

Item No. 01

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 134/2015

Friends through its General Secretary

Applicant(s)

Versus

Ministry of Water Resources

Respondent(s)

Date of hearing: 20.05.2019

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

For Applicant(s): Mr. Rahul Choudhary and Mr. Sany Antony,
Advocates

For Respondent(s): Mr. Rajkumar, Advocate for CPCB
Mr. Sangram Patnaik, Ms. Tripty Rajput,
Advocates for DDCA
Mr. Akhil Abraham Roy, Advocate for WQIA
Ms. ShivaniKachhwaha, Advocate for TPDDL

ORDER

FACTS AND PLEADINGS

1. Conservation of potable water by preventing its wastage on account of unnecessary use of Reverse Osmosis (RO) systems is the principal question raised in this matter. Further question is whether use of RO system where Total Dissolved Solids (TDS) level is below desirable threshold results in deficiency of calcium and other minerals by bringing down level of TDS to undesirably low level.

After filing of the main application, further application being M.A. No. 477/2016 raises the issue of wastage of ground water by the Delhi District Cricket Association (DDCA) in sprinkling RO treated ground water on the cricket ground. M.A. No. 757/2015 was filed against RO systems installed in villages, societies, apartments and bottling water plants throughout the country.

2. The original application was filed on 24.04.2015 relying upon the newspaper articles dated 15.11.2013 and 14.07.2013 in The Hindu. Article dated 15.11.2013 is to the effect that in a water scarce area, wastage of water in the RO process may need to be regulated. It is suggested that options of manual or mechanical filter are the better options to the RO system. Manual system can use 'Silver Nano' technology and 'Chlorine'. Article dated 14.07.2013 suggests that RO purifiers are basically designed for treating brackish water. It is not the right technology for the domestic water purification. The application, thus, highlighted that a system which unnecessarily results in rejecting 80% of potable water was required to be regulated and prohibited with the object of conservation of potable water. Secondly, in the said process, important minerals are lost adversely affecting the health of the users and no such warnings are used by the manufacturers. No remineralization is done, as necessary for the public health.

3. M.A. No. 477/2016 has been filed mainly relying upon the information on the website of Tata Power Delhi Distribution

Company (TPDDC) that huge RO systems have been installed by several institutions which contribute to the shortage of safe drinking water for the people. Wastage of water from such RO systems is 2,32,500 liters per day. The application also relies upon the report in Times of India dated 24.04.2015 and report of India Water Portal dated 25.01.2016 to the effect that in 'overexploited areas' in respect of ground water, depth of ground water level is falling. Ground water is being illegally extracted by the tube-wells. Relying upon the report dated 15.04.2016 in the Tribune, it is stated that DDCA is using treated water for matches and sprinkling in the Ferozshah Kotla field. This is happening even though drilling of borewells is completely banned. There was a requirement by the Delhi Jal Board (DJB) in 2008-09 to make voluntarily disclosure of all bore-wells and the DDCA made such disclosure but still the borewells continue to be illegally operated to extract large quantity ground water not meant for drinking purposes but for watering the ground.

4. M.A. No. 757/2015 alleges that the RO systems are being illegally installed and manufacturers of RO systems need to be restrained from manufacturing the same unless alternative machine is developed to ensure that potable water is not wasted.
5. The application has been opposed by filing affidavits by the DDCA denying that RO treated water is used for sprinkling in the ground. It is, however, not denied that borewells have been installed which is sought to be justified with the plea that there are rain water

harvesting system pits in the ground for water recharge and that installation of tube-wells has been voluntarily declared.

STAND OF RO MANUFACTURERS

6. The stand of the Water Quality Indian Association (WQIA) representing the RO manufacturers is that RO system ensures availability of pure water. It is, however, not disputed that only 20% water is recovered and 80% goes waste. Further justification given is that in 98 Districts in 13 States, there is High TDS which can be purified only by RO systems.

