



**NANDED WAGHALA CITY MUNICIPAL  
CORPORATION, NANDED**

**DRAFT**

**BYLAWS**

**FOR**

**GREY WATER REUSE**

**IN HOUSING & COMMERCIAL**

**COMPLEXES IN NANDED**

## **PREFACE**

Aim of these by-laws is to ensure that grey water system is operated to consistently produce water to the required quality and there is adequate arrangement to avoid cross connection on inappropriate use of water.

This initiative has been taken by Municipal Corporation of Nanded Waghala City Municipal Corporation (NWCMC) as a part of commitment made in the Memorandum of Agreement (Moa) signed with Govt. of India (GoI) and Govt. of Maharashtra (GoM) while seeking financial assistance under Jawaharlal Nehru Urban Renewal Mission (JNNURM). Specific by laws are expected for promote and regulate grey water recycling and reuse in residential and commercial premises in the Corporation limits. The recycling of black water is presently proposed to be kept out of purview of this byelaw.

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## **MODEL BYLAWS FOR URBAN LOCAL BODY (The Grey Water Recycling Bylaws)**

Whereas it is expedient to regulate the activities such as:

- a. acceptance of long-terms, intermittent, or temporary discharge of grey water waste / industrial waste or other wastes to the Grey Water / sewerage system;
- b. establishment of grades of industrial wastes such as controlled waste, conditional waste and prohibited waste as the case may be;
- c. classification of domestic / industrial wastes discharge against specified criteria;
- d. pretreatment of Grey Water, sewage and grey water before it is accepted for reuse for the purpose of non-potable use;
- e. installation of flow meters, samplers or other devices to measure flow and quality of the sewage, recycled water and industrial waste discharge;
- f. pretreatment of Grey Water and sewage as per classification before it is accepted for discharge to the sewerage system;
- g. separation of unpotable water plumbing and potable water plumbing;
- h. sampling and monitoring of industrial waste discharges to ensure compliance of conditions under the bylaws;
- i. NWCMC to accept or refuse an industrial waste discharge;
- j. Taxes to be levied to cover the cost of conveying, treatment and disposing of and the associated costs of administration and monitoring;
- k. Establishment of waste minimization and management programmes for industrial waste and household waste producers;
- l. Encouraging the use of treated recycles water for not-potable use;

## **1. Definitions**

### **1. In this bylaws:**

'Access Point' means a place where access may be made to a private sewer for inspection (including sampling or measurement), cleaning or maintenance that meets the requirements of the municipal norm in that respect and also termed as an opening before "discharge"

'Approved' means approved in writing by an authorized officer of the NWCMC.

'Authorized officer' means any person appointed by the Municipal Commissioner of NWCMC for the purposes of acting as an authorized officer under this bylaws.

'Characteristics' means any of the physical or chemical characteristics of an commercial waste or / domestic waste referred to in Schedule "B"

'Discharge Management Plan" means a plan for the monitoring, programming and controlling of the effluent from recycling water treatment plant and discharges in to the municipal sewage system.

'Discharge' or "Discharge of wastes' means the removal of wastes from premises into the Grey Water system or by means of the system;

'Disconnection' means the physical cutting and / or sealing of the private sewer from the waste water system.

'Domestic Waste water' means either waste water that is typically discharged from premises that are used solely for residential activities or waste water of the same character discharged from other premises.

'Grey water' means involving water from sinks, tubs, showers and washing.

'Industrial / Commercial Premises' means any premises which is being used or intended to be used (whether for profit or not) for carrying on any trade, business, education, research or industry.

'Commercial Waste' or 'Wastes' are the waste removed from an industrial plant or other premises by way of discharge any liquid, with or without matter in suspension or solution therein, that is or may be discharged from trade premises in the course of any trade or industrial process or operation or in the course of any activity or operation of a like nature

'Inspector' includes whomever the Municipal Commissioner has appointed in writing for the purposes of this Bylaws

'ISO5667' means the latest edition complete with any amendments, of international Standard ISO 5667: 1994 Water Quality Sampling.

Part 1 : 1980 Guidance on the design of Sampling programmes

Part 2 : 1991 Guidance on Sampling techniques.

Part 3: 1994 Guidance on the preservation and handling of samples

Part 10: 1992 Guidance on sampling of Grey Waters.

'ISO TR 9824' means the latest edition complete with any amendments, of International Standard ISO TR 9824: Measurement of liquid flow in open channels;

Part 1: 1990 Measurement of free surface flow in closed conduits – Methods.

Part 2: 1990 Measurement of free surface flow in closed conduits – Equipment.

'Laboratory' means the agency permitted to test the samples of industrial wastes or waste.

'License' means the license, issued and renewed annually for the discharge of industrial wastes or other waste, given in writing by the Municipal Commissioner for purpose of this bylaws;

'Mass limit' means the total mass of any characteristic that is allowed to be discharged to the waste water system over any twenty-four hour period from any single point of discharge or collectively from several points of discharge.

'Maximum concentration' means the peak concentration, in the wastewater, of any characteristic that may not be exceeded.

'Occupier' for the purpose of an industrial plants / housing complexes or premises whoever in fact occupies a industry / premises or part of one, either as an owner, on rent or on lease in any other way;

'Person' includes a corporation sole and a also a body of persons whether corporate or incorporate or partnership firm;

'Point of discharge' is the physical point where an industrial waste or waste discharge enters the waste water system.

'Pretreatment' means any processing of industrial waste or waste designed to reduce any characteristic in waste, before discharge to the waste water system.

'Notice' means a written communication issued by the Municipal Commissioner or his authorized officer to the 'occupier' of 'property' to provide the recycle facility within the premises.

**'Premises' means either**

- a) a property which is held under a separate card of title or for which a separate title card may be issued and in respect to which a building plans have been or may be issued, or
- b) a building which is in possession as an individual unit by a cross-lease, unit title or company lease and for which a certificate of title is available. Or
- c) land held in public ownership, for a particular purpose, or
- d) separately assessed to Municipal taxes, individual unit within building.

'Privet sewer' means that section of a sewer between the premises and the sewerage system.

'Prohibited industrial waste' means a industrial waste having physical and chemical characteristics in excess of what is defined in Schedule " B" of this Bylaws.

'Publicly notified' means published on at least one occasion in a news paper circulating in NWCMC's territory, or under emergency conditions by the most practical means available at that time.

'Receiving waters' means coastal waters or any natural waters which will receive treated wastes.

'Sewerage System' means all types of sewer, appurtenances, pumping stations, storage tanks, waste water treatment facility plants, marine outfalls and other related structures owned by the urban local body and used for the reception, treatment and disposal of waste water and also termed as "waste water system"

'Standard methods for the examination of water and waste water' means the latest edition complete with any amendments and supplements as published by Pollution Control Board

'Storm water' means all surface water run-offs resulting from precipitation.

'Temporary discharge' means any discharge of an intermittent or short duration.

Such discharges include the short – term discharge of an unusual waste from premises subject to an existing permit and the discharge of tinkered wastes.

'Urban Local Authority' means a local municipal authority of a town, regional council, or a union of towns conforming to Article 243Q of the Constitution of India.

'Waste' means any water with matter in solution or suspension, domestic wastewater, or liquid waste and includes sewage for the purpose of this bylaws.

'Waste minimization' means the implementation on trade premises, of operations and restrictions, appropriate to the goal of reducing or eliminating the quantity and toxicity of wastes.

'Waste water system' means all types of sewer, appurtenances, pumping stations, storage tanks, waste water treatment facility plants, marine outfalls and other related structure owned by the urban local authority and used for the reception, treatment and disposal of waste water and also termed as " sewerage system".

'Zones' means the drainage catchments areas of a City that are served by separate wastewater / sewage treatment plants.

## **Section A: Grey water reuse Bylaws**

### **1. Applicability of the Bylaws:**

- 1.1. These by laws are applicable to all housing commercial and industrial premises which fall in one of the following categories:  
Category 1: Whose plot area is more than 2000 Sq. M.  
Category 2: Water quota is more than 60,000 lits/day. If the 'occupier'/^owner'/ 'cooperative society' has more than one water connection in their name, then the water quota of all connections will be taken into account for the purpose of this by laws.  
Category 3: Premises which has more than 80 dwelling unit of any kind
- 1.2. Exemptions could be accorded under following circumstances, as decided by the authority;
- a) In case the existing premises can not permit the provision of additional overhead tank for the purpose of the use of treated water.
  - b) If, in the existing structure, there is no space for installation of treatment facility and collection chamber.

### **2. Discharge of wastes**

- 2.1. The owner or occupier of premises shall discharge wastes / sewage into the sewerage system and / or shall allow any other person to discharge the same from his premises into the system.
- 2.2. Only in a manner, quantity, or quality that shall not cause damage to the sewerage system or to the flow of the sewage or to the treatment process thereof or not in excess of Municipal water supply received,
- 2.3. Only with a valid permission in accordance with the provisions of this bylaw will be allow the occupier to connect the waste water / sewage to the municipal sewer and claim the benefits arising out of recycling of Grey water.
- 2.4. In a nature or manner or in a way that shall not constitute a nuisance of foul gases or cause a public hazard or otherwise in compliance of this bylaw.
- 2.5. The recycled water shall be used for non potable, no contact purposes within premises and shall not be connected to sewage/waste water system of NWCMC. However the waste generated by the recycle plant can be connected to NWCMC sewer network if it of the accepted quality.

### **3. Enforcement of Bylaws:**

- 3.1. In case of existing properties, Municipal Commissioner or his authorized officer will issue a notice to the occupier for making arrangements of Reuse of Grey Water within specified time.

3.2. In case of proposed/intending /under redevelopment properties, the occupier/developer/builder will submit an application directly or through his authorized consultant to the Municipal Commissioner with details of proposed 'Discharge Management Plan' along with the application for demand of water permission to connect the Grey Water/sewage to municipal sewage system.

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#### **4. Granting a Permission**

4.1. Every premises/ will be granted permission for the discharge of industrial wastes or wastes to the municipal sewerage system only if the recycling measures for grey Water and conditions set forth in Schedules to this Bylaw are fulfilled.

#### **5 Waste tests and their results.**

5.1 An occupier of an industrial plant or premises requiring a license shall provide to the municipal Commissioner or an authorized officer once a year for the purpose of receiving a license, test results of the industrial wastes discharged from the plant or premises

5.2 Without derogating the provisions specified in clause of bylaw 4, the occupier of a premises requiring a license or the occupier of a controlled plant or premises, shall provide to Municipal Commissioner test results of the industrial wastes or waste discharged from the plant or premises at any time he is requested in writing to do so by the Municipal Commissioner

5.3 The testing of wastes and the submission of the results shall be done in a manner in accordance with the terms and conditions prescribed by the Municipal Commissioner or an authorized officer in this regard.

This bylaw accords the authority of Municipal Commissioner, his agent or an authorized officer of their authority to visit the plant premises at all reasonable time.

#### **6. Notice for testing of discharge**

6.1 The Municipal Commissioner may order the testing of sample of industrial wastes or wastes as described in clause of bylaw 5 if he feels that the circumstances so demand and he may, by written notice, direct the plant or premises occupier to pay the expenses of performing such tests.

6.2 A controlled plant whose occupier received notice as stated in clause of bylaws (5) shall comply the provisions of bylaws (4) prescribed above for that purpose.

## **7. Operational Permission for the Grey Water Recycling Treatment Plant**

- 7.1 Municipal Commissioner may determine on the basis test results of the wastes that were provided to him or that were performed at his instance or behalf, that a recycled water plant is fulfilling the requirements and will issue permission in writing to put the plant on permanent to the occupier.
- 7.2 The occupier shall operate the plant as specified.

## **8. Separation of grey water:**

- 8.1 The wastes from toilets in the premises will be separated from grey water that is of bath room and kitchen wastes by means of separate down take discharge system. The grey water shall be recycled by providing recycling plant and shall be reused for non-potable purposes after storing the same in distinctly separate tank by means of purple colored down take pipes. The water quality shall conform to standards of non potable water. The recycled water shall be tested once in six months and results shall be made available to Municipal Commissioner or his authorized officer whenever demanded.

The make-up connection to the system will be done at the collection tank of the treated water, through a free fall if from Municipal water connection, but preferable from a local source like bore well.

## **9. Conditional Waste Discharge Permission**

- 9.1 waste discharges of the conditional type plant will be allowed on the issue of a conditional permission provided the conditional type plant has recycling and reuse of water facility and not exceeding limits given in as per MPCB norms.

## **10. Mandatory notice regarding changes**

- 10.1 An occupier of a premises shall inform the Municipal Commissioner or his authorized officer of any change in the quality, nature or quality of the wastes discharged from his plant or premises, the manner of their discharge or extra requirement of external supply of water immediately if the change is likely to cause discharge of water in variation or violation of license under these Bylaws.

## **11. Authority to change license/notice conditions.**

- 11.1 The Municipal Commissioner or his authorized officer, having given a license or a notice in writing by the authority vested in him by this bylaws, may revoke, modify or stipulate conditions to the license or notice if satisfied on inception of the plant, premises or test reports.

## **12. Interference with the Authority.**

- 12.1 Interference with the authority of Municipal Commissioner or his agent or with the authorized officer is strictly prohibited.

### **13. Delivery of Notice / Permission.**

13.1 Notice / Permission required by this Bylaws shall be deemed to have been delivered lawfully if it is given into the hand of their intended receiver with acknowledgement, or delivered to his place of residence or his place of occupation or place known to be so with acknowledgement, or to adult member of his family or to an adult employee with acknowledgement, or if sent by registered mail to the same person according to his place of residence, of normal place of employment recently known to be so. If it is not possible to make the delivery as stated, the notice will be assumed to have been delivered lawfully if the notice is pasted in a conspicuous place in one of the above stated locations.

### **14. Corrective action.**

14.1 Any person violating the provisions of these bylaws shall be fined Rs. 5,000/- only on the day of detection and if the violation continues shall be fined Rs. 100/- only for every day as a corrective action after a written notice from the Municipal Commissioner or his authorized officer is delivered to him.

14.2 Failure to operate (as determined by the Inspector or authorized officer of NWCMC from the observations of test results and / or physical verification) the recycling plant will attract a penalty of Rs. 500/- per day and / or disconnection of water connection.

### **15. Authorization of officers**

15.1 Municipal Commissioner will authorize his officers / inspectors and will delegate the necessary powers for carrying various duties under this bylaw.

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## **Section B: Water incentive byelaws.**

### **16. Separate plumbing for grey water and provision of recycling for new building.**

16.1 Every developer/builder shall provide the newly constructed building with the provision of down take plumbing for grey water, recycling water plant, storage and reuse fitting before selling the building.

### **17. Separate plumbing for grey water and provision of recycling for existing building.**

17.1 Every existing building/residential structure shall provide with the provision of recycled water plant and relevant adequate separate plumbing for grey water and reuse fitting.

### **18. Reuse of water strictly for not potable noncontact use.**

18.1 The reuse of water will be strictly for not potable use by means of providing a distinctly separate reuse system colored in purple. The non-contact uses shall be restricted to toilet flushing, drip irrigation of trees/shrubs, sub surface irrigation of lawns and recharge of ground water.

- 19**     **No cross-connection of potable and not potable water.**  
19.1     There shall not be cross-connection of fitting of the potable and not potable water at any point. The recycled water system shall be maintained at a lower operating pressure that that of the potable water system. Precautions should be taken at the make-up connection to prevent cross contamination.
- 20**     **Recycled water measurement.**  
20.1     The recycled water will be measured by means of flow meter/water meter before storing the same in a separate storage tank. The flow meter/water meter will be sealed by NWCMC. The flow meter/water shall be read monthly by the occupier and shall make available the results whenever demanded.

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### **Section 'C'**

- 21.**     **Rebate in water tax.**  
21.1     If the recycled quantity of water is observed to be more than prescribed percent of the total quantity received by the structure or residential building, then the building/residential structure would be eligible for prescribed rebate in water taxes on reducing their potable water consumption by prescribed percent. The rebate shall be reviewed every year.
- 22.**     **Rebate in Sewerage tax.**  
22.1     If the Municipal Commissioner or his authorized officer satisfies that the building or residential structure has successfully reduced their potable water consumption by specific percent, the sewerage tax of the structure / residential building would be eligible for separately decided rebate in the relevant period, save the extra quantity used by an commercial or residential premises.
- 23.**     **Dispute Resolution**  
23.1     All the disputes arising in the enforcement of this by laws shall be referred to Municipal Commissioner who in turn will resolve the disputes in consultation with his authorized officer / Technical committee and intimate to the occupier / builder / developer. The decision of the Municipal Commissioner will be final and binding on the occupier.

**ANNEXTURE A: List of Authorized Laboratories**

This will be modified for time to time

**ANNEXTURE B: Characteristics of effluent water quality from the Grey Water Recycling plants**

That will be modified separately.

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**RAIN WATER HARVESTING\*\*\***

- a)** All the layout open spaces / amenity spaces of housing societies and new constructions/ reconstructions / additions on plots having area not less 300 sq.mt. in non gaothan areas of all towns shall have one or more Rain Water Harvesting structures having a minimum total capacity as detailed in **schedule.**

Provide that the Authority may approve the Rain Water Harvesting Structures of specifications different from those in schedule, subject to the minimum capacity of Rain Water Harvesting being ensured in each case.

- b) The owner / society of every building mentioned in the (a) above shall ensure that the Rain Water Harvesting structure is maintained in good repair for storage of water for non potable purposes or recharge of groundwater at all times.
- c) The Authority may impose a levy of not exceeding Rs. 1000/- per annum for every 100 Sq.mt. of built up area for the failure of the owner of any building mentioned in the (a) above to provide or to maintain Rain Water Harvesting structures as required under these byelaws.

## **SCHEDULE**

### **RAIN WATER HARVESTING**

Rain Water Harvesting in a building site includes storage or recharging into ground of rain water falling on the terrace or on any paved or unpaved surface within the building site.

1. The following systems may be adopted for harvesting the rain water drawn from terrace and the paved surface.
  - 1) **Open well** of a minimum of 1.00 mt. Dia and 6 mt. In depth into which rain water may be channeled and allowed after filtration for removing silt and floating material. The well shall be provided with ventilation covers. The water from the open well may be used for non potable domestic purposes such as washing, flushing and for watering the garden etc.
  - 2) Rain Water Harvesting for recharge of ground water may be done through a bore well around which a pit of one meter width may be excavated up to a depth of at least 3.00 mt. And refilled with stone aggregate and sand. The filtered rain water may be channeled to the refilled pit for recharging the borewell.
  - 3) An impervious surface / underground storage tank of required capacity may be constructed in the setback or other open space and the rain water may be channeled to the storage tank. The storage tank shall always be provided with ventilating covers and shall have draw-off- taps suitably placed so that the rain water may be drawn off for domestic, washing gardening and such other purposes. The storage tanks shall be provided with an overflow.
  - 4) The surplus rain water after storage may be recharged into ground through percolation pits or trenches or combination of pits and trenches. Depending on the geomorphological and

topographical condition, the pits may be of the size of 1.20 mt. Width X 1.20 mt. Length X 2.00 mt to 2.50 mt. Depth. The trenches can be or 0.60 mt. Width X 2.00 to 6.00 mt. length X 1.50 to 2.00 mt. depth. Terrace water shall be channeled to pits or trenches. Such pits or trenches shall be back filled with filter media comprising the following materials.

- a) 40 mm stone aggregate as bottom layer upto 50% of the depth;
- b) 20 mm stone aggregate as lower middle layer upto 20% of the depth;
- c) Coarse sand as upper middle layer upto 20% of the depth;
- d) A thin layer of fine sand as top layer;
- e) Top 10% of the pits/trenches will be empty and a splash is to be provided in this portion in such a way that roof top water falls on the splash pad.
- f) Brick masonry wall below ground shall be such that the wall prevents loose soil entering into pits / trenches. The projection of the wall above ground shall at least be 15 cms.
- g) Perforated concrete slabs shall be provided on the pits / trenches.

(V) If the open space surrounding the building is not paved, the top layer upto a sufficient depth shall be removed and refilled with coarse sand to allow percolation of rain water into ground.

2. The terrace shall be connected to the open well / borewell / storage tank / recharge pit / trench by means of HDPE / PVC pipes through filter media. A valve system shall be provided to enable the first washings from roof or terrace catchment, as they would contain undesirable dirt. The mouths of all pipes and opening shall be covered with mosquito (insect) proof wire net. For the efficient discharge of rain water , there shall be at least two rain water pipes of 100 mm dia mtr. for a roof area of 100 sq.mt.
3. Rain Water Harvesting structures shall be sited as not to endanger the stability of building or earthwork. The structures shall be

designed such that no dampness is caused in any part of the walls or foundation of the building or those of an adjacent building.

4. The water so collected / recharged shall as far as possible be used for non-drinking and non cooking purpose.

Provided that when the rain water in exceptional circumstances will be utilized for drinking and / or cooking purpose, it shall be ensured that proper filter arrangement and the separate outlet for passing the first rain-water has been provided.

Provided further that it will be ensured that for such use, proper disinfectants and water purification arrangements have been made.