CHAPTER 11

EXECUTIVE SUMMARY

1. The Project Proponent: Mr. Paul P John, the first generation entrepreneur started John Distilleries in year 1996, a company manufacturing Indian Made Foreign Liquor. Within a span of 16 years, the industry spread from Bangalore to establish footprint in 11 States across India. The establishement is the Sixth Largest Liquor Company in the country in terms of volume. The company also export premium products to developed countries and regular brands to Middle East & African Nations.

2. Mr. Paul P John has also got his presence in Hospitality Industry and currently owns "Kumarakom Lake Resort" in Kerala and "The Paul" in Bangalore. Apart from Beverages & Hospitality segment, he has business interests in US, with a furnishing fabric trading house, real estate & construction business based in Tampa, Florida, that has a distribution network across US and Canada.

3. Proposed Distillery Expansion Project: The distillery at this Chitali location was started in the year 1960 & the ownership was with Government of Maharashtra. In the year 1977 the ownership was transferred to a Government of Maharashtra undertaking namely Western Maharashtra Development Corporation (WMDC). In the year 2003 the company was sold to John Distilleries Pvt. Ltd. and was named as Chitali Distilleries Ltd.

In the year 2010 the name of the distillery was changed to M/s. John Distilleries Pvt. Ltd. (JDPL). JDPL has proposed expansion of molasses based distillery with capacity from 50 KLPD to 150 KLPD alcohol i.e 100 KLPD will be promoted at Post Chitali, Taluka-Rahata, Dist.-Ahmednagar. The company has 91.5 ha land for existing as well as for expansion of distillery plant.

4. The notification no. S.O. 1533 promulgated on 14th September 2006 has covered this type of industry under its entry Section 5(g). Terms of Reference (TOR) were sanctioned in minutes MoEF 28th reconstituted expert appraisal committee (industry) meeting held during 1st & 2nd December, 2014. The EIA report has been prepared in accordance to the Guidance Manual Published by MoEFCC and TOR recommended by the 28th Expert Appraisal Committee.

CHAPTER 2: PROJECT DESCRIPTION

5. Location of the Project: The proposed expansion project is at Gut No. 398,399,420, 423 and 424 At Post Chitali, Taluka- Rahata, Dist- Ahmednagar Maharashtra having area of 226.36acres. The geographical location of the industry is Latitude: 19^{0}41'13.0''N and Longitude: 74^{0}20'33.2'' E with an elevation of 532 m above Mean Sea Level (MSL)

6. Description of the Manufacturing Process: Manufacturing process for Alcohol is Hiferm fermentation process comprises of following steps:

- Molasses handling and distillation in which screened molasses is weighed and distributed to cell mass propagation, fermentation and yeast activation section.
- At yeast propagation stage culture yeast is grown in laboratory during plant startup.
- Pre fermentation means transfer of cell mass from yeast vessel to yeast activation vessel to build up cell mass required for fermentation process by cell mass transfer pump.
- Fermentation is engineered process is to convert fermentable sugar into alcohol.
- Distillation is process to cut *rect*ified spirit from fermented wash. 95% V/V is taken out.

7. Raw Materials: The main raw material for this industry is molasses which is by product of sugar factory. The procurement of molasses will be 380MT/Day and balance from nearby sugar factories. The water requirement is about 1077m3/day for Domestic, Greenery and process. The source of water is from Godawari River and supplied from Nira reservoir right bank canal by irrigation Department.

Power requirement is 2000 kW/hr for unit connected load available through Govt. Electricity however the same will be generated in house from turbine. DG set will be used only in emergency backup of capacity 1010 kVA for proposed product. Quantity of fuel for DG set shall be 203 Liters/hr of HSD.

Boiler has 30 TPH Capacity, and requires Bagasse- 264 Tons/day or Coal 42 T/day, on Biogas 33600 m^3/day as fuel.

The capacity of cooling tower shall be (TR)-5500 units. And recirculation pumps for various sections shall be as 500 m3/hr, 42 m Head, fermentation 400 m3/hr with 18 m head, evaporation 350m3/hr, is 40 m head. Steam requirement shall be 506 MT/d for distillery unit. This can be met by using exhaust steam coming after turbines**.**

8. Project Cost: The total project cost for the expansion of distillery is Rs. 90 Cr, EMP cost- Rs. 6.35 Cr, CSR Cost- Rs. 1.8 Cr.

9. Waste water generation: Waste water generation from different sources is 804m3/day. The main source of wastewater generation is the distillation step wherein large a volume of dark brown effluent (termed as spent wash, stillage slop or vinasse) is generated in the temperature range 71-81^{0}C. The characteristics of the spent wash depend on the raw material used in the process. It is estimated that 88% of the molasses constituents end up as waste. Waste water generation from boiler blow down, process (spent wash, spent lease), cooling tower blow down,

floor washing, DM plant and domestic have low BOD/COD compared to spent wash water and treated separately.

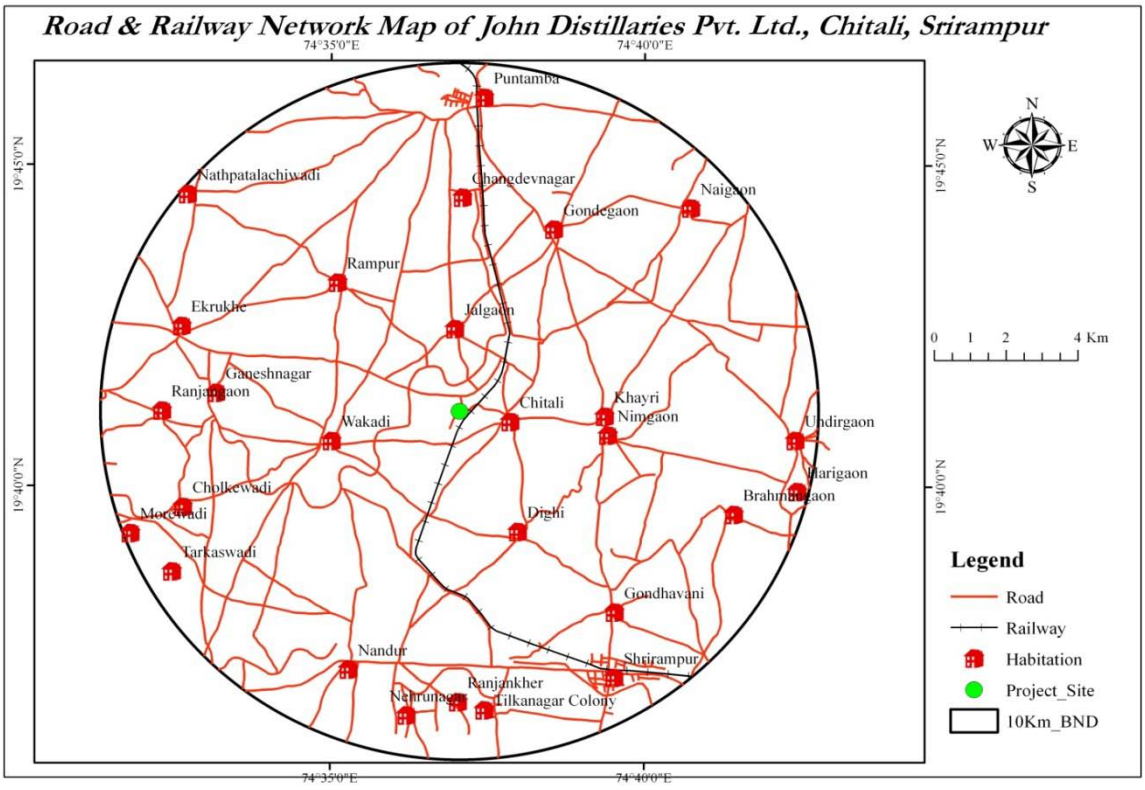
10. Waste water treatment: Spent wash will be treated in Bio-digester. Biogas generated from Bio-digester will be used as fuel for boiler. The effluent after bio-digester shall be treated in MEE followed by incineration. All lean streams from various sources like boiler blow down; cooling tower blow down, domestic will be collected together and subjected to primary, two stage biological treatments followed by UF and RO to recycle treated effluent. The Domestic Effluent will be treated in Septic tank and will be used for green belt after treatment.

11. Air emissions: The air pollution caused by this industry is mainly from boiler. The boiler will be provided with cyclone followed by ESP.

12. Solid waste management: The main solid waste from factory will be of non-hazardous from office, garden, Effluent treatment plant. Non hazardous waste will be segregated as compostable and saleable. Hazardous solid waste such as spent oil and wastes/residues containing oil. The hazardous waste will be disposed scientifically as per the norms.

CHAPTER 3: DESCRIPION OF ENNVIORONMENT

13. Study area: The study area is defined as area within 10 km radius from proposed site boundary and is depicted in Figure.



14. Land use / Land Cover: A recent satellite image for study area was collected from NRSC Hydrabad. The image was interpreted for identification of various land use/ land cover classes in the study area of 10 km radius. Ground truthing was done to confirm and edit the interpreted land use /land cover classes. Agriculture land constitutes major area (46.6%). Current follow land is 12.2 % and long follow land is about 6%. Vegetation cover is only 1.3% where as open scrub land is 18.2%. Build up land (14.3%), Barren land 1.0% and body is only 0.3% within the study area.

15. Meteorology:

As per requirement of Terms of Reference, the hourly baseline meteorological data were collected by setting up meteorological station at the project site. Minimum temperature recorded during study period was 30.1^0C during the month of January and February with maximum temperature of 30.3^0C. Minimum relative humidity recorded was 38.62 %and maximum relative humidity recorded was 38.75%. Meteorological data shows minimum wind speed during study period was 3.9km/hr. maximum wind speed recorded was 4.2 km/hr.

16. Ambient Air Quality

Ambient Air Quality monitoring stations were set up at 9 different locations. Parameters recorded are as follows SO_2, NOx, PM_{10}, $PM_{2.5}$, HC.

Air quality at all the sampling location was within permissible limits for the parameters studied as defined by MoEFCC, Govt of India. Maximum concentration of SO_2 was 11.86 µg/m^3 at Shrirampur and Minimum was 3.56 µg/m^3 at village Jalgaon. Maximum concentration of NO_X was 14.75 µg/m^3 at project site whereas minimum concentration recorded 6.43 µg/m^3 at village Jalgaon. Maximum concentration of PM_{10} was 49.84 µg/m^3 at Shrirampur and minimum concentration of PM_{10} was 24.83 µg/m^3 at village Brahamangaon. Maximum concentration of $PM_{2.5}$ was 27.35 µg /m^3 and at Shrirampur and minimum concentration of $PM_{2.5}$ was 8.56 µg/m^3 at village Brahamangaon. Concentrations of HC were found Below Detectable limits at every site. This indicates that there is no air pollution in the vicinity of 10 km radius due to the JDPL.

17. Noise: Noise levels were recorded at 9 different locations within the study area. Average Noise level at all location in study area is 44.38 dB & 34.30 dB in day time & night time respectively. This is within the permissible limit given by CPCB i.e. day time 55 dB & night time 45 dB. Maximum Noise level observed in day time & night time is at Project Site. Minimum Noise level observed in day time at Rampurwadi. Minimum noise level observed in night time at Nimgaon Kayri.

18 Soil: Soil samplings were carried out at 8 locations in the study area. According to the soil fertility index (RS & GIS cell Government of Maharashtra), the soil quality of district

Ahmednagar is moderately fertile with high concentrator of potassium. Presence of high concentration of potassium affected soil permeability due to that water availability to the plant is reduced.

19. Ground water quality: Ground water sampling were carried out at 9 locations of the study area and analyzed for parameters mentioned in the Indian Standard BIS 10500:2012.
Total Dissolved Solid found high 451 mg/lit. at village Bramanwadi. Concentration of hardness found 165 mg/lit. at village Dighi and lowest concentration of hardness found 50 mg/lit.at Gondegaon & Rapurwadi respectively. All heavy metals are found to be below the permissible limits.

20. Surface water quality: -. Surface water sample were collected from five locations from the, Godavari River & Its right canal, another Canal of Pravara River Left canal & one sample from Naigaon Water. The Total Dissolved Solids 702 mg/lit is maximum in Godavari river and minimum 232 mg/lit at village Naigaon Water Body. The Total Suspended Solid is maximum i.e 28 mg/lit high amount in Godavari river Right Bank Canal (a) & minimum 18 mg/lit in village Naigaon Water Body. Dissolved oxygen, 6.1 mg/lit is maximum in the Shrirampur Pravara Left Bank Canal & minimum in the Naigaon Water Body i.e. 5.4 mg/lit. Other Parameters are within a permissible limit in surface water.

21. Ecology and Biodiversity: The list of floral species is prepared based on visual observation during site visits and thorough review of site literatures and secondary data available with various government offices are referred for identifying rare or endangered species in the region. There are no endangered species of flora and fauna in the study area. There are no reports with the forest department about endangered species or notified protected species. Vernacular species are present in study area. Indian species such as Jackals, Palm Squirrel, Black Buck and Indian Wild Boar. Typically vegetation is composed of natural and cultivated type. Like, *Neem, Pipal, Imli,* etc. No threaten on flora and fauna in study area

22. Socio-economic study: Social survey is conducted 24th December, 2014 to 26th December, 2014 in 30 villages to collect factual information by involving community. For secondary data primary census abstract of 2001 & 2011, Government of India has been used. In 2011, Ahmadnagar had population of **4543,083** of which male and female were **23, 48,802** and 21, 94,357 respectively. Ahmadnagar District population constituted 4.04% of total Maharashtra population. The literacy rate of the district is 80.22% with Male literates having 88.42% and female literates accounting for 71.15 %. The effective literacy rate of the district is 80.87% which is significantly greater than that of the state literacy average.

23. Onsite socio economic study and recent taluka level census statistics exhibits that main working population of Taluka is almost 35.5%. Marginal workers and marginal agriculture laborers are 10.4 % and 9.7 % respectively. Total non working population of 30 villages those

are located very near to the project site is almost 60.7% of the total population of the villages. People opined that the project will not going to cause any damage to existing environment in the study area.

CHAPTER 4: ANTICIPATED ENVIRONMENTAL IMPACT IDENTIFICATION PREDICTION AND MITIGATIN MEASURES

24. Air Environment: Various identified sources, in production of Alcohol that can cause potential impacts on air quality are emissions from: CO_2 generation from fermentation; SPM from Boiler & CH_4 Bio-digester; SPM / SO_2 From DG Sets; Emissions from vehicular movement.

25. Mitigation measures for air quality impacts include: Air pollution control equipments like ESP and Cyclone are attached to boiler. All the boilers are provided with chimney for exhaust gases which will spread all the air pollutants and will not affect nearby area. Effective water spraying will be carried out on the access roads to control re-entrained dust during dry season (if required); Plantation within project premises and around the boundary will be done.

26. Fugitive Emissions: A number of mitigation measures are taken to control fugitive emissions, the presence of which will be taken to Noticeable by plain vision if not controlled. Rubber wheel carts /trucks will bring in Raw materials, not filled high, sides clad, slow speed travel, avoiding vibrations use of heavy equipment for material handling in the main plant will be avoided to minimize dust in the area.

27. Noise Environment: The proposed plant operations and related activities will lead to emission of noise that may have significant impact on the surrounding communities in terms of increase in noise levels and associated disturbances. Increase in noise level may be due to Operation of Plant, Construction activity, Operation of DG set, Vehicle / traffic movement.

28. Mitigation measures for noise related impacts will include: 1) Proper care shall be taken at the time of installation to insulate / enclose all the noise sources to avoid occupational exposure to the work and also to minimize the generation of excess noise level.2) Monitor the ambient noise level and work zone noise level as per the monitoring schedules to conform the stipulated norms. 3) Noise attenuation devices such as ear mufflers must be provided to the workers in the high noise exposure areas

29. Water Environment: The proposed project will utilize 1077 m3/day water during operation phase. The source of water will be from Nira right bank canal. Total wastewater generation from proposed project is 804m^3/day. Waste water from proposed distillery mainly consisting of spent wash may have adverse impact on ground water and surface water sources if discharged without any treatment. Waste water containing spent wash shall be used to generate Biogas. Ground water will not be used in the industry as water levels may deplete.

30. Efforts will be made to reduce water requirement by recycle and reuse of process waste water etc; Domestic waste water shall be reused for Green belt Waste water except spent wash shall be treated in condensate polishing Unit and shall be recycled to process. Recharge pits for rainwater harvesting will be made to improve groundwater condition; Spent wash will be treated in Bio-digester followed by evaporation and Incineration hence zero discharge of water in the environment is expected.

31. The study area covers 314 km^2. In that context the likely change in land use and land cover due to the project is likely to be in the order of 0.01-0.02% of the entire area, a relatively modest figure.

32. Potential positive impacts on the Land Use and land cover shall be due to the project are due to: Green belt development (Positive Impact), Land Acquisition is required and site preparation for construction activity has low risk. Waste disposal may affect ground water and soil quality. However, wastewater treatment by biomethanation - volume reduction in multiple effect evaporator – incineration will achieve zero liquid discharge and hence no adverse impact on soils and ground water sources.

33. Optimization of land requirement through proper site lay out design will be basic criteria at the design phase; As the Site is surrounded by Agriculture land as LU map suggest so care will be taken for the waste disposal. Maintenance of existing green belt and development of new green belt around the proposed project site will enhance the scenic beauty.

34. Potential adverse impacts on soil due to production of Alcohol activities are: 1) Soil erosion due to spent wash; 2) High BOD&COD and acidic pH of waste water. These impacts are avoided by wastewater treatment and following the ZLD principle. Soil biological activity may be hampered due to overflow and percolation of lagoons in nearby area. However, the lagoons will be designed and made free from any leakages. Spent wash will be concentrated and burned in boiler as fuel.

Socio-Economic

35. Critical analysis of socio-economic profile of the area vis-à-vis its scenario with proposed project activities indicate that the impacts of the project are expected to be of varying nature. The impacts predicted will be on following Environmental components:

- Population
- Education
- Employment Generation
- Infrastructure
- Sanitation/Public Health
- Agriculture

36. Mitigation measures to reduce socio-economic related impacts are:

- Construction and maintenance of the approach road at regular interval will be carried out by project proponent.
- The proper sign board placed for smooth flow of traffic.
- Parking space/ board will be provided within the premises of the factory by the project proponent to minimize the accidents and traffic.
- The continued monitoring of Air and Water will be carried out as agricultural fields are just found to the site

Ecology and Biodiversity

37. Based on study conducted for ecology in the study area, no rare or endangered terrestrial and aquatic flora/fauna were noted in the study area. The developed greenbelt and green cover in the project area would increase the flora and fauna density in the area at the project site.

Occupational health community Health and safety

38. Impacts on Occupational Health, Community Health and Safety listed below:

- Impact during preparation of site, like Risk of occupational injuries
- Impact on community health due to various transportation activities, like Noise pollution, Dust pollution, potential damages to village road. Due to this lot of inconvenience may happen to local community.
- Occupational risk during working at heights, during welding etc for Construction activity.
- During storage, handling and disposal of waste water, Risk to community health due to spillage in surrounding area if not stored properly

Mitigation Measures for impacts on occupational health

39. By using PPEs during process impacts on occupational health and safety shall be overcome. Occupational health and Safety surveillance program will be carried out periodically, at least once in a year. Continuous CSR activities shall be there by proponent such as construction of approach roads, various awareness programme.

CHAPTER 5: ANALYSIS OF ALTERNATIVES

40. Site Selection

1) The site for JDPL is owned by project proponent and is free of encroachments. 2) Climatic conditions are suitable for finer adjustment control, making it fit for process conditions. Hence no alternate site has been examined for expansion of the distillery.

41. Improved Technology is selected having the following advantages.

The process used is based on Raw materials that are available, without any bottle neck. Thus it is not necessary to store any one of it in excess. Excess storage also means wastage. Here we can follow easily the principle of JIT (Just in Time) procurement. Basic raw material i.e. molasses is available in the surrounding area abundantly. The process used is developed and streamlined by team and hence are aware about the sensitive points that need careful attention in advance. The process is cost effective, safe and environment friendly. There is no highly elevated pressure condition in processing. No hazardous material is involved in process. We are recovering alcohol and generate biogas from effluent. Recovery the remains can be used following the principal of "at source reduction of waste".

42. Water Supply Alternatives:

M/s. John Distilleries Pvt. Ltd. will utilize 1077cum/day of water which is sourced from Nira right bank canal and supplied by irrigation department. It is available almost whole year. The irrigation department has already given permission for same. John Distilleries Pvt. Ltd. has adopted concept of zero liquid discharge and substantial water saving shall be done by recycle of condensate water, boiler blow down etc.

CHAPTER 6: ENVIRONMENTAL MONITORING PROGRAMME

43. Environmental monitoring program will assess the environmental conditions around the plant and effectiveness of EMP suggested for mitigation. Air, water, noise, solid waste generation, waste wash characterization will be done as per the schedule frequency. The analysis will be carried out by NABL accredited laboratory and data will be preserved for environmental audit. The various parameters for environmental components are the frequency of analysis is suggested in tabular form in the EIA report. On line monitoring system will be installed for air and water characterization and will be reported directly to CPCB/MPCB.

CHAPTER 7: ADDITIONAL STUDIES

44. Hazard identification and Consequence Assessment: Identification of hazards in the proposed expansion plant is of primary significance in the analysis. Additional studies were carried out for quantification and cost effective control techniques of accidents involving

chemicals and process. Hazard is in fact the characteristic of system/plant/process that presents potential for an accident. Proper handling and storage procedure of alcohol will be followed to avoid any kind of accidents.

45. Planning: On-site and offsite emergency plan will be prepared as per the factory act and will be prepared as per Rule No. 12 of factory act (control of Industrial Major Accident Hazard Rules, 2003) as per the guidelines given in Schedule 6. It is absolutely necessary to train & carryout mock drills for success of emergency plan during actual emergency. Emergency procedures should be laid down clearly and convincingly to everyone on site, particularly the KEY PERSONNEL & ESSENTIAL WORKERS**.**

46. Public consultation: Details of Public consultation will be incorporated after conducting Public hearing for the project as guided by MPCB. The executive summary prepared in Marathi will be circulated to various agencies as per the requirement before public hearing.

CHAPTER 8: PROJECT BENEFITS

47. Alcohol is a potential fuel when blended with petrol. A large demand is anticipated as fuel. The industry established in the rural region of the state. The industry helps to develop road and transportation facility of the region. The industry will provide direct and indirect employment for local people. Overall community development is envisaged due to this project. The proposed expansion project will generate skilled and unskilled potential jobs directly and will also generate many indirect job opportunities.

CHAPTER 9: ENVIRONEMENTAL MANAGEMENT PLAN

48. The EMP provides a delivery mechanism to address potential adverse impacts, to instruct contractors and to introduce standards of good practice to be adopted for all project works. For each stage of the programme, the EMP lists all the requirements to ensure effective mitigation of significant biophysical and socio-economic impacts identified in the EIA.

- Energy and water conservation practices will be adopted
- Green belt development plan is designated for project over **3500** with variety of plants.
- Total rainwater generated and harvested through built up and open area and green belt from the project area is about **21246.46 M^3.**

CHAPTER 10: CONSLUSION

49. All the possible environmental aspects have been adequately assessed and necessary control measures have been formulated to meet with statutory requirements. Thus implementing this project will not have adverse impacts on surrounding environment. At the same time, income generation capacity will also improve in the area by direct and indirect employment leading to

socio-economic development in the area. Hence proposed project will be a welcome development.

50. **Consultant:** The project Proponent retained "M/s sd engineering services pvt. ltd" as consultant to prepare EIA report of M/s John Distillery Pvt Ltd. The consultant has more than 15 year of varied experience in the field of Environment. The mission of company is providing sustainable solution on "Environment for Development". The company is an accredited EIA Consultant Organization by NABET, Quality council of India under EIA accreditation scheme as per mandatory requirement of MoEF, Govt. of India for carrying out Environmental Clearance.