APPOINTMENT OF EXPERT COMMITTEE

7. The matter was considered by the Tribunal at length vide order dated 20.12.2018. Having regard to the concern that 80% of the potable water was being wasted and such waste water contaminates the available pure ground water also and further concern that there is no remineralization to make up for the loss of minerals in the process and absence of option for secondary use of rejected water, the Tribunal considered it necessary to seek an expert report from a Committee. The Expert Committee constituted by this Tribunal comprised of representatives of the Ministry of Environment, Forest and Climate Change (MoEF&CC), Central Pollution Control Board (CPCB), Bureau of Indian Standard (BIS), Indian Institute of Technology, Delhi, (IIT, Delhi) and the National Environmental Engineering Research Institute, Delhi (NEERI, Delhi) which was to examine the above questions of avoiding wastage of 80% of RO

rejected potable water, re-filtration technology and options for secondary use and to suggest remedial measures.

REPORT OF EXPERT COMMITTEE

8. Accordingly, a report has been received vide e-mail dated 30.04.2019 from the CPCB on behalf of the Committee. The Expert Committee has studied the RO process and examined the question of use and disposal of RO reject water, deficiency of minerals caused by RO process, whether RO system should be deployed irrespective of water quality of raw water, customized solutions for different parts of the country, safeguards required to be adopted by the water purifier manufacturers by displaying information about online digital display of the instant TDS concentration of treated water and proper labeling on the purifiers specifying that the unit should be used if TDS is more than 500 mg/l, responsibility of the manufacturers to collect used RO membranes/cartridges for disposal according to the Plastic Waste Management Rules, 2016 (as per extended producer's liability), geo-tagging and recording of disposal of spent/exhausted RO cartridges.

9. After deliberations, the Expert Committee made its recommendations as follows:

- A. On the issue of use of appropriate technology making re-filtration or secondary use of the water rejected by the RO system viable at Domestic and Commercial Level and**

**whether RO plants need to be deployed at all locations
irrespective of water quality of raw water.**

“(i). It is a fact that RO technology is generally not required for the places having piped water supplies) primarily supplied by Municipal Corporations/Municipalities) from surface water sources like rivers, lakes and ponds. These sources have TDS levels far low as compared to ground water sources. Installation of RO plants is advisable for the sources having TDS levels above 500 mg/l which is the acceptable limit as per IS 10500- 2012 Drinking Water Standards.

(ii). There is need to consider the use of RO reject for secondary purposes as its unscientific disposal can upset the disposal medium which may include land, surface water system or sewerage system/ sewage treatment facility. The effect of the RO reject on the quality of household sewage system / sewage treatment facility would although be negligible considering the very small quantity of reject (about 25 l per day for a family of four) compared to other household sewage (about 600-700 l per day). This has also been one of the responses of the report of the sub-committee constituted on 10th Dec 2015 by Dr. RA. Mashelkar Committee on 'Suitability of RO based Point-of-use Systems for treatment of Drinking water'.

Recommendations

(i) It is a fact that RO technology is generally not required for the places having piped water supplies primarily supplied by Municipal Corporations/ Municipalities from surface water sources like rivers, lakes and ponds. These sources have TDS levels far low as compared to ground water surface. Installation of RO plants is advisable for the sources having

TDS levels above 500 mg/l which is the acceptable level as per IS 10500/2012 drinking water standards.

(ii) There is need to consider the use of RO reject for secondary purposes as its unscientific disposal can upset the disposal medium which may include land, surface water system or sewerage system/ sewage treatment facility. The effect of the RO reject on the quality of household sewage system/ sewage treatment facility would although be negligible considering the very small quantity of reject (about 25l/day for a family of four) compared to other household sewage (about 600-700 l/day). This has also been one of the responses of the report of the subcommittee constituted on 10.12.2015 by Dr. R.A. Mashelkar Committee on "Suitability of RO based Point of use Systems for treatment of Drinking water."

(iii) Concerned Local Body like Public Health Engineering Department (PHED)/ Jal Nigam / Municipal Corporations / Jal Board / Municipalities, as the case may be, shall inform consumers about water source and quality including TDS concentration of water being

supplied through billing instrument. This must be made mandatory.

(iv). Water purifier market shall be classified based on TDS level of water being supplied/ available in the area so that right Technology /product may be deployed based on input water TDS. Following criteria may be adopted to decide on the type of water purifier to be installed:

Sl. No.	TDS range mg/ L	Technology /Product	Recovery of water %
1.	Up to 500	RO not recommended. Ultra-filtration clubbed with UV (or other disinfection systems) can serve the purpose. Note - The input water shall not have critical impurities such as nitrates and fluorides more than the acceptable limits of 45 mg/l and 1 mg/l, respectively as per TS 10500:2012.	100%
2.	More than 500	RO may be used	>60%

(v). Apart from TDS, other parameters of special importance which may vary from location to location, be also considered to conform to the norms

of drinking water as prescribed in BIS Standard IS 10500:2012.

