IN THE SUPREME COURT OF PAKISTAN

(Appellate Jurisdiction)

PRESENT:
Mr. Justice Ejaz Afzal Khan
Mr. Justice Sh. Azmat Saeed
Mr. Justice Maqbool Baqar
Mr. Justice Ijaz ul Ahsan
Mr. Justice Mazhar Alam Khan Miankhel

C.M.A.NOS.8215 AND 6171 OF 2016 AND CIVIL APPEAL NO.2144 OF 2016, C.M.A. NO. 6225 OF 2016 AND CIVIL APPEAL NO.2145 OF 2016, C.M.A. NO.6226 OF 2016 AND CIVIL APPEAL NO.2146 OF 2016, C.M.A. NO.6291 OF 2016 AND CIVIL APPEAL NO.2147 OF 2016 AND CIVIL PETITION NO.3101-L OF 2016

(Against judgment dated 19.08.2016 of Lahore High Court, Lahore, passed in Writ Petition No.39291 of 2015).

National Engineering Services Pakistan [NESPAK] (Pvt) Limited	**Applicant/Appellant(s)** *(In CMA#8215 & 6171/16 AND Civil Appeal No.2144/16)*
Punjab Mass Transit Authority through its Managing Director, Lahore	**Applicant/Appellant(s)** *(In CMA#6225/16 AND Civil Appeal No.2145/16)*
Lahore Development Authority through its Director General & another	**Applicant/Appellant(s)** *(In CMA#6226/16 AND Civil Appeal No.2146/16)*
Province of Punjab through Chief Secretary, Lahore and others	**Applicant/Appellant(s)** *(In CMA#6291/16 AND Civil Appeal No.2147/16)*
Civil Society Network through its Chairman	**Petitioner(s)** *(In Civil Petition No.3101-L/16)*

VERSUS

Kamil Khan Mumtaz & others	**Respondent(s)** *(In CMA#8215 & 6171/16 AND Civil Appeal No.2144/16; in CMA#6225/16 AND Civil Appeal No.2145/16; in CMA#6226/16 AND Civil Appeal No.2146/16; and in CMA#6291/16 AND Civil Appeal No.2147/16)*
Province of Punjab through its Chief Secretary, Lahore	**Respondent(s)** *(In Civil Petition No.3101-L/16)*

For the Appellant(s) : Mr. Shahid Hamid, Sr. ASC *with*
Mr. Mahmood A. Sheikh, AOR
assisted by Rabia Hassan, Advocate

Mr. Salman Hafeez, G.M. NESPAK
(in CA.2144/2016)

: Mr. Makhdoom Ali Khan, Sr. ASC *with* Mr. Tariq Aziz, AOR a*ssisted* by Mr. Saad Hashmi, Advocate
Mr. Sarmad Hani, Advocate
Mr. Sabtain Fazal Haleem, M.D. PMA
(in CA.2145/2016)

: Kh. Haris Ahmed, Sr. ASC *with*
Mr. Mustafa Ramday, ASC
Mr. Tariq Aziz, AOR *assisted by*
Mr. Zaafir Khan, Advocate
Mr. Ahmed Jamal, Advocate
Israr Saeed, Chief Engineer, LDA
Muhammad Rashid, Dir(Law), LDA
Muhammad Hassan, Dy. Dir(E), LDA
Hafiz Nisar Hussain, A. Dir(Law), LDA
(in CA.2146/2016)

: Mr. Shakeel-ur-Rehman, AG, Punjab.
Ms. Asma Hamid, Addl.AG Punjab
Barrister Qasim Ali Chohan, AAG.Pb.
Rao M. Yousaf Khan, AOR *(Absent)*
Mr. Khurram Chughtai, Strategic Counsel
(in CA 2147/2016).

