

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, NEW DELHI**

Original Application no. 21 of 2014

And

Original Application no.95 of 2014

And

Original Application no.303 of 2015

In the matter of :

Vardhman Kaushik Vs. Union of India & Ors.

And

Sanjay Kulshrestha Vs. Union of India & Ors.

And

Supreme Court Women Lawyers Association  
Vs. Union of India & Ors.

**Status report by way of affidavit of Charanjit Singh,  
Scientific Officer, Punjab Pollution Control Board, Nabha  
Road, Patiala on behalf of Punjab Pollution Control Board  
and Secretary to Govt. of Punjab, Department of Science,  
Technology & Environment, in compliance of order dated  
31.5.2016.**

I, the above named deponent do hereby, solemnly  
affirm and state as under:

1. That the deponent is presently working as Scientific Officer in Punjab Pollution Control Board at Head Office, Patiala and as such is conversant with the facts of the present case and is duly authorized and competent to swear this affidavit in his official capacity.
2. That, the Hon'ble National Green Tribunal was pleased to pass an interim order dated 31.05.2016 in the above mentioned case, the relevant extract of which containing the directions is reproduced herein below for kind perusal and reference:

"In the meanwhile we direct all the States particularly the 11 States which have been indicated in our previous order, to furnish an affidavit through the Secretary of the State Government, primarily indicating:-

1. Names of two or more most polluted cities in the States.
2. Population of the two cities.
3. Road densities in the cities.
4. Vehicular population in the two cities/districts.
5. Source of pollution particularly dust emission, emission by burning of various materials and vehicular and industrial pollution.

6. Total number of vehicles diesel and petrol, separately.
7. Number of heavy and light vehicles.
8. Number of Two wheelers and three wheelers.
9. Ambient air quality of the two districts/cities.
10. Details and effects of industrial and mining pollution upon the ambient air quality of the districts.
11. The source apportionment of dust and other emission/pollution.
12. Pollution affecting the joining States.

Let the affidavit be positively filed within three weeks from today, with copies to all the Learned Counsels appearing in this case. Respective States Government would be at liberty to put their affidavits on their website so as to make it convenient to all the learned counsels to draw copies from it.

List this matter for arguments and on that date we will pass appropriate directions. On the said date the States Governments shall also state whether it has any

mechanism for condemning the vehicles of ten years of age.

List this matter on 11th and 12th July, 2016, as date of 11th July, 2016 has already fixed."

- 3) That out of the 12 directions given by the Hon'ble National Green Tribunal in its order dated 31.5.2016 as explained in para no.3 above, direction no. 2,3,4,6,7 and 8 relates to the Department of Transport and in this regard, Sh. Harmail Singh, State Transport Commissioner, Punjab on behalf of the State Government has already filed an affidavit before this Hon'ble Tribunal. As such, the affidavit filed by the State Transport Commissioner, Punjab may kindly be read in reply to direction no. 2,3,4,6,7 and 8 as contained in order dated 31.5.2016 of this Hon'ble Tribunal.
- 4) That with regard to the remaining directions i.e. direction no. 1,5,9,10,11 and 12 as contained in order dated 31.5.2016 of this Hon'ble Tribunal, the reply on behalf of the Punjab Pollution Control Board and Secretary to Government of Punjab, Department of Science, Technology & Environment may kindly be read in the following paragraphs.
- 5) That with regard to direction no. 1, the name of following two cities may kindly be read in the category of most polluted cities in the State of Punjab.

a) Amritsar

b) Ludhiana

- 6) That the source of pollution particularly dust emission, emission by burning of various materials and Vehicular and Industrial pollution as contained in direction no. 5 of order dated 31.5.2016 of this Hon'ble Tribunal relating to the above named cities of Amritsar and Ludhiana may kindly be read as under:

**A) Amritsar**

- a) The contribution of air pollution in Amritsar is from construction activities especially Bus rapid transit (BRTS) project, and vehicular pollution. The Municipal Corporation, Amritsar is the responsible agency to curb the dust emission arising from construction activities such as BRTS project. As far as industrial air pollution is concerned, it is submitted that there are 15 large scale red category, 05 medium scale red category and 512 small scale industries in Amritsar District and all the industrial units have provided Air Pollution Control Devices in their premises. However, the Punjab Pollution Control Board has identified the following possible sources of air pollution:

<b>Source of Air Pollution</b>	<b>Pollutants being emitted</b>
Industrial stacks	PM, SO <sub>2</sub> , NO <sub>x</sub>

Vehicular pollution around the Golden Temple (within walled city)	PM, NO <sub>x</sub>
Re-suspension of road dust due to traffic movement	PM
Wood burning in Free Kitchen in Golden Temple.	PM, NO <sub>x</sub> , SO <sub>2</sub>
Wood/Coal based restaurant tandoors within walled city.	PM, NO <sub>x</sub> , SO <sub>2</sub>
Operation of diesel generators within walled city.	PM, NO <sub>x</sub>
Burning of crop residue outside the city.	PM, Elemental Carbon, Organic Carbon

- b) In order to study the quality of ambient air around Golden Temple, the Punjab Pollution Control Board has installed one Ambient Air Quality Station and started the monitoring of ambient air at Golden Temple. As per the Ambient Air Quality monitoring data, the values of parameters namely NO<sub>x</sub> & SO<sub>2</sub> have been found to be within the limit and RSPM was above the permissible limit specified by Central Pollution Control Board (CPCB).
- c) The Board has awarded the project of source apportionment study of pollutants in and around the Golden Temple, Sri Amritsar to Indian Institute of Technology, (IIT) New Delhi and the details thereof have been provided in answer to direction no. 11 of the order dated 31.5.2016 in a following paragraph. It is pertinent to mention here that on the basis of the source apportionment study conducted by IIT, New Delhi, following conclusions have been drawn.

- i) From the monitoring and modeling results, it has been concluded that Sulphur dioxide (SO<sub>2</sub>) and Nitrogen dioxide (NO<sub>2</sub>) concentrations at Golden temple were found within the National Ambient Air Quality Standards (NAAQS), while Particulate Matter (PM<sub>10</sub>) concentration are exceeding the NAAQS. This is because of high background concentrations of PM<sub>10</sub> (55.00 µg/m<sup>3</sup>) within the city, which seems to be due to natural dust.
- ii) The major contributing source of PM<sub>10</sub> was found to be re-suspensions of road dust (47%) followed by industries (31%). However, the major contributing source of Nitrogen dioxide (NO<sub>2</sub>) was found to be DG sets (59%) followed by vehicular exhaust (26%). For NO<sub>2</sub>, Free kitchen within the premises of Golden Temple, was also contributing 12% of total NO<sub>2</sub> concentrations.
- iii) That Major sources of Sulphur dioxide (SO<sub>2</sub>) were found to be Kitchen (46%) and Industries (41%). Various scenarios which were developed based on different types of control measures, have concluded that introduction of Electric/Battery operated transport (3 wheelers, 100% and 4 wheeler, 50%) will reduce PM<sub>10</sub> and NO<sub>2</sub> concentrations by 14.5% and 21.7%, respectively, from base level of traffic. Similarly,

diversion of traffic movements from Hall Gate and installations of air pollution control system at Free Kitchen will reduce PM10 concentrations 5% and 31% respectively, of base level, NOx concentrations by 13% and 29%, respectively, of base level from traffic and Kitchen.

d) On the basis of the above conclusions, the following recommendations have been made by the committee

- (i) Electric Operated three -wheeler and four- wheelers shall only be allowed in phased manner to enter within the walled city.
- (ii) Entry of traffic from Hall Gate to Dharam Singh market should be diverted to alternative routes.
- (iii) Free kitchen should be re-designed preferably installed with higher stack height and fitted Wet Scrubber. The height of the chimney may be worked out following the guideline as given by the Central Pollution Control Board.

e) Apart from the above, the following strategic measures / actions were suggested for reduction of ambient pollutant concentrations further around the Golden temple:

- (i) 15 years old vehicles should be banned to enter within the walled city.



- (ii) Entry of Heavy- duty vehicles must be regulated with strict implementation and monitoring.
- (iii) Daily road cleaning using heavy duty vacuum cleaners along with sprinkling of water should be introduced to suppress the re-suspension by road dust.
- (iv) Vertical Garden and/or designing a layer of appropriate plants/trees using big sized pots placed around the Golden Temple at suitable places shall provide shelter to the temple and thus assist in reducing the ambient pollution level.
- (v) The authorities must try to provide uninterrupted power supply to the surrounding commercial units to avoid use of DG sets. Otherwise, as an alternative, the commercial units must plan to use combined soundless natural gas/LPG based power generators with proper pollution control.
- (vi) Crop residue/biomass burning should be completely banned around the city.
- (vii) No new and/or expansion of existing heavy polluting industries (under 17 Red category) should be allowed within 2 km radius of Golden temple.
- (viii) Traffic movements around the Golden Temple must be redesigned introducing one way traffic to avoid congestions.

- (ix) The Golden Temple is a paramount place of worship for the Sikhs and attracts tourist from throughout world. The ambient air quality within and around Golden temple should be continuously monitored to capture any episodic (extreme) as well as average pollutants concentrations. A permanent continuous ambient air quality monitoring station, meeting NAAQS guidelines, should be installed within the premises of the Temple along with a continuous micro meteorological station monitoring all criteria parameters of pollutants and meteorology.
- f) It is pertinent to mention here that in order to implement the recommendations made by the Indian Institute of Technology, New Delhi, as explained above, meetings were held under the Chairmanship of Deputy Commissioner Amritsar, on 22-08-2013, 21-10-2013, 31-10-2013, 04-11-2013, 07-03-2014, 08-05-2014 and affidavits were filed by District Administration, Amritsar, on the behalf of State of Punjab before the Hon'ble Punjab & Haryana High Court in Civil Writ Petition no. 3773 of 2011 titled as Court on its Own Motion v/s The State of Punjab and Others from time to time alongwith the details of description/activity completed by various departments as reviewed in the meetings held with

regards to the implementation of the recommendations of the IIT, New Delhi. Last meeting was held on 9.3.2016 and the minutes of the said meeting are enclosed herewith as **Annexure-A** for kind perusal of this Hon'ble Tribunal.

## **B) Ludhiana**

Being critically polluted area, a comprehensive action plan has been prepared for the abatement of pollution in Ludhiana city in concurrence with the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi. Under the action plan, not only the direct sources of pollution from industries, but indirect sources of pollution are also been taken care of. The action plan is being implemented under the direct control and supervision of Deputy Commissioner, Ludhiana. Regular meetings in this regard are being presided over by the Deputy Commissioner, Ludhiana with the senior officers of various departments. The implementation of this plan is closely monitored not only by the State Government but also by the Ministry of Environment, Forest & Climate Change, Government of India, New Delhi. Recently, the Secretary to Government of Punjab, Department of Coordination on 29.4.2016 has presided over a meeting at Ludhiana with the senior officers of various departments to review the progress on the basis of the information provided by various

departments during the meetings held under the "Action Plan for Abatement of Pollution of Ludhiana City" the status of pollution control with respect to indirect or non- point sources of pollution is summarized below for kind perusal of this Hon'ble Tribunal :

- a) As far as the road dust, sweep and burning of municipal waste is concerned, Municipal Corporation, Ludhiana is the responsible agency to mitigate this problem. Municipal Corporation has taken certain initiatives to contain these sources of pollution. These include mechanical sweeping on some outer roads. This activity is recently started and about 50 Km road length has been covered, so far. Municipal Corporation is planning to add 34 Km more length shortly. As this activity is carried out during night hours & through suction machines, problem of re-suspension of dust particles in ambient air is minimized in the respective areas. Added green belts & better road conditions resulted in smooth traffic movement helped a lot in reducing the road dust in ambient air. Municipal Corporation has also started the process of pavement of road side berms through interlocking tiles in certain areas of Ludhiana city, which has also helped in reducing the suspended dust in air.
- b) Municipal Corporation Ludhiana has planted 32241 more trees in year 2013-14, 27549 in year 2014-15 and 42614 in

year 2015-16 in Ludhiana city. Further, 17 roundabouts in the city have been handed over to industrial houses for providing green cover.

- c) The District Forest Officer has informed the status of the development of plantation as 1,44,253 in year 2013-14, 3,40,077 in year 2014-15 and 7,96,149 in year 2015-16.
- d) Municipal Corporation, Ludhiana had earlier prepared a common action plan for management of municipal solid waste. The environment clearance for setting up of integrated municipal solid waste management facility was granted in 2011. M.C. Ludhiana had made an agreement for management of municipal solid waste on 30.11.2011 with M/s A to Z Company. Due to failure of A2Z Waste Management Company in door to door collection as well as development of Engineered MSW Project, termination notice was served to the company and a fine was also imposed. A2Z Company has filed CWP and C.M. and Hon'ble High Court has granted 'Status quo' on 22-01-2016 and the case has been adjourned to 29-08-2016. M/s A to Z Company is still continuing with handling of municipal Solid Waste Program.
- e) Another source of dust pollution is paddy straw/stubble burning. Awareness programs were organised by Punjab Pollution Control Board in association with Department of Agriculture and visited villages and interacted with farmers.

Pamphlets regarding prohibition on stubble burning, punishments and fines for violations, its ill effects and alternatives available to the stubble burning were circulated among farmers in the villages/Fard centers/cooperative societies/market committees etc. For wide publicity against stubble burning & creating awareness amongst masses, a specially prepared vehicle having banners all around was patrolled through various streets, near schools, public places and villages.

- f) Punjab Pollution Control Board has got the monitoring of stubble burning through satellite images from Punjab Remote Sensing Centre, PAU Campus, Ludhiana, for a period of one month from 15 Oct. 2015 to 15 Nov. 2015. As per the reports of Punjab Remote Sensing Centre, 729 incidence of fire burning noticed against 1291 observed for same period during last year, which shows decline of about 43% in the fire incidences this year for Ludhiana district.
- g) As far as control of vehicular pollution is concerned, a multi pronged strategy is adopted. Stress is being given for more wider roads, over bridges, elevated roads & bye-passes. The work of the widening of completion of National Highway (NH-1) & providing flyovers of National Highway (NH-1) is under progress. With the completion of Samrala chowk & Jalandhar bye pass over bridges, two major bottle necks of traffic congestion have been removed. The

conditions are likely to improve further after the completion of other over bridges & the completion of widening project of National Highway (NH-1), passing through the city. With the work of southern bye pass (along Sidhwan Canal) is almost completed traffic load within the city area has been reduced considerably.

- h) Municipal Corporation, Ludhiana has intimated about the completion of some other important projects including 8 laning of (Ludhiana – Ferozpur road - Sidhwan Canal to Octroi limit), construction of ROB in place of existing Lakkar Bridge, construction of road along Budha Nallah, construction of slip roads (near Veer Palace, Vardhman Chowk & Jamalpur on Ludhiana- Chandigarh road), construction of flyover at Partap Chowk, construction of 2 Pedestrian under passes on Ludhiana - Ferozpur road & one at Railway crossing near Lodhi Club.
- i) Work on some more projects like widening of existing Gill road by providing interlocking tiles & remodeling of Ganda Nallah is also in progress. Municipal Corporation Ludhiana is working on some other proposals that includes construction of Pakhowal Road ROB (near Convent School Railway Crossing) along with flyover at intersection of Hero Bakery, construction of Under Pass at Bharat Nagar Chowk, Construction of 5 Ultra Modern Foot Over Bridges (Red Cross Bhavan on Mall road, outside Bus Stand on Link road,

Bharat Nagar chowk, PAU Gate No. 2 etc.), construction of Dana Mandi ROB & construction of grade separator at Jamalpur on Ludhiana - Chandigarh road.

- j) The work of upgrading the traffic lights is also under the consideration of Municipal Corporation. The tender for upgradation of 28 existing traffic signals has been allotted to DIMTS, New Delhi. The work is expected to be completed upto 30-09-2016. Seven new intersections are identified for providing traffic lights. All these efforts have yielded good results and the road dust has been reduced.
- k) Comprehensive Mobility Plan (CMP) for Ludhiana has been prepared by MC, Ludhiana. Simultaneously, a city level committee in the name and style of Ludhiana UMTA (Unified Metropolitan Transport Authority) has been set up under the Chairmanship of Deputy Commissioner, Ludhiana. Further to reduce the menace of 3-wheeler pollution, Municipal Corporation has re-started city bus service. Ludhiana City Bus Services Limited has a fleet of 105 buses, out of which 83 buses were operational. M.C has informed that balance 22 buses will be made operational soon.
- l) So far as air pollution from industries is concerned, all the air polluting industries have installed air pollution control devices. Punjab Pollution Control Board is also persuading the industrial units specially the dyeing/textile units for adopting clean technologies including recovery of cooling



water and steam condensate and for adoption of energy efficient machinery. Number of dyeing units have adopted this program & results are encouraging. With these efforts, steam requirements has been reduced resulting in lesser quantity of fuel burning and less air pollution from boiler furnaces.