(vi). Star Rating of RO Systems based on recovery of water as practiced in other countries can also be made mandatory.

(vii). Appropriate Use/ Disposal of RO Reject:

a) Domestic and Commercial Level

- Manufacturing of RO systems having recovery of permeate more than 60 % be made mandatory to minimize waste and generation of RO Reject. This recovery be enhanced upto 75 % in phased manner in future.*
- Such RO reject with TDS concentration can be used for utensils washing, flushing, gardening (if TDS is below 2100 mg/l), cleaning of vehicles and floor mopping. Risk of exposure due to use of reject water for the aforereferred purposes is highly exaggerated and can be utilized.*

b) Industrial Level

- At such levels, multi-stage RO system shall be deployed to minimize wastage and improve the recovery up-to 90%.*
- Reject from RO purifier may further be fed to evaporator to achieve Zero Liquid discharge (ZLD).”*

B. On the issue of removing deficiencies in terms of solids such as calcium, magnesium etc. in the treated RO Water and whether the purified water needs to be re-mineralized so as to compensate for the minerals lost during the process and also how the refiltered water can be utilized

“(i) Considering the fact that some of the scientific studies undertaken in parts of the world conclude adverse health effects of demineralized water, it will be pragmatic to disallow use of low TDS water treated through

RO. Moreover, current technological options for adjustment of TDS in treated water should be used by RO manufacturers to have minimum of 150 mg/l in permeate (treated water).

- (ii) RO system shall be designed to maintain a minimum TDS concentration to 150mg/l for RO permeate for potable purposes. Drinking water of this TDS concentration would also be more palatable than of significantly low TDS.
- (iii) It is also understood that standards for maintaining minimum levels of calcium and Magnesium in the drinking water have been proposed by Food Safety and Standards Authority of India (FSSAI) and same was available as draft notification in public domain for comments. These are 20-75 mg/l and 10-30 mg/l for Ca and Mg respectively. However, these standards are in the draft stage only and the same are to be confirmed by FSSAI and can be adopted by RO manufacturers after notified by FSSAI.

C. On the issue of different approach being required in different parts of the country which has specific problems of contamination (Arsenic, Fluoride or other pollutant) and needs customized solutions.

- (i) Such areas be clearly notified by the government agency of the respective State for information of one & all.
- (ii) Technologies are available for treatment of water contaminated with heavy metals or other pollutants. However, disposal of rejected stream is challenging as it may deteriorate the water quality of recipient water system.
- (iii) In such areas, water supply agencies of the area shall supply potable water as per IS 10500:2012 drinking water standards prescribed by BIS. Ground water sources having specific problems of contamination with high concentrations of fluoride, arsenic and other geogenic and anthropogenic contaminants are not advisable to be used for drinking purpose. In such case,

appropriate contaminant specific technologies can be deployed so as to bring down concentrations of these contaminants

- (iv) Municipal Corporations/Municipalities responsible for provision of safe water should periodically (every quarter) report quality of water supplied to citizens. Citizens may decide use of appropriate point-of-use treatment system to take care household contamination*
- (v) Ministry of Drinking Water and Sanitation through State Rural Water Supply agencies analyse water samples through a network of water testing laboratories. These agencies should evolve mechanism and communicate quality of supplied water (in case of piped water) and source water (in case water is directly collected by community from the source e.g. borewell/tubewell fitted with hand-pump).*
- (vi) BIS standards on Reverse Osmosis based Point-of-Use Water Treatment System (IS 16240:2015) clearly state that RO system is not recommended for treatment of raw water having Arsenic level above 0.1 mg/l and Fluoride level above 8.0 mg/l. IS 16240:2015 is attached as Annexure 6.*
- (vii) BIS standards on Reverse Osmosis based Point-of-Use Water Treatment System (IS 16240:2015) should be made mandatory for RO manufacturers*
- (viii) There may be some areas / regions using RO Systems with specific pollutant removal, in such cases the reject water stream shall be treated so as to comply with General Standards for Discharge of Environmental Pollutants notified under Schedule-VI of Environment (Protection) Rules, 1986.”*