For the Petitioner(s) : Mr. Azhar Siddique, ASC
Mr. M. Ozair Chughtai, AOR *(Absent)*
(in CP#3101-L/16)

For the Respondent(s) : Ms. Asma Jehangir, Sr. ASC *with*
Ch. Akhtar Ali, AOR
Mr. Kamil Khan Mumtaz *assisted by*
Mr. Noor Ejaz Chauhdry, Advocate
Mr. Hamid Azim Leghari, Advocate
Ms. Namra Gillani. Advocate
Ms. Ayesha Alam Malik, Advocate
Mr. Suleman Jahangir, Advocate
(in CAs#2144 to 2147/16)

Kh. Ahmad Hussain, ASC
Mr. M. Ozair Chughtai, AOR *(Absent)*
(No.2 in CAs#2144 to 2147/2016)

Mr. Azhar Siddique, ASC
Mr. M. Ozair Chughtai, AOR (Absent)
Assisted by Mr. Abdullah Malik, Adv.
Mr. Hammyun Faiz Rasool, Advocate
Mian Shabbir Ismail, Advocate
Mr. M. Irfan Mukhtar, Advocate
Ms. Parveen Mughal, Advocate
Ms. Hifsa Mafia, Advocate
(No.3 in CA#2144 AND Nos.3-5 in CAs#2145, 2146&2147/16)

Mr. Shakeel ur Rehman, AG Punjab
Ms. Asma Hamid, Addl. AG Punjab
Barrister Qasim Ali Chouhan, AAG, Pb
(Government of the Punjab)

Syed Rafaqat Hussain Shah, AOR
(No.17 in CAs#2144 & 2146/16; No.19 in CA#2145/16 & No.16 in CA#2147/16)

Dates of Hearing : 3rd to 6th, 10th to 14th & 17th April, 2017

JUDGMENT

IJAZ UL AHSAN, J-. Having gone through the proposed judgment authored by my learned brother *(Maqbool Baqar, J),* I do not find myself in agreement with the same. I, therefore, have recorded my own reasons and conclusions for accepting the appeals and dismissing the petition which are as follows.

2. Through this judgment, we propose to decide Civil Appeals No.2144 to 2147 of 2016 and Civil Petition No.3101-L of 2016 as common questions of law and fact have been raised against a judgment of the Lahore High Court, Lahore.

3. These Appeals with leave of the Court have arisen out of a judgment of the Lahore High Court, Lahore, dated 19.08.2016 rendered in Writ Petition No.39291 of 2015 (Impugned Judgment). Through the Impugned Judgment, the Constitution Petition filed by the Respondents challenging various aspects of a mass transit project commonly known as "Lahore Orange Line Metro Train Project **("OLMT Project")** initiated by Government of the Punjab was partly allowed.

4. Briefly stated the facts necessary for decision of these appeals and the petition are that Government of the Punjab initiated the OLMT Project in order to handle the chronic problem of acute traffic congestion and to meet the present and future transportation

requirements of the citizens of Lahore. The original feasibility study for a mass transit system for the city of Lahore was undertaken by a consulting Firm namely MVA Asia many years ago. The said study recommended a network made up of four lines in the following order of priority:-

> *"i.* ***Green Line****: Ferozepur Road (Gajju Matta to Shahdara) 27km (completed).*
>
> *ii.* ***Orange Line****: Multan Road to GT Road (Ali Town to Dera Gujjran) 27.1 km (under construction).*
>
> *iii.* ***Blue Line:*** *Jinnah Hall to Green Town 20 km (In future).*
>
> *iv.* ***Purple Line****: Data Darbar to Airport 19 km (in future).*

5. The orange line (OLMT) as originally recommended was to consist of a 27.1 kilometers track *(20.2 kilometers elevated and 6.9 kilometers underground)* including 26 stations *(20 elevated and 6 underground)* at an aggregate cost of US $ 2.00 billion exclusive of cost of land acquisition. The proposed project did not see the light of the day, presumably on account of its prohibitive cost.

