.8 Average Revenue per Connection/ month

This means ratio of average revenue of the ULB to total number of connections in a month.

2.5.2.9 Growth in Connections percentage p.a.

This means percentage of increase of water & sewerage connection in a year.

Bibliography

Centre for Good Governance, H. (2019). *Telangana Municipalities Act, 2019, A Healthy Blend Of Citizen-Centric Governance And ControL.* Government of Telangana.

Earley, S. (2015, August 18). *Why Information Taxonomy Must Represent the Landscape of the Business*. From www.earley.com: https://www.earley.com/insights/why-information-taxonomy-must-represent-landscape-business

The Energy and Resources Institute. (2010). *Review of current practices in determing user charges and incorporation of economic principles of pricing of urban water supply.* Ministry of Urban Development, Government of India. From https://mohua.gov.in/upload/uploadfiles/files/TERI_UC_Report26.pdf