BEFORE THE NATIONAL GREEN TRIBUNAL (SZ) CHENNAI
MEMORANDUM OF APPLICATION
(Under Section 18(1) read with Sections 14, 15 of National Green Tribunal Act, 2010)

OA No. 24 of 2021

O.A Ninan ... Applicant

VERSUS

The State of Kerala & Ors ... Respondents

MEMO FILED ON BEHALF OF THE APPLICANT IN RESPONSE TO THE REPORT OF THE COMMITTEE

It is respectfully submitted as follows:

1. At the outset, it is submitted that the outset, the report filed by the committee is liable to be rejected at the threshold since the project proponent , Kerala water authority itself is part of the committee and in fact has been appointed as the nodal agency by the government. It is submitted that Nemo judex in causa sua - no man can be a judge of his own cause is a fundamental principle of justice administration. The Project proponent cannot be part of an exercise to determine the correctness of the project designed and implemented by them. The actions of the district collector and the other authorities have been impugned in the application and they will not , obviously find fault with themselves. The entire report filed by the "committee" is liable to be rejected and has no merit.

2. Secondly, the essential judicial functions of this Hon'ble Tribunal to decide on the merits of the application filed by the applicant cannot be delegated to the respondents or any committee, especially comprising of the respondents themselves.
3. Without prejudice to the above submissions, the following submissions on the self-serving report of the committee is made for the consideration of this Hon'ble Tribunal

Feasibility of the project and selection of location

4. It is not true that the KWA has conducted the detailed survey for the feasibility of the project. In the project the source adequacy of the Pamba river to cater for this Project is not properly assessed. In the Detailed Engineering Report (DER) of the Project, a certificate has been issued by the chief engineer without considering the dry-weather flow of the Pamba river for a Project of 40 mld size Whereas, in the reply given by KWA under RTI that stated that dry-weather flow of the river is not included in the Detailed Engineering Report (DER). If the dry-weather flow of the Pamba river i.e. the summer flow of the river is not equated against the total withdrawal of water including for this project, the feasibility of the project can't be ensured. In addition adequate buffer for minimum flow to take place in the river to prevent it from going dry also is to be ensured. So it needs a thorough technical audit with regard to the source adequacy to be conducted before proceeding with this project. However, the Joint Committee did not investigate this aspect or carried out any field study before reaching a conclusion confirming the feasibility of the project.
5. It is relevant to note that the KWA is already extracting around 118 mld of water from the Pamba river in Pathanamthitta district alone, as seen from

the RTI reply filed. This project will add another 40 mld extraction from the river. There are several other water extraction projects in other districts on this very same river. The cumulative impact of these extractions from the Pamba river has to be studied in order to prevent the drying up of the river especially in the summer months to sustain the biodiversity of the river and ensure a minimum dry weather flow in the river. This would also confirm the reliability and soundness of the water supply projects which depend on the river for their water requirement.

6. It is also seen from the RTI reply dated 29/08/2019 presented as Exhibit 2 that the KWA has not even included dry weather flow in the DER prepared by them for the present project. That is, the entire proposal is without consideration of real time availability of water especially in summer months, which end up the river going dry that destroys the flora and fauna which in turn spell the death of the river. To top it all, the Pamba river that originates from the holy Sabirimala hills with many temples situated on its downstream banks that depend on the river water for the daily religious rituals. The river should not be allowed to go dry owing to the lack of proper verification and vigilance of the dry-weather flow when new Projects are implemented. However, this water source adequacy certificate having issued by KWA (to itself) is not based on any holistic assessment or study but is a self certification by the project proponent itself and the entire project is attempted to be implemented based on this certificate. Whereas, the Joint Committee never attempted to make a scientific effort to eliminate the above shortcomings of the project, for obvious reasons.

Management of reject from WTP, backwash water and Sludge

7. As stated in the report of the Joint Committee as per the proposed WTP design by KWA, the rejects shall be generated from two locations i.e. from

the sedimentation basin (clari-flocculator) and from the filter-bed from the cleaning known as backwashing of filter beds, this total reject water accounts for 5% of the total Production capacity of the plant. Therefore, for a 40 mld treatment plant, 5% will be generated by way of reject and this discharge of 2 mld (40x0.05 = 2) of water containing contaminants as stated above will result in flooding of the landlocked region which is 6 km away from the river and no natural drain or proposed artificial drain in the DER to discharge this reject.

Whereas for the disposal of rejects, the project report (DER) states at 3.10, "Regarding the sludge generated there is a shallow water body near the vicinity which can act as a lagoon and supernatant can be safely disposed to the river course downstream. This lagoon can be used for sludge clarification and the supernatant can be disposed though the natural drainage available nearby. Periodic sludge removal can be arranged from the lagoon through clay tile manufactures…". In fact there is no natural lagoon located in the vicinity of the project site and this false statement expose the careless in handling of the disposal of the reject water.

8. The KWA has not proposed to lay pipelines to transport the rejects back to the Pamba river for discharge. The high BOD content and chemical presence in the stagnated rejects will cause serious contamination of groundwater in the area. These aspects have not been considered. KWA will operate the plant 365 days a year and as stated above release 2 million liters of rejects per day, cumulatively this discharge onto this land locked area will spell doom to the entire area in terms of submergence and alteration of the hydrology of the region. Relevant pages in the DER in this regard that indicated the Schematic diagram illustrates that no treatment to the reject discharging from the Plant has been proposed.

Management of Sludge

9. When objection was raised against the configuration of discharging this reject onto the land, the Joint committee under the influence of KWA came up with the scheme of recycling plant which is neither specified in the DER nor budgeted. Now as claimed by the Joint Committee, if recycling plant is employed to reuse the liquid part of the wastewater, this will generate semi-solid waste with a very high BOD content having concentrated from the wastewater from the plant which requires environmental clearance from the State level Environment Impact Assessment Authority (SEIAA) for its Processing, Transport and Disposal. Whereas, the impurities when concentrated amounts to 630 kg of Semi-Solid waste per day with a Biochemical Oxygen Demand (BOD) which is a measure of the decay and pollution potential of the waste that works out to 450 mg/l as per the calculation having derived from the data from the "Survey and Analysis of Pamba River and its Pollution" conducted by Center for Water Resources Development and Management (CWRDM). In fact, the BOD of the waste generated from the Plant which works out to 450 mg/l is much more stale & putrid than the domestic sewage which has only a BOD of 250 mg/l. Incidentally, one of the main concerns raised by the petitioner was regarding the issue of the negative impact of the discharge of this waste generated as part of the production of 40 mld of the treated water. As calculated above, the waste is more virulent than the domestic sewage and so it needs permits as required for an Sewage Treatment Plant (STP). Thus by ignoring the impact of the waste on the surrounding areas, KWA is proceeding without carrying out Environmental Impact Assessment (EIA) and without seeking the clearance of the State level Environment Impact Assessment Authority (SEIAA) Act, 2010, for this project while the volume

of the waste discharged is huge with high BOD. It may be observed that KWA has no waste management plan for processing, transporting and disposal of this waste having generated from the Recycling Plant which ends up in discharging this concentrated semi-solid waste with high pollution potential to the natural channels which spell far-reaching environmental hazard to the whole area which would come to light only if it is subject to the auditing associated with the approval of SEIAA.

10. It is stated in the Joint committee report that "It is also brought to the notice of the Committee that Kerala Water Authority is operating a 33 mld Water Treatment Plant in the heart of Thiruvalla town, nearly 10 km from this proposed site, which started operations in 1977. There has been no environmental issues regarding the operation of the Water Treatment Plant till now. Complaints regarding the sludge rejects or other wastes have not been reported". In fact there is a natural drainage to facilitate a smooth flow of the reject and wastes from the aforesaid WTP located in the Thiruvalla and it ends up in 'Chandakavu' a tributary of Manimala River located at 2 Km from the Plant and so no complaints have been reported. Whereas the proposed site is a landlocked area with no direct drainage to the river located at 6 Km away will result in flooding of the region with environmental ill effects. If KWA is going for a complete recycling of the reject water, why this point of discharging of the reject water with regard to Thiruvalla has been raised?, which shows the lack of confidence of KWA on the recycling process.

11. In this connection, it is submitted that if the WTP is located in the vicinity of the river, this wastewater would be discharged fresh to the river before it get putrefies due to stagnation and anaerobic condition. Similarly the WTPs of the KWA like Aluva waterworks which supplies water to Cochin

city having located on the banks of 'Aluva Puzha', Aruvikara waterworks which supplies water to Thiruvanathapuram city having located on the banks of 'Aruvikara river', Mavoor waterworks which supplies water to Kozhikode having located on the banks of 'Chali Aru' and the like operate on this principle. Incidentally 99% of WTPs of KWA are located on the river banks and not in the landlocked area far away from the river. The practice of locating the WTPs on the river banks facilitates the continuous flushing of the wastewater having discharged to the river by mixing and dilution in the river flow with any ill-effects of muddy water, BOD & chemicals being eliminated.

12. If Recycling Plant is employed for the wastewater recycling along with sludge treatment requires major additional investment as well as the social and environmental impacts. However, the cost of setting up the Recycling Plant is not included in this proposed project. Neither the technical details of the Recycling Plant nor the budget is included in the DER. We assume that KWA has a hidden agenda of dumping the liquid slurry and solid waste to project site itself as the site for dumping of the waste is not identified or earmarked till date. Also there are only less than 1% Plants of KWA are functioning on Recycling process, the performance of these plants are always tend to failure, the classic example of one of the failed plants operating on this principle is the Kottayam 25 mld plant in Medical college campus where raw sludge from the plant is discharged to the undeveloped areas that belong to Medical college and as the dumping area is the government land, there is no public protest.

13. It is relevant to note that KWA has no plans to address the accumulation of the waste from the recycling plant in this landlocked areas adjacent to the site or any waste management plan for processing,

transporting and disposal of the waste. This would end up in discharging this concentrated semi-solid waste with high pollution potential to the natural channels which spell far-reaching environmental hazard to the whole area which would come to light only if this is subject to an environmental auditing. Whereas it appears from the contentions that the Joint committee had a passive session without going scientifically into the facts and figures of the scope of the intent the Hon'ble Tribunal has envisaged. In short the Joint Committee hasn't provided any scientific basis to support its contentions or proved that the petitioner's above arguments are wrong.

14. Regarding the **points of Conclusion and Recommendation of the Joint Committee,** the following objections are hereby humbly placed before the Hon'ble Tribunal

1. "The proposed water treatment plan (WTP) by KWA at the identified location is not expected to make much adverse impact on the environment'. The Joint committee's above statement is relying on a general phrase 'not much adverse impact' in which they should have scientifically specified the range of the adverse impact. The factual inaccuracies such as absence of any alleged pond etc have obviously not been mentioned by the committee.

2. Regarding the backwash and sludge management
    a. The extract of the report of the Joint committee states that "The discharge of backwash water will be eliminated by recycling Plant". There is no scientific basis to support this claim of the Joint committee as this is a statement without providing the design of the recycling Plant or its behaviour in similar cases.

b. The extract of the report of the Joint committee states that "A proper Sludge management system is proposed by KWA". Whereas the recycling plant is a wastewater treatment plant which needs an Environmental Impact Assessment (EIA) with regard to the thickening of the sludge and dewatering either by using drying bed, sludge lagoon, filter press, vacuum filtration. Also the site for dumping the waste in not identified. Or else the arrangement for disposing of the sludge cake is not in place, in fact nowhere in any of the KWA's treatment plants this arrangement is in place. If so they can produce trip sheets or tendering processes of the sludge cakes before the Hon'ble Tribunal to prove this point. In Kerala with the maximum density of the population, it is impossible to get dumping sites which end up in the sludge being dumped into the site of the WTP which will generate leachate that get magnified to multiple times during rain, will spell environmental hazard to the nearby areas.

3. The extract of the report of the Joint committee states that "It is observed that the standard practises have been followed for the feasibility studies and identification of location of the proposed WTP and deviation from existing guidelines/manuals by relevant authorities such as CPHEEO etc. were not observed by the Committee and it is felt that modifications may not be required". The above Joint Committee reported statement is far away from precision. Whereas, as per the accepted norms for the design of Water Treatment Plant (WTP) and that accord with the current CPHEEO manual, the recommended

location of the WTP shall be near the source of water, copy of the relevant page of the PHE handbook that depicts the CPHEEO guidelines, highlighting the advantages of the above arrangement have ben filed. However for this project, the distance between the proposed source and proposed WTP is 6 km, which is far away, is a clear disregard of the above mentioned CPHEEO norms.

4. The extract of the report of the Joint committee states that "The Senior Officer of the State Pollution Control Board has observed that Water Treatment plants come under Green category as per categorization of the Board based on pollution potential". This statement is true. However, once recycling Plant is employed to treat the concentrated wastewater from the treatment plant that required the storage and treatment of wastewater, the category of this component changes to waste treatment plant which needs an Environmental Impact Assessment (EIA). Wastewater sludge recycling KWA's plan along with sludge treatment requires major additional investment to take into consideration the social and environmental impacts. The main hidden problem is the cost of setting up of WTP with wastewater treatment system is not included in this proposed project report. We assume that KWA has a hidden agenda of dumping the liquid slurry and solid waste to project site itself without any environment clearance.

5. The extract of the report of the Joint committee states that "The Committee is also of the opinion that it is the constitutional right of every citizen to have access to safe drinking water and that public interest and the welfare of common man are the paramount concern of every Government and its instrumentalities". However, the rights

of the residents adjacent to the plant site against the environmental ill-effects should also have to be protected. KWA is moving forward with the WTP along with waste dumping plan in the name of drinking water scheme without proper environmental clearance from Government of India.

6. The extract of the report of the Joint committee states that "The Government of India has also announced Jal Jeevan Mission with the aim to provide safe drinking water to all villages by year 2024. The activities of this mission in the seven villages can be completed only after setting up this Water Treatment Plant". This may be true, but the over draw of water from Pamba river, if not properly done without a study will cause dry-out of the river in lean season and this will do more harm than help to the community. It is reported in Malayala Manorma on 11, September 2018 that in summer months Pumba River water stop flowing due to dry up in Parakkadavu in Chengannur which is near the proposed draw point for this project- Poovathur kadavu. Water level in Pumba River has dipped as the landslide caused by torrential rains eroded the surface soil of river bed-this type dry up allow even people to walk across the Pumba River in several stretches. Joint Committee either forgot to discuss or ignored river flow data in summer Pumba River data,

7. **Pumba River Environmental flows -** In order to maintain a natural healthy ecosystem in Pumba river, the environmental flows (E flows) should be maintained with this proposed WTP withdrawal of large volume of Pumba River water for this new KWA

project. 'Environmental flows' means enough water is left in Pumba River, which is managed to ensure downstream environmental, social and economic benefits. The Joint Committee did not even consider the impact of Eflows of Pumba river against the total withdrawal of river raw water for this project. The feasibility of this project can't be verified or substantiated without Pumba river Eflows of upstream and downstream, the scientific assessment of Eflows of the river should also be considered as an important indicator in the comprehensive Environmental impact analysis of this project. Pumba River Eflows analysis should include the identification of the quantity, quality and distribution of flow patterns in river upstream and downstream with withdrawal location as the focus point and it provides a balance between the proposed WTP water usage and protection of Pumba water resources for general community with biological diversity.

8. Pollution has to be controlled at the upper stretches in order to minimize pollution in the lower stretch. Total water withdrawal in the upper stretches have to be identified(118MLD) along with the proposed 40 MLD(Millions of Liters Per Day) water withdrawal for this project. Pumba River's heavily polluted stretch is shown in pictorial representation in page 44 in Exhibit 9. The flow regime of a river, comprising of five key variables, magnitude, frequency, duration, timing and rate of change, is considered the key factor responsible for sustaining biodiversity and maintaining the integrity of the river ecosystems. This type of comprehensive Eflows data can only help to establish the actual impact of this new project against the current natural health of Pumba river. The Joint committee did not even

address this important issue may be because current Eflows data in lean period is very much in dangerously outside of permissible level and it may negatively affect the current KWA project plan with WTP water withdrawal location and capacity.(*The National Green Tribunal (NGT) passed a landmark order on 20 September 2018 pertaining to increasing polluted river stretches in the country (NGT 2018). As per order of the Hon'ble NGT dated 9/8/2017 in O.A.no 498/2015, it is important to maintain e-flow during lean season in Pumba River. The NGT observed that the State Pollution Control Boards (SPCBs) have failed to check pollution. The tribunal distinctly stated that the chief secretary of each state and the administrator of each union territory will be responsible for preparation of the action plan.* ACTION PLAN FOR REJUVENATION OF POLLUTED STRETCH (MANNAR - THAKAZHY) OF RIVER PAMBA- Submitted by District Level Technical Committee(Pathanamthitta District) Before the River Rejuvenation Committee (As per G.O (Ms) No.12/2019/WRD Dated 30.04.2019))

9. **Pumba River ---Assessment of seasonal variations of physico-chemical parameters:** Water Quality Dynamics and Sustainability Evaluation of Pamba River, Kerala International Journal of Research and Scientific Innovation (IJRSI) | Volume V, Issue II, February 2018 | ISSN 2321–2705. The objective of the study was to investigate the seasonal variations of ten(10) physico-chemical parameters such as temperature, pH, transparency, hardness, salinity, ammonia, carbon dioxide, Dissolved oxygen, Biological Oxygen Demand and Chemical Oxygen Demand.As a part of the investigation, four stations were selected for the study for the assessment of water quality of areas such as Kozhancherry, Aranmulla, Chengannur and and Mannar.

Water samples were collected during the year 2016-2017 from the study area and the physico-chemical parameters were analysed with respect to the seasons following standard methods(Significance of this study-This study samples were collected in the Pumba River locations close to KWA's proposed water withdrawal spot at Poovathur kadavu) . The study indicates that there is a pronounced variation of most of the water quality parameters with variations in season. There are numerous causes including increasing number of industries and various other anthropogenic activities in the neighbouring regions, global climatic changes that lead to the degradation of the quality of water. Pumba River water quality parameters may provide a warning signal about the further ecosystem degradation with withdrawal of water for this potential scheme. The findings of this study also provide a better understanding of this damaged Pumba River ecosystem and reminds the need for its restoration rather than further destruction by this project's huge water withdrawal. The study indicates that there is a pronounced variation of all the ten(10) Pumba River water quality parameters above the permissible limit with variation in season. Pumba water quality analysis shows that all ten(10) critical parameters are dangerously outside the permissible limit during lean season. This study was done in the location KWA is planning to withdraw 118 MLD(Millions of Liters Per Day) river water for this project. This committee report did not cover this serious water quality parameter variations in lean season.

10. **KWA Wastewater Management Plan** : It is noticed that most recent KWA response regarding disposal of sludge & water waste produced in the proposed water treatment plant (WTP) will be

recycled. Recycling of raw river water waste can be done only using a wastewater treatment plant (WWTP) for further processing the waste, mainly because it is considered as the only alternative for the treatment of waste generated in this water production processes. This new KWA suggestion requires an additional WWTP along with WTP. Current KWA project design report(in the Detailed Engineering Report (DER)) has no WWTP Design or there no budgeted fund allocated for wastewater treatment - PASK is a project status alert system of Kerala Water Authority-KWA Official Website-Rs.42.35 crore or there is no plan to get environmental clearance for a wastewater treatment plant like a STP. The WWTP system also require an anaerobic stabilization pond followed by a facultative pond. This may be the reason the KWA is claiming a pond in the vicinity of proposed current WTP location. We feel this may be an imagination or fantasy or a "cut & paste" genuine mistake from another KWA Detailed Engineering Report , the plan appears to release solids from a WTP effluent into a WWTP that includes anaerobic stabilization ponds followed by a facultative pond. Indeed, this process scheme is inviting potential environmental disaster.

Water treatment plants produce a wide variety of waste products along with drinking water. These residuals may be organic and inorganic compounds in liquid, solid, and gaseous forms depending on the source of raw river water and the type of treatment processes. Following steps are not considered by KWA in for developing this type of comprehensive water treatment plant along with waste management plan:

- Characterize form, quantity, and quality of the waste residuals;

- Determine appropriate regulatory requirements waste management;
- Identify feasible disposal options;
- Identify mitigation of foul odors-The foul odors at waste stream originate from the anaerobic decomposition of organic compounds. A natural by-product of anaerobic digestion is hydrogen sulfide (H2S), which gives off a strong, nauseating smell. Due to its low solubility in wastewater, it is released into the atmosphere, producing creation of disease causing an offensive odor.
- Select appropriate residuals processing/ treatment technologies;
- Develop a residuals management strategy that meets both the economic and noneconomic goals established for a water treatment facility.

KWA is now proposing 100% recycling of waste from the water treatment plant as alternative to make solid brick from water waste , this plan is not covered in original KWA project report . The majority of Kerala WTP's dispose of solids and liquid waste removed during the treatment process by returning them to river water or water body or simply landfilling. These are the three(3) standard practices now followed by KWA .These three waste management options are not possible in this proposed project location. Processing these waste need extensive waste treatment plant similar to a STP(sewer treatment plant) as waste is very much same as sewage based on test data of intake raw water from Pumba River. The proposed location of WTP inside this Koipuram valley without any natural or artificial drainage is not possible due to land lock situation which will create wide waterlogging . Report

claim that the natural drains are connected to water body but this is not a true statement provided in the joint report, this proposed WTP location is completely a land-locked area without any natural drainage. The waste from this plant will be hazardous in nature in solid and liquid form, which will be toxic, corrosive, reactive and it will be very bad for ground water if the plan is to dump to nearby land. This committee report did not cover or study independently this serious waste management issue.

11. **Media Reports about Pumba River - REPORT IN THE HINDU "PCB flags pollution threat in Pampa" report published in the Hindu on December 12, 2019 Reported by Radhakrishnan Kuttoor PATHANAMTHITTA:** Pumba River also known as Dakshina Ganga because of its historic relationship with the Sabarimala Temple, the river originates from the Sabari hills in the Western Ghats and flows west through the districts of Idukki, Pathanamthitta and Allappuzha. It is also the third-longest river in Kerala and flows through one of the most densely populated regions of the state. "**The Pampa river is slowly dying due to environmental degradation"** as reported in technical publications & The Hindu newspaper 2019 report and several other mainstream media reported this shocking scientific news . Experts say that the primary cause for degradation is extensive deforestation in the catchment areas. Unscientific and uncontrolled withdrawal of water in the river upstream to be blamed for the drying without any flow in lean season. Another cause for concern is the disposal of human waste directly into the river. According to a report by the Kerala Pollution Control Board, the level of pollution in the river during the period of

Sabarimala pilgrimage is very high. The report indicates that at Pampa, where the pilgrims take the 'holy dip' before darshan at the holy shrine, the total coliforms (a rod shaped bacteria) was 190 times above the permissible limit. This highly polluted raw water is going to be the intake for this WTP which is going to be pumped 6km in to the land-locked koipuram inland without proper waste management plan. It is reported by Kerala PCB that Pumba River's Total Coliform, CFU/100 ml 200, 260, 290 and Faecal Coliform, CFU/100 ml 60, 50, 90 are very high, based on monthly progress report for the month of August2021 as per Order of the Hon'ble NGT in the matter of O.A.No.673/2018 including Kerala Initiative a project on River Biodiversity Rejuvenation of Pamba

12. It is submitted that the KWA's unsustainable "large volume" Water Treatment Plant with "recycling" as a unapproved waste processing scheme will result in environmental damage to Pumba River & degradation of ground water in Koipuram . It is submitted that it is important to perform a comprehensive environmental impact study done by independent agency from the fact that wastes generated from the process will impact the environment and it is in fact mandated by the precautionary principle and principle of sustainable development. In these circumstances, environmental good governance requires that NGT should order an independent EIA studies to assess the impact of the proposed project. It is submitted that an NGT appointed independent committee to verify the availability natural drainage in Koipuram as claimed by KWA and verify the KWA waste water recycling protocol as it is not provided in the original KWA's Detailed Design Report and promised to provide a complete waste(solid & liquid

water waste) processing or disposing plan to Koipuram community on 8-11-2018 at SIS meeting .

13. It is submitted that the KWA is planning to construct Water Treatment Plant in land-locked Koipuram, without proper water waste disposal and KWA is moving forward with the plan in the name of drinking water scheme without obtaining environmental clearance from Government of India. The KWA is aimed at drawing 40 Millions of Liters Per Day of Pumba River without Eflows or dry flow study as part of Environment Impact Assessment (EIA) .The estimated cost of the project is only ₹42.5 crore, therefore waste recycling was not included in this project due to budget constraints and its impact has been suppressed.

It is therefore prayed that the above submissions be taken into consideration by this Hon'ble Tribunal and the application be allowed as prayed.

Dated this the 23rd day of November, 2021 at Chennai

Counsel for the Applicant