6. The Government of Punjab wished to reduce the cost of the OLMT Project. It commissioned NESPAK, one of the best companies in the country in the area of infrastructure development, having vast local as well as international experience, to re-examine the feasibility study prepared by MVA Asia. An addendum to the said study was submitted by NESPAK in the year 2014. According to the proposal submitted by NESPAK, the length of the track as well as its alignment over and under the median of the road remained unchanged. However, in order to reduce the cost of the Project, the underground portion was reduced to 1.7 kilometers which resulted in reduction of the aggregate cost from US $ 2.00 billion to US $ 1.6 billion. It was recommended that out of the total 27.1 kilometers

length of the route 1.7 kilometers would be a cut and cover segment and the remaining 25.4 kilometers would be an elevated viaduct. The viaduct of the OLMT Project consists of 'U' shaped girders *(two separate channel shaped track ways of pre-stressed/concrete)* resting on piers which are 30 meters apart. The viaduct system is supported by piles and a pile cap substructure system. The 1.85 meters thick pile cap consists of 6 piles of 1.2 meters diameter and 18 meters length. Piers of the viaduct are of 1.2 meters diameter. The height of the piers is approximately 13.5 meters. A 10 meter long transom rests over the top of each pier to support the 'U' shaped girders.

7. In the 1.7 kilometers cut and cover portion *(underground section),* the construction methodology is to erect barricades on either side of the road, about 12 meters apart. Holes of a diameter of 0.76 meters are drilled in straight lines on either side of the road. Iron cages are lowered into the holes and these are filled with concrete. Thereafter, the area in-between is excavated to a depth of 3 meters and a reinforced concrete roof 0.8 meters thick is constructed, joining the tunnel formed by the roof and the piles on either side with a clear height of 5.60 meters. Thereafter, a concrete slab of 0.6 meters is laid on the floor of the tunnel. All wall gaps *(0.31 to 0.45 meters wide)* in between the concrete piles are covered with water proofing and vibration dampening materials.

8. The system is designed to run B1 type trains *(according to Chinese standards).* Each train consists of 5 bogies. The axel load of a B1 type bogie *(loaded)* is 140 kN and that of an empty one is 80 kN. The proposed OLMT Project has a total of 26 stations, 24 of

which are elevated while the remaining 2 are underground. The projected ridership is an average of 2,45,000 passengers per day. According to the appellants, more than 46% of the civil works corresponding with the total estimated cost of the Project had been completed till 30th of August, 2016 and another 30 to 40% of the civil works were likely to be completed in the next 6 to 8 months.

9. The main dispute raised before the High Court related to the impact of the proposed OLMT Project on various heritage sites and special premises as defined in the Antiquities Act, 1975 ***[the Act of 1975]*** and the Punjab Special Premises (Preservation) Ordinance, 1985 ***[the Ordinance of 1985]***, and the NOC's/permission letters granted by the concerned departments to undertake the OLMT Project.

10. According to the Respondents, the following sites were covered under the Act of 1975 and the Ordinance of 1985, which were likely to be affected in view of their respective distances from various structures of the proposed Project and therefore required protection:-

PROTECTED PREMISES *(under the Act of 1975)*

i. Shalamar Garden (approximately 29 meters away from the train track)
ii. Gulabi Bagh Gateway (21 meters away from the train track)
iii. Buddu's Tomb (18.1 meters away from the train track)
iv. Chauburji (16 meters away from the train tack)
v. Zaibunnisa's Tomb (33 meters away from the train track)

SPECIAL PREMISES *(under the Ordinance of 1985)*

i. Lakshmi Building (9.3 meters away from the train track)
ii. General Post Office (GPO) (3.6 meters away from the train track)
iii. Aiwan-e-Auqaf (Shah Chiragh) Building (20.1 meters away from the train track)
iv. Supreme Court, Lahore Registry Building (3.72 meters away from the train track)
v. Saint Andrew's Church (1.9 meters away from the train track) (Not declared as a "Special Premises" under the Ordinance of 1985).
vi. Mauj Darya Shrine and the Mosque (4.8 meters away from the train track).

11. It appears that any development scheme within a distance of 200 feet of an immovable antiquity, a protected site or special premises requires sanction by the competent authority. The procedure for obtaining such sanction is provided in Section 11 of the Ordinance of 1985 and Section 22 of the Act of 1975. For ease of reference, the relevant provisions are reproduced below:-

> ***"Section 11: Execution of development schemes and new constructions in proximity to Special Premises.—*** *No development plan or scheme or new construction on, or within a distance of two hundred feet of a Special Premises shall be undertaken or executed except with the approval of the Government or a Committee.*
>
> ***AND***
>
> ***Section 22: Execution of development schemes and new constructions in proximity to immovable antiquity.–*** *Notwithstanding anything contained in any other law for the time being in force, no development plan or scheme or new construction on, or within a distance of two hundred feet of, a protected immovable antiquity shall be undertaken or executed except with the approval of the Director General.*