- m) Further, Punjab Pollution Control Board is pursuing air polluting industries to adopt efficient furnaces for its boilers like fluidized bed for better and efficient combustion of fuel. Specialized two stage APCD have been prescribed in case of use of pet coke fuel for minimizing the SO<sub>2</sub> emission levels in air. Punjab Pollution Control Board is also exploring the possibility of reusing rice husk ash generated from fuel burning from the boiler furnaces for silica recovery and the project has been assigned to the Punjab State Council for Science & Technology, Chandigarh. Similarly, Punjab State Council for Science & Technology, Chandigarh has developed technologies to control air pollution from rice shellers, cupola furnaces, steel rolling mills, brick kilns and induction furnace for efficient pollution control devices. All the air polluting industries are being visited regularly and punitive action is initiated against the defaulting industries.
- 7) That the ambient air quality of the above mentioned two cities namely Amritsar and Ludhiana as contained in

direction no. 9 of the order dated 31.5.2016, may kindly be read as under:-

**a) Amritsar City**

The Punjab Pollution Control Board is continuously monitoring the ambient air quality of Amritsar District for which three ambient air quality monitoring stations have been installed. The average yearly data of RSPM, SO<sub>x</sub> and NO<sub>x</sub> for the years 2013, 2014 and 2015 for Amritsar District is summarized below:-

<b>Sr.</b>	<b>Station Name</b>	<b>Pollutant</b>	<b>Permissible limit (µg/m<sup>3</sup>)</b>	<b>2013 (µg/m<sup>3</sup>)</b>	<b>2014 (µg/m<sup>3</sup>)</b>	<b>2015 (µg/m<sup>3</sup>)</b>
1.	M/s Vinod Milk Chilling Centre, Amritsar	RSPM	60	177	190	183
		NOX	40	40	39	38
		SO <sub>2</sub>	50	13	13	13
2.	M/s Focal Point, Regional Office, Amritsar.	RSPM	60	176	184	186
		NOX	40	39	41	38
		SO <sub>2</sub>	50	13	13	14
3.	Village Rasulpur	RSPM	60	66	58	70
		NOX	40	14	12	13
		SO <sub>2</sub>	50	6	7	7

**b) Ludhiana.**

Punjab Pollution Control Board is continuously monitoring the ambient air quality of Ludhiana city for which 4 ambient air quality monitoring stations have been installed. Decreasing trends of RSPM, SO<sub>2</sub>& NO<sub>x</sub> have been observed

at the ambient air quality monitoring stations during 2013-14 as compared to 2010. Also, the annual average concentration of SO<sub>2</sub> & NO<sub>x</sub> at all the stations is well within the prescribed limits. The average yearly data of RSPM, SO<sub>2</sub> and NO<sub>x</sub> for the year 2014, 2015 & 2016 (Jan, Feb & March) is listed below:-

Sr. No	Name of Station	Pollutant	Permissible limit (µg/m <sup>3</sup> )	2013 (µg/m <sup>3</sup> )	2014 (µg/m <sup>3</sup> )	2015 (µg/m <sup>3</sup> )	2016 (upto., March)
1	Milk Plant, Ludhiana	RSPM	60	184	105	112	112
		SO <sub>2</sub>	50	10	8	10	9
		NO <sub>x</sub>	40	21	22	26	23
2.	Vishavkarma Chowk, Ludhiana	RSPM	60	218	191	176	163
		SO <sub>2</sub>	50	11	10	10	10
		NO <sub>x</sub>	40	25	27	29	29
3.	Nahar Spinning mills, Ludhiana	RSPM	60	233	176	177	180
		SO <sub>2</sub>	50	13	13	15	17
		NO <sub>x</sub>	40	30	30	29	28
4.	Zonal/Regional Office Building, Ludhiana	RSPM	60	174	137	105	90
		SO <sub>2</sub>	50	11	11	10	10
		NO <sub>x</sub>	40	28	27	26	26

- 8) That the details and effects of industrial and mining pollution upon the ambient air quality of the districts (Amritsar and Ludhiana) as sought by the Hon'ble National Green Tribunal vide direction no. 10 contained in order dated 31.5.2016, may kindly be read as under:-

**a) Amritsar**

There are 15 large scale red category, 05 medium scale red category and 512 small scale industries in Amritsar District falling under the purview of air pollution and it is pertinent to mention here that all the industrial units have provided air pollution devices in their premises. As far as mining

pollution is concerned, there is no mining activity in the city of Amritsar.

**a) Ludhiana**

Ludhiana is one of the biggest industrial towns of the country. On the basis of industries registered with the office of General Manager, District Industry Centre, Ludhiana, 42,184 units are operating in District Ludhiana as on 30.11.2015. However, most of these units falls under exempted or green category and are non-polluting in nature. There are 2174 red category polluting units in Ludhiana city. Out of these, only 887 are air polluting in nature, wherein 59 units falls under large scale sector, 44 medium scale sector & 784 in small scale sector. Significant air polluting units in Ludhiana are textile/dyeing units (265), arc furnaces (4), induction furnaces (58), rolling mills (35), cupola furnaces (69), tyre manufacturing units (20) & milk processing units (5) and other Misc. units (441). Most of these units are located in notified industrial areas/ focal points/estates or in industrial zones earmarked in the Master Plan of Ludhiana city. The Government is exploring the possibilities of shifting polluting units from non-industrial areas. For allocation of plots for dyeing industry, Punjab Industries and Export Corporation (PSIEC) has already issued an advertisement in the news papers for which land

has been earmarked at Tajpur Road, Near Central Jail, Ludhiana.

As far as mining pollution is concerned there is no mining activity in the Ludhiana city. However, main mining activity is being carried out in river Sutlej which crosses at the border of Ludhiana district and is almost 10 km away from the city. The mining sites are near Samrala, Nurpur Bet and Sidhwan Bet etc. which are also far away from the Ludhiana city. Thus, mining activity has no significant effect in Ludhiana District, but the mining activity is being regulated by the Department of Industries and Commerce in the State of Punjab.

- 9) That further commenting on the source apportionment of dust and other emission / pollution as contained in direction no. 11 of the order dated 31.5.2016, the reply relating to the cities of Amritsar and Ludhiana may kindly be read as under:

**a) Amritsar**

During the pendency of a Civil Writ Petition bearing no. 3773 of 2011 titled as Court on its Own Motion v/s The State of Punjab and Others, before the Hon'ble Punjab and Haryana High Court, the Punjab Pollution Control Board has awarded the project of Source Apportionment Study of

Pollutants in and around Golden Temple, Sri Amritsar to the Indian Institute of Technology (IIT), New Delhi.

In the said study, area around Golden temple (as centre) with 5 km radius was studied. The possible air pollution sources found in the study area are industrial stacks, vehicular pollution around the Golden Temple (within walled city), re-suspension of road dust due to traffic movement, wood burning in Free Kitchen in Golden Temple, wood/coal based restaurant tandoors within walled city, operation of diesel generators within walled city and burning of crop residue outside the city (more than 10 km). The concentration of various pollutants as per the source of study is mentioned as under:-

- i) Source Apportionment of air pollutants concentration at Golden Temple, Sri Amritsar (with Diesel Generator set).

Pollutants	Concentrations ( $\mu\text{g}/\text{m}^3$ ) at Golden temple due to							Total Predicted Conc. ( $\mu\text{g}/\text{m}^3$ )	Background Conc. ( $\mu\text{g}/\text{m}^3$ )	Predicted + Background Conc. ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
	Industries	Vehicles exhaust	Re-suspension of road dust	Kitchen	Burning of crop residue	Tandoors	DG set				
PM10	21.31 (32%)	4.76 (7%)	30.95 (47%)	7.46 (11%)	0.24 (0.4%)	1.17 (1.6%)	0.69 (1%)	66.58	55.00	121.58	100.00
NO <sub>2</sub>	-	9.42 (26%)	-	4.32 (12%)	0.13 (0.4%)	0.91 (2.6%)	21.18 (59%)	35.96	10.00	45.96	80.00
SO <sub>2</sub>	2.45 (41%)	-	-	2.75 (46%)	0.01 (0.1%)	0.72 (11.9%)	0.09 (2%)	6.02	6.00	12.02	80.00

Note: (-) Absence of emission data for NO<sub>2</sub> in industry and SO<sub>2</sub> in Vehicles.

ii) Source Apportionment of air pollutants concentration at Golden Temple (without Diesel Generator set)

Pollutants	Concentrations ( $\mu\text{g}/\text{m}^3$ ) at Golden temple due to						Total Predicted Conc. ( $\mu\text{g}/\text{m}^3$ )	Back-ground Conc. ( $\mu\text{g}/\text{m}^3$ )	Predicted + Back-ground Conc. ( $\mu\text{g}/\text{m}^3$ )	NAAQS ( $\mu\text{g}/\text{m}^3$ )
	Industries	Vehicles exhaust	Re-suspension of road dust	Kitchen	Burning of crop residue	Tandoors				
PM10	21.31 (32%)	4.76 (7%)	30.95 (47%)	7.46 (11%)	0.24 (0.4%)	1.17 (1.6%)	65.89	55.00	120.89	100.00
NO <sub>2</sub>	-	9.42 (26%)	-	4.32 (12%)	0.13 (0.4%)	0.91 (2.6%)	14.78	10.00	24.78	80.00
SO <sub>2</sub>	2.45 (41%)	-	-	2.75 (46%)	0.01 (0.1%)	0.72 (11.9%)	5.927	6.00	11.93	80.00

iii) That the contents of para no. 6 (A) may kindly be also read as part of reply to direction no. 11 contained in order dated 31.5.2016.

**b) Ludhiana**

No scientific source apportionment study for Ludhiana City has been conducted, so far. Ludhiana being critically polluted area, an action plan has already been prepared targeting various point & non-point of sources, implementation of which is being monitored regularly by the Government. The Board has now planned to conduct a third party auditing for carrying out Source Apportionment Study for Ludhiana City. A project proposal to this effect has been submitted by the Punjab State Council for Science & Technology (PSCST), Chandigarh and The Energy and Resources Institute (TERI) is also an associate member of PSCST in this study. A team has been constituted and the

proposal is being examined in consultation with the Central Pollution Control Board. Last meeting of committee was held on 31.05.2016, where in scope of work and methodology of the study was discussed and PSCST was requested to revise its proposal accordingly. The proposal will be finalized shortly. The proposed sources of interest in the emission inventory will be:-

- (i) Rapid urbanization including Road dust Construction activities (construction/widening of roads and flyovers)
- (ii) Municipal waste/ Open burning
- (iii) Road dust
- (iv) Transport/vehicular density/floating population/ Inadequate and improper infrastructure like poor maintenance of roads and unpaved/exposed surfaces
- (v) Industries/unauthorized fuels/inadequate designs of furnaces/APCDs
- (vi) Stationary point sources like DG sets
- (vii) Non-point sources like burning of paddy straw in agriculture fields and anaerobic digestion of bio-mass and garbage.

The contents of para no. 6(B) may kindly be read as part of reply to direction no. 11 of order dated 31.5.2016.



- 10) That in answer to direction no. 12 contained in order dated 31.5.2016 with regard to pollution affecting the adjoining states, it is submitted that there is no state adjoining to the cities of Amritsar and Ludhiana.
- 11) That the State of Punjab and the Punjab Pollution Control Board with the help and assistance of concerned Departments are making sincere and concerted efforts and are also adopting necessary corrective and mitigating measure for the prevention, control and abatement of air pollution not only from the cities of Amritsar and Ludhiana but from the entire State of Punjab. The State of Punjab and the Punjab Pollution Control Board are sincerely endeavoring to make the entire State of Punjab a pollution free zone.
- 11) That the above status report in compliance of order dated 31.5.2016 relating to the problem of air pollution of Amritsar and Ludhiana Cities is hereby submitted for kind perusal and appropriate orders of this Hon'ble Tribunal.

Date:

Place:

**Deponent**

**Verification**

Verified that the contents of the para no. 1 to 10 of the above Affidavit / Status report are true and correct to my knowledge based on the record available with the Board. Para no. 11 is prayer. No part of the above affidavit / status report is wrong or false and nothing material has been kept concealed or suppressed therein.

Date:

Place:

**Deponent**