D. Further recommendations:-

- “(i) Provisions should be made by the Water Purifier manufacturers for online digital display of the instant TDS concentration of treated water.*
- (ii) RO manufacturers should also provide proper labeling on the purifier specifying that the unit should be used if TDS is more than 500 mg/l.*

*(iii)With respect to disposal of used RO cartridge/
membrane*

- It should be the responsibility of the RO manufactures to collect the used RO membranes / cartridges from customer and disposed off the same in scientific manner conforming to provisions of Plastic Waste Management Rules, 2016.*
- It is preferred that these units are geo-tagged and record of disposal of spent/ exhausted RO cartridges are maintained.”*

CONSIDERATION OF REPORT OF EXPERT COMMITTEE

10. We have heard the learned Counsel for the parties. There is no objection to the Expert Committee report. Accordingly, the same is accepted.

11. The report shows that following steps need to be taken:

- Information about TDS concentration in water need to be supplied to the consumers by concerned local authorities with direction that if TDS is less than 500 mg/l, RO system will not be useful but result in removing important minerals as well as cause undue wastage of water.
- Control and regulation of RO manufacturers in the manner mentioned in the report for protection of potable drinking water and public health hazard in absence of remineralization and ensuring proper use of RO water rejects to further save potable water. Area specific regulatory regime needs to be notified.
- Regulation of disposal of cartridges/membranes.

QUESTIONS FOR CONSIDERATION

12. From the above resume for questions for consideration can be stated as follows:-

- (i) Remedial measures for preventing unnecessary wastage of potable water on account of use of RO systems.
- (ii) Remedial actions for preventing loss of minerals on account of unnecessary use of RO system affecting public health.
- (iii) Disposal of RO cartridges and membranes.
- (iv) Remedial actions for preventing extraction of ground water for watering of playgrounds or otherwise.

13. We now proceed to consider the above questions in light of material on record.

Re (i): Remedial measures for preventing unnecessary wastage of potable water on account of use of RO systems.

14. The averments in the application and the Expert Committee Report which is not rebutted show that there is a huge wastage by use of RO process. According to the applicant, the extent of wastage is 80%, the Expert Committee has noted recovery after RO process to be between 35%-80%. The RO reject has high concentration of minerals/contaminants which requires exploring appropriate use of the RO reject water and to minimize the RO reject, the observations in this regard are:

“Application of RO in developed countries is limited to desalination (i.e., producing drinking water from high

TDS containing sea water or brackish water); growing use of this technology in treating low TDS water is new normal in India. Although application of RO is primarily limited to removal of total dissolved solids, claimants of RO utility are promoting this technology to remove multiple pollutants. This is based on the presumption that water sources are contaminated and RO is the only panacea for safe water.

This assumption also overlooks limitations of RO technology such as safe disposal/ reuse of concentrate (reject water), energy consumption and low content of TDS in produced (treated) water. Though RO technology has its own space particularly in areas having high TDS and multiple pollutants, universality of this technology without addressing limitations would create long term problems than short term solutions.

The problem arises with reject water from RO purifier which normally has high concentration of minerals/ contaminants since demineralised water is produced from feed water by rejecting the selective ions/ molecules through a semi permeable membrane. There is need to find out alternate or appropriate use/ disposal of RO reject water and to minimize the RO reject.”

The Committee has also recommended that the concerned Local Bodies/Municipal Corporations/Municipalities/ Panchayats and institutions like Public Health Engineering Department (PHED)/ Jal Nigam / Jal Boards etc. be required to display water quality at regular intervals, particularly TDS concentration component by an appropriate mechanism.

15. The above observations show that :

- a) There is high level of RO reject which needs to be avoided by not using the RO technology without any precautions/ regulations.
- b) The main object of RO system is to remove TDS but the technology not only removes TDS but also multiple pollutants overlooking difficulties of safe disposal/ reuse of reject water, energy consumption and undue reduction of TDS level.
- c) The RO reject can upset the land, surface water or sewerage system. The report suggests the RO reject should be diluted and only then discharged into the waste water stream.

16. Thus, we are of the view that to save potable water to the extent it is unduly wasted by the RO system and to protect the environment against unscientific disposal of RO reject, recommendations of the committee quoted in para 9 (A) above need to be accepted. Consumers need to be informed about water source and quality including TDS level. Upto 500 mg/l TDS, RO use needs to be prohibited. Wherever RO use is to be permitted, recovery of water to the level of more than 60% should be ensured and star rating of the systems be made mandatory. Recovery be enhanced to 75%. Use of

RO reject not exceeding TDS of 2100 mg/l be regulated in the manner suggested such as for utensil washing, flushing, gardening, cleaning of vehicles and floor mopping.

17. As already mentioned, the above directions are necessary to save potable water and to prevent damage to the environment. In this regard, it may be noted that status of availability of potable water as per reports in public domain about availability of water:

- Only 3% of the world's water is fresh water, and two-thirds of that is tucked away in frozen glaciers or otherwise unavailable for our use. As a result, some 1.1 billion people worldwide lack access to water, and a total of 2.7 billion find water scarce for at least one month of the year. By 2025, two-thirds of the world's population may face water shortages and ecosystems around the world will suffer even more.¹
- Around 71% of the total global fresh water withdrawal (3100 billion m³) is used for agriculture purposes and by 2030, if there are no efficiency gains, it will increase to 4500 billion m³.
- 844 million people lack even a basic drinking-water service, including 159 million people who are dependent on surface water. Globally, at least 2 billion people use a drinking water source contaminated with faeces. Contaminated water can transmit diseases such as diarrhoea, cholera, dysentery, typhoid, and polio. Contaminated drinking water is estimated to cause 502 000 diarrhoeal deaths each year. By 2025, half of the world's

¹ <https://www.worldwildlife.org/threats/water-scarcity>.

population will be living in water-stressed areas. In low- and middle-income countries, 38% of health care facilities lack an improved water source, 19% do not have improved sanitation, and 35% lack water and soap for hand washing.²

- More than 163 million people in India do not have access to clean water, the highest in the world. It also faces several challenges on water resources due to climate change, says a new study by Water Aid, a global advocacy group on water and sanitation. India is followed by Ethiopia with over 60 million people without clean water. Nigeria ranks third with over 59 million people without safe water.³

- As per a study 163 million people in India lack access to safe water.⁴

18. The above data may need verification but shortage of potable water is a well acknowledged fact. On the one hand, water is becoming scarce, on the other; it is a basic need for existence. In view of such seriousness, several legislative and executive initiatives and measures have been taken. The issue has, inter-alia, been gone into by the Tribunal in the context of polluted river stretches⁵, reuse of treated waste water⁶, conservation of water bodies⁷, tackling contamination of ground water and protection of ground water⁸.

² <https://www.who.int/news-room/fact-sheets/detail/drinking-water>.

³ <https://www.downtoearth.org.in/news/water/19-of-world-s-people-without-access-to-clean-water-live-in-india-60011>.

⁴ <https://water.org/our-impact/india/>.

⁵ Vide order dated 08.04.2019 in O.A. No. 673/2018, News item published in "The Hindu" authored by Shri Jacob Koshy titled "More river stretches are now critically polluted : CPCB

⁶ Vide order dated 10.05.2019 in O.A. No. 148/2016, Mahesh Chandra Saxena vs. South Delhi Municipal Corporation & Ors.

19. We may also note other pertinent observations from the above report of Niti Aayog on Composite Water Management Index (CWMI).⁹

(i) India is suffering from the worst water crisis in its history and millions of lives and livelihoods are under threat. Currently, 600 million Indians face high to extreme water stress and about two lakh people die every year due to inadequate access to safe water¹⁰. The crisis is only going to get worse. By 2030, the country's water demand is projected to be twice the available supply, implying severe water scarcity for hundreds of millions of people and an eventual ~6% loss in the country's GDP¹¹. As per the report of National Commission for Integrated Water Resource Development of MoWR, the water requirement by 2050 in high use scenario is likely to be a milder 1,180 BCM, whereas the present-day availability is 695 BCM. The total availability of water possible in country is still lower than this projected demand, at 1,137BCM. Thus, there is an imminent need to deepen our understanding of our water resources and usage and put in place interventions that make our water use efficient and sustainable.

⁷Vide order dated 10.05.2019 in M.A. No. 26/2019 in O.A. No. 325/2015, Lt. Col. Sarvadaman Singh Oberoi vs. Union of India & Ors.

⁸Vide order dated 18.12.2018 in O.A. No. 59/2012 Vikrant Kumar Tongad vs. Union of India & Ors. and in O.A. No. 176/2015, Shailesh Singh vs. Hotel Holiday Regency, Moradabad & Ors.

⁹ Niti Ayog on "Composite Water Management Index", June 2018, https://niti.gov.in/writereaddata/files/document_publication/2018-05-18-Water-Index-Report_vS8-compressed.pdf.

¹⁰Source: WRI Aqueduct; WHO Global Health Observatory

¹¹Source: McKinsey & WRG, 'Charting our water future', 2009; World Bank; Times of India

(ii) India is undergoing the worst water crisis in its history. Already, more than 600 million people¹² are facing acute water shortages. Critical groundwater resources – which account for 40% of our water supply – are being depleted at unsustainable rates.¹³

(iii) Most states have achieved less than 50% of the total score in the augmentation of groundwater resources, highlighting the growing national crisis—54% of India’s groundwater wells are declining, and 21 major cities are expected to run out of groundwater as soon as 2020, affecting ~100 million people¹⁴.

(iv) With nearly 70% of water being contaminated, India is placed at 120th amongst 122 countries in the water quality index.

20. It has also been observed in the judgment of Bombay High Court in *Loksatta Movement and Ors. v. The State of Maharashtra & Ors.*¹⁵

that:-

“Ever depleting green cover of the mother Earth and various other man made factors have brought about major climatic changes. The climatic changes have resulted into swings between floods and drought. There is an ever increasing demand of water supply for drinking and other domestic use, agriculture, industrial use etc. All this has made the water management as one of the most important and challenging issues of 21st Century. There is a huge challenge faced by the policy makers and the Governments when it comes to equitable distribution of water. The failure of the State to make equitable distribution of water is leading to serious conflicts. In fact, a leading author and economist Ismail Serageldin once observed in the year 1995 that the wars of 21st century will be fought over water.”

¹² Source: World Resource Institute

¹³ Source: World Resource Institute

¹⁴ Source: UN Water, ‘Managing water under uncertainty and risk’, 2010; World Bank (Hindustan Times, The Hindu).

¹⁵Public Interest Litigation (LDG.) No. 33 of 2016

We conclude on question (i) that remedial measures are necessary for preventing unnecessary wastage of potable water on account of use of RO systems. There is also need for directing the concerned Local Bodies to display water quality regarding TDS concentration component.

Re (ii): Remedial actions for preventing loss of minerals on account of unnecessary use of RO system affecting public health.

21. The Expert Committee Report last examined the issue of deficiencies caused on account of RO system removing important minerals such as calcium, magnesium etc., which adversely affects the health of consumers of demineralised water. This calls for prohibiting and regulating consumption and use of low TDS water by requiring manufacturers to maintain minimum TDS concentration to 150 mg/l or the minimum levels of calcium and magnesium.

22. We have noted the need for different approach in different parts of the county for adopting customized solutions as suggested. Thus, a case is made out for appropriate directions by this Tribunal on the subject in the interest of safety of environment and public health in the light of above expert study.

Re (iii): Disposal of RO cartridges and membranes.

23. The Expert Committee has noted the need for scientific disposal of used RO membranes and cartridges from customers for enforcement

of Extended Producer's Responsibility conforming to the provisions of Plastic Waste Management Rules, 2016. The Committee further recommended that the units so collected must be geo-tagged and a record of the spent or exhausted RO cartridges should be maintained. We are in agreement with the report of the Committee that scientific disposal of used RO membranes and cartridges is required in the manner suggested on the principle of EPR. A direction needs to be issued for such monitoring mechanism being worked out by MoEF&CC and CPCB.

Re (iv): Remedial actions for preventing extraction of ground water for watering of play grounds or otherwise.

24. As regards illegal drawal of ground water by the DDCA, we find that there are two aspects for consideration: –

- (i) Permissibility of drawal of ground water in view of depleting ground water level;
- (ii) Source of water to be used for sprinkling in cricket/ other play grounds.

25. As regards desirability of groundwater extraction, the matter has been dealt with in *O.A. No. 176/2015, Shailesh Singh vs. Hotel Holiday Regency, Moradabad & Ors.* and this aspect can be further considered in the said matter. However, it will be necessary to have relevant data for such consideration. The Hon'ble Supreme Court vide order dated 11.07.2018 in *W.P.C No. 4677/1985, M.C. Mehta v.*

Union of India and Ors., quoted the report of the Niti Aayog on “Composite Water Management Index”, June 2018 as follows:

“In fact by 2020, 21 major cities, including Delhi, Bangalore and Hyderabad will be expected to reach zero groundwater levels, affecting access for 100 million people”.

26. The Committee may collect and provide data with regard to availability of ground water and its usage in 21 cities including Delhi, Bangalore and Hyderabad.

27. As regards source of water to be used for sprinkling in playing fields / cricket grounds, in view of shortage of potable water it will be appropriate that instead of potable water being used for such purpose, either RO reject or disinfected and treated sewage must be preferred. We have noticed that guidelines have been issued by the Sport Authority of India (SAI) on the subject being “Field play and specifications on Sports Infrastructure” but the said guidelines do not take cognizance of source of water supply. It is possible that potable drinking water is used for said purpose which is not conducive for the environment, having regard to the acute shortage of potable water for drinking purpose. The above Committee may examine and furnish a report to this Tribunal for course of action be adopted to save potable water for regulating watering fields and playing fields/ cricket grounds.

28. Since the issue of ground water regulation is subject matter of consideration in *O.A. No. 176/2015, Shailesh Singh vs. Hotel Holiday Regency, Moradabad & Ors.*, listed for hearing on 04.07.2019, the

report received may be placed on the file of the said case. Present matter will henceforth be limited to the issue of RO regulation.

FURTHER OBSERVATIONS:

29. The issue of regulation of RO system affects the whole country. No doubt water is the State subject¹⁶, being part of environment, the same can be regulated under Entry 13, List-I as held in *M.C. Mehta vs. Union of India*¹⁷ by appropriate notification under the Environment (Protection) Act, 1986.

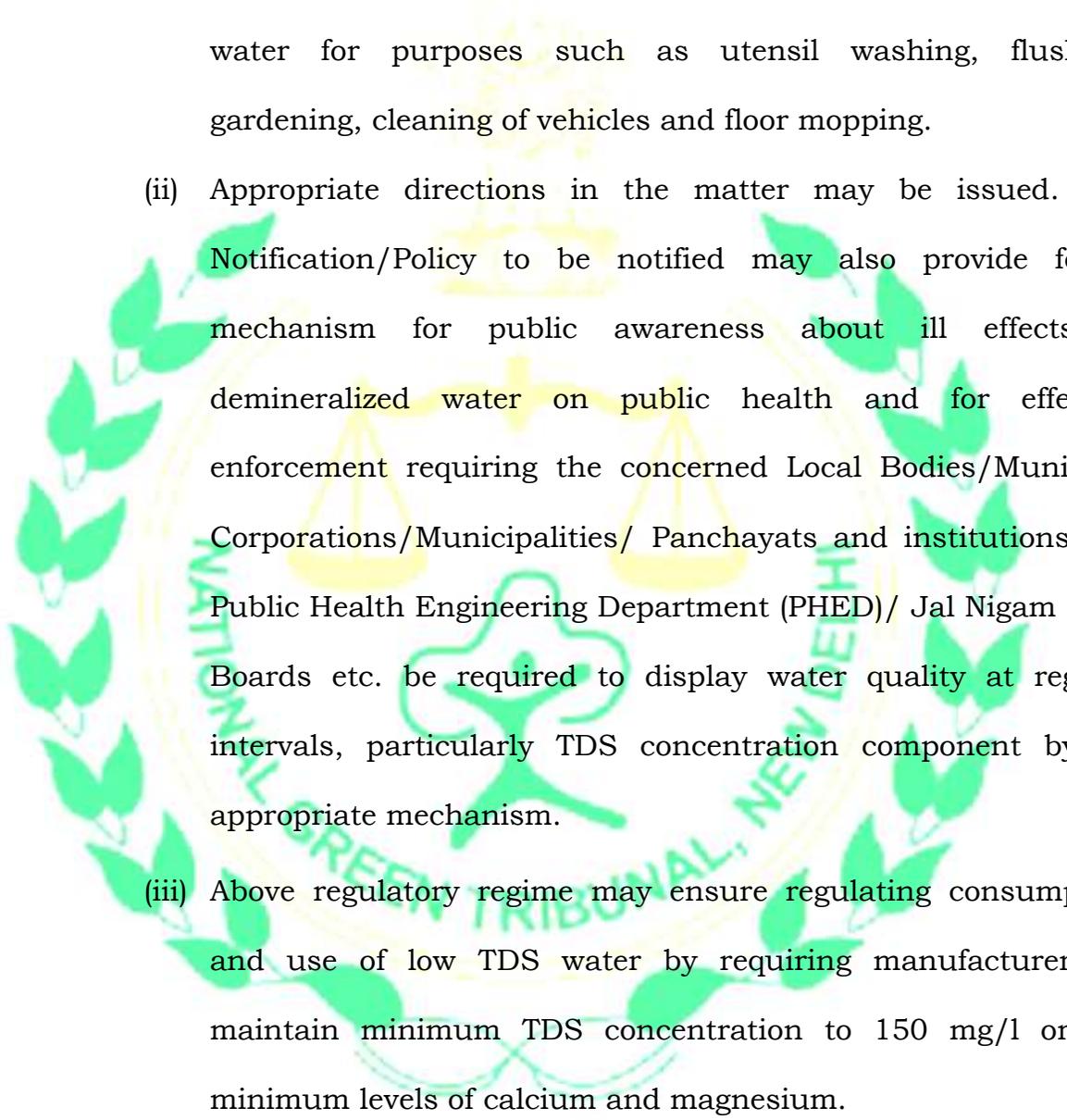
30. In view of above, need is felt for an appropriate regulatory regime by way of a notification by the MoEF&CC under the provisions of the Environment (Protection) Act, 1986 or any other relevant provision on 'Precautionary' and 'Sustainable Development' principles is required so that wastage of water can be prevented and wherever RO systems is to be permitted, remineralization and other regulatory measures may be required. Wherever RO system is not required, the same can be prohibited in the interest of water conservation. Directions may also need to be issued for enforcement of Extended Producers Responsibility, for requirement of displaying requisite information by the manufacturers.

DIRECTIONS

31. We accordingly direct as follows:

¹⁶Entry 17 List-II of Seventh Schedule to the Constitution.

¹⁷(1997) 11 SCC 312

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- (i) The MoEF&CC may issue appropriate notification prohibiting use of RO where TDS in water is less than 500 mg/l and wherever RO is permitted, a requirement is laid down for recovery of water be more than 60%. Further provision be laid down for recovery of water upto 75% and use of such RO reject water for purposes such as utensil washing, flushing, gardening, cleaning of vehicles and floor mopping.
- (ii) Appropriate directions in the matter may be issued. The Notification/Policy to be notified may also provide for a mechanism for public awareness about ill effects of demineralized water on public health and for effective enforcement requiring the concerned Local Bodies/Municipal Corporations/Municipalities/ Panchayats and institutions like Public Health Engineering Department (PHED)/ Jal Nigam / Jal Boards etc. be required to display water quality at regular intervals, particularly TDS concentration component by an appropriate mechanism.
- (iii) Above regulatory regime may ensure regulating consumption and use of low TDS water by requiring manufacturers to maintain minimum TDS concentration to 150 mg/l or the minimum levels of calcium and magnesium.
- (iv) Directions be issued for enforcement of Extended Producers Responsibility by the manufacturers for disposal of cartridges and membranes and requiring the manufacturers to provide

proper labeling on the purifier specifying that the unit should be used if TDS is more than 500 mg/l.

(v) MoEF&CC may file an affidavit of compliance by e-mail at judicial-ngt@gov.in within one month.

(vi) The Expert Committee constituted by this Tribunal vide order dated 20.12.2018 along with Central Ground Water Authority may collect and provide data with regard to availability of ground water and its usage in 21 cities mentioned in the report of NITI Aayog and furnish a report to this Tribunal within one month by e-mail at judicial-ngt@gov.in . The said report may be placed in the file of O.A. No. 176/2015 which is listed on 04.07.2019.

A copy of this order be sent to the MoEF&CC and the Expert Committee through the CPCB by e-mail for compliance.

List for further consideration on 02.09.2019.

Adarsh Kumar Goel, CP

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

May 20, 2019
Original Application No. 134/2015
DV