12. The Ordinance of 1985 and the Act of 1975 provide an adequate and effective mechanism and statutory framework to safeguard and protect heritage sites. These also identify the authorities required to enforce these laws. A buffer zone of 200 feet has been created around the heritage sites. However considering that it may not be possible to enforce the 200 feet buffer zone in all cases and under all circumstances, the competent authorities have been empowered to permit development plans, schemes and construction (as the case may be). However, such permission can be granted by the competent authority after due application of mind to the facts, circumstances and nature of each project and after satisfying itself that all necessary steps will be taken to ensure that the heritage site in question will not be destroyed, damaged or adversely affected.

13. The record indicates that the requisite applications alongwith relevant data were filed with the concerned Departments, which issued a 'No Objection Certificate' on 16.11.2015 for construction of the OLMT Project along the alignment of five heritage buildings protected under the Act of 1975. Similarly, another 'No Objection Certificate' was issued on 30.11.2015 in respect of the aforesaid special premises protected under the Ordinance of 1985.

14. The Respondents *inter alia* challenged issuance of the aforesaid NOCs. By order dated 28.01.2016, a Bench of the Lahore High Court suspended the said NOCs and restrained the appellants from carrying on any construction activity within 200 feet of the said buildings. Faced with this situation, the matter was referred to and re-examined by an Advisory Committee constituted in terms of the Act of 1975 under the Chairmanship of the Director General, Archaeology. It was decided to request the Lahore Development Authority **("LDA")** to engage an independent structural engineer to evaluate the effect of OLMT Project on the aforesaid buildings during construction and operational phases. The Committee also decided to engage the services of Dr. Ayesha Pamela Rogers to conduct a Heritage Impact Assessment [HIA] of the OLMT Project.

15. Pursuant to the above decision, Dr. Engr. Javed Uppal was appointed as the independent structural engineer for evaluating the effect of the Project on the aforesaid buildings during the construction and operation phases of the Project. He submitted his assessment report on 24.02.2016. Likewise, Dr. Rogers submitted her report on 05.03.2016. The said reports as well as other material, information and data were examined by the Committee. In light of

the said examination of data, reports, recommendations and findings new NOCs/permissions were issued by the competent authorities, which were stated to be in continuation of the earlier permissions. These incorporated stringent conditions and requirements to be fulfilled during various phases of the Project. These were presented before the Bench of the High Court hearing the matters. However, these permissions were also rejected by the Bench holding that the said experts were neither independent nor impartial in view of the fact that they had allegedly undertaken some work at some stage for Government of the Punjab or had been associated, in a professional capacity with the said Government in the past. The Constitution Petition was ultimately accepted in the terms reproduced below:-

> *"i) The original NOCs dated 16.11.2015, 30.11.2015 and all revised NOCs dated 06.05.2016 and all addendum NOCs dated 20.5.2016 under the Act of 1975 and Ordinance of 1985 are set aside being issued without lawful authority and of no legal effect. Consequently, the respondents shall not carry out any construction within distance of 200 feet of protected immovable antiquity and special premises mentioned in para 24 of this judgment.*
>
> *ii) The Director General Archaeology is directed to engage independent consultants consisting of panel of experts of international status preferably in consultation with UNESCO to carry out fresh independent study/report regarding protected immovable antiquities and special premises.*
>
> *iii) The request for permission under Section 22 of the Act of 1975 and under Section 11 of the Ordinance of 1985 will be considered afresh by the competent authorities in the light of study/report by independent experts of international status referred above.*
>
> *iv) To structure the discretion of competent authorities for future permissions under Section 22 of the Act of 1975 and Section 11 of the Ordinance of 1985, the Government is directed to frame rules under Section 37*

of the Act of 1975 and Section 16 of the Ordinance of 1985.

v) This petition to the extent of Environmental Approvals dated 09.7.2015 and 09.5.2016 is dismissed being not maintainable. However, the recommendations of Advisory Committee on environment (constituted under section 5(6) of the Act of 1997) in its report dated 07.5.2016 will be implemented in letter and spirit by the authorities concerned".

16. When the matter came up for hearing before this Court, after a preliminary hearing, it was clear to us that the *bone* of contention between the parties was the credibility and technical reliability of the original reports submitted by NESPAK. In passing, doubts were also raised about the reports filed by Dr. Uppal and Dr. Rogers, more so, on their impartiality rather than the merit and technical soundness of their respective reports. It was therefore clear and obvious to us that the concerns of the Respondents i.e. the accuracy and technical soundness of the report of NESPAK and credibility of the experts and their reports needed to be verified and counter checked by sending the reports and all relevant technical material and information to an independent expert to seek his opinion on the contents of the report. These had been questioned by the Respondents and discarded by the High Court. In our view the opinion of an independent expert could enable us to resolve this controversy.

17. On our query, the learned counsel for the Respondents quite readily and learned counsel for the Appellants after some hesitation agreed to such course of action. We therefore directed both parties to propose names of at least three independent experts out of whom we could appoint one to undertake this exercise. Both

parties submitted names of different experts. In order to ensure that fairness and impartiality was maintained, we decided to nominate two experts, one out of the three proposed by each side. Accordingly, we nominated Mr. Robin Cunningham, a Professor in the Department of Archaeology, University of Durham, United Kingdom, proposed by the Respondents and M/s TYPSA – Asian Consulting Engineers (Pvt) Ltd. JV ("TYPSA") proposed by the appellants to undertake an exercise of re-verification and provide us their opinion on various technical aspects of the report of NESPAK. The Government of the Punjab was directed to bear all expenses for both experts and parties were directed to provide all documentation, material, data and information that the experts may possibly require for making their independent assessment/re-verification of the reports submitted by NESPAK. Vide our order dated 14.10.2016 the experts were given 30 days time to finalize their reports and submit the same before this Court. The reports were filed with some delay which occurred on account of logistical reasons but is of no relevance at this stage. The parties were called upon to submit their objections. The parties filed their objections whereafter arguments on the objections as well as the main appeals were heard by us.

18. Despite the fact that the controversy had been narrowed down to re-verification of credibility of the NESPAK reports dated July, 2015 and February, 2016, in the context of Act of 1975 and the Ordinance of 1985, detailed arguments on all aspects of the case were addressed by the parties. Learned counsel for the appellants namely Mr. Shahid Hamid, Sr.ASC *(in Civil Appeal No.2144 of 2016)*; Mr. Makhdoom Ali Khan, Sr.ASC *(in Civil Appeal No.2145 of 2016);* Kh. Haris Ahmed, Sr.ASC *(in Civil Appeal No.2146 of 2016)*;

and Mr. Shakeel-ur-Rehman, Advocate General Punjab *(in Civil Appeal No.2147 of 2017)* addressed detailed arguments in support of their respective appeals. They not only defended the reports submitted by NESPAK in July, 2015 and February, 2016 but also reinforced their arguments by the contents of the report submitted by M/s TYPSA - Asia which according to them fully supported, re-verified and confirmed the accuracy and credibility of the reports earlier submitted by the NESPAK. They also pointed out that the report of Professor Robin Cunningham was quite general in nature and dealt more with the legal interpretation of the provisions of the Act of 1975 and the Ordinance of 1985. It did not advert to the technical aspects of the reports of NESPAK, Dr. Uppal and Dr. Rogers and was therefore not of much help with reference to the credibility of the reports which were the subject matter of the controversy before this Court.

19. Learned counsel for the Respondents, including Mrs. Asma Jahangir and Kh. Ahmad Hussain, ASCs on the other hand made half-hearted attempts to challenge the credibility of the reports of M/s TYPSA – Asia as well as NESPAK but unfortunately, without submitting any technical data or information to counter, discredit or dislodge the conclusions and opinions recorded in the said reports. However, owing to the technical nature of the reports and in the absence of any counter report, data or information they could not come up with anything convincing that could persuade us to discard the said reports. As a last resort, they also relied upon the expertise of Mr. Kamil Khan Mumtaz, who was one of petitioners before the High Court. Mr. Mumtaz gave us a presentation on multimedia and also provided hard copies of his presentation for our assistance. We

have carefully examined the material provided by him. We were also shown real time footage made with the help of Drone mounted cameras on multi media and computer simulations of the OLMT Project on projection screens installed in the Court Room. In addition, enlarged recent photographs of the Project and the location and condition of the protected sites were also filed depicting various stages of work in progress at various locations with the object of giving us a clear understanding of the situation on the ground and contextualizing the arguments submitted by both sides.

20. We also granted permission to Mr. Mumtaz to address us. He explained to us that the effect of vibrations (expected to emanate during the construction phase of the Project and operation of the train) on monuments depended on the following factors:-

i) *Magnitude of vibration produced by a particular action;*

ii) *Distance between vibration source and the vibration receiver;*

iii) *The condition of the monument; and*

iv) *The nature of mediums through which it travels to the receiver (soil and concrete etc).*

21. His presentation while useful in an academic sense was helpful in understanding the general concepts but did not, in our opinion, directly address the issue before us. Further, it did not, in any material way, challenge or displace the opinions and conclusions of NESPAK, Dr. Uppal, Dr. Rogers or TYPSA.

22. We have considered the arguments of the learned counsel for the parties and carefully examined the various documents and reports placed on the record. It appears that a Project of this nature involves emanation and transmission of potentially harmful vibrations for old buildings and structures at two stages i.e. the construction phase and the operational phase. At the

construction stage, operation of heavy construction machinery, particularly, drills, pile drivers, excavators pavement breakers and other impact devices create seismic waves that radiate along the surface of the earth and downward into the earth. These vibrations in excess of certain levels have the potential to cause damage to a building as well as its foundation. The manner in which a particular building will respond to such vibration depends on many factors including the type of soil on which the building is founded, the age, type and state of foundation of the building, the mass and stiffness of main structural elements of the building, the condition of the building as a whole and the level and frequency of its maintenance. Assessment of susceptibility to vibration has to be taken into account while setting vibration limits. The operational phase covers all parameters that relate to the operation of trains. Factors such as speed, the condition of suspension system installed on the trains, the condition of the wheels, the quality, material and condition of the rails on which the train will operate and the measures taken to absorb/reduce transmission of vibration to surrounding areas are some of the factors to be kept in mind.

23. The reports submitted by NESPAK, Dr. Uppal and Dr. Rogers suggested that there was no real danger to the protected or special premises which were situated in the vicinity of the Project. However, to be on the safe side they suggested additional remedial and protective safeguards and measures. These were duly incorporated in the NOCs and permission letters issued by the Director General, Archaeology. However, these were rejected by the High Court. In order to determine the validity of the reports and to verify accuracy of the same with the consent of the parties, the same

were sent to independent experts for their objective opinion. The report submitted by TYPSA was found by us to be most relevant. It directly addressed the concerns of the Respondents. Relevant parts of the said report are summarized below:-

a) *The description of the viaduct is complete and comprehensive as a general description.*

b) *A pile of 13.5 m seems to have been simulated and in the SAP model, which does not include the viaduct desk, the POT bearings and the upper part with the platform, track and other concrete elements such as lateral parapets, the pile is 8m in height approximately. Thus, the modeled pile is significantly smaller than the real ones in any case and since the density of the concrete has not been corrected/adjusted to compensate the geometry difference, the modeled pile is also significantly lighter than the real ones. <u>This assumption gives higher vibration on results than to be anticipated and is considered to be a conservative approach adopted in the report by NESPAK</u>.*

c) *POT bearings are commonly used between viaducts piers and desks and introduce a resonance frequency. These POT bearings are designed to bring a relatively low resonance frequency. Thus, their influence would lead to lower vibration levels. <u>The POT bearings have not been modeled, it can safely be said that more conservative and safe parameters have been used and the vibration values given in NESPAK reports are higher than the expected values during operation of the trains</u>.*

d) *The description of the tunnel is complete and comprehensive.*

e) *The description of the rolling stock is comprehensive, although the speed data is missing in the report. It is very relevant parameter, which affects directly the dynamic loads on the track. It has further been indicated that the modeled speed is 70 km/h as in the Xia paper. It is considered correct, taking into account the maximum speed is 80 km/h and the average commercial speed is 34.6 km/h. <u>It is a conservative assumption, since stations are close by and thus, speed is reduced and vibrations will be lower.</u>*

<u>FEA MODEL</u>:

The description of the FEA model is comprehensive.

a) The viaduct model consists of pier, pile cap, the piles and surrounding soil. The viaduct desk and the track affect the total mass whereas the track usually includes vibration damping elements, mainly the fastening system. NESPAK models include indirectly these elements through the use of the Xia force and thus, the model will be overestimating the real vibrations, which shows a conservative but safe model has been adopted.

b) The backup material of the underground part indicates that vibration isolators/dampers will be provided which will lead to lower levels of vibration. Thus, vibration values higher than what would be expected are reported and the approach is safe.

c) A 2D model has been used. It is assumed that the geometry is constant and infinite in the longitudinal direction. It is correct in the case of the viaduct, but in a 2D model of a viaduct, the properties of all the modeled materials generally need to be adjusted: the ground or the rails can be considered infinite in the longitudinal direction but not the piers of the viaduct and thus, their properties (mass and stiffness) need to be adjusted. This seems to have been done through the calibration with a 3D model, which is acceptable and safe.

d) A module of elasticity of 2000 MPa is indicated for the ground and around 20.000 MPa for the pile concrete. This is a conservative approach that has given higher values of vibration in the report than those expected during operation.

e) Vertical force at the top of pier is determined from the dynamic train model of Xia. The result is a load history whose maximum value is 660 kN approximately, which is a high value for a Metro vehicle. However, this force is discretized every 0.25 s and thus, it corresponds to a sample frequency of 4 Hz, which only allows analyzing very low frequencies.

f) These calculations are quasi static and valid for structural issues. The viaduct and the tunnel seem to be modeled without any node and the ground is with 4 nodes shell elements with a 1x1 m mesh size in the case of the tunnel and 2x2 m in the case of viaduct. This mesh size allows getting reliable results which would be acceptable.

g) As additional safety measures NESPAK indicates that track details will be provided by the Chinese contractor

including dampers, a 600 mm thick flexible sand cushion material under the bottom slab supporting track, and isolating cork material behind the wall in addition to the waterproofing layer. These mitigation measures have not been used in the FEA analysis and act as a further cushion/reserve capacity as safeguard against the actual vibration expected at the heritage and special premises buildings.

h) *We also fully agree with the suggestion that during the construction and at the commissioning time, noise and vibrations should be measured/monitored to make sure that the vibration and noise remain within the acceptable limits.*

VIBRATION EFFECTS ON HERITAGE BUILDINGS:

The vibration levels have been calculated according to the methodology analyzed before and the results are assessed according to the DIN 4150-3; 1999 and DECC's standards. German standards have been used by NESPAK for comparison which are one of the most stringent available standards.

VIBRATION EFFECTS OF CONSTRUCTION ACTIVITIES:

a) *The vibration effects of the construction equipment are estimated based on the CALTRAN's method. This seems to be adequate and it can be assumed that the maximum allowable values are the same as analyzed before for the operation phase according to the DIN 4150-3 standard. The reports state that the vibration levels at underground critical sites are within the allowable limits, which is correct.*

b) *The vibration levels associated separately to each equipment have also been received. This can always be controlled at site by not allowing machines to work simultaneously near the heritage sites.*

CONCLUSIONS:

The NESPAK reports seem to be very serious and complete from structural point of view. It is relevant with respect to safety and stability of buildings both during the construction stage and under train operation. The approach adopted by NESPAK is conservative. The NESPAK reports rightly conclude that the levels obtained by calculation will be within the permissible limits and there will be no adverse effect on any of these sites. It is concluded that the reports of NESPAK are compliant with international codes and standards and the subject studies are comprehensive and complete with reference to the subject and the results are correct and within acceptable limits.

24. We are not experts in the fields of architectural, structural or mechanical engineering, and do not claim any expertise in the field of vibration sciences. We therefore have to rely upon the reports and opinions of the experts submitted before us. These are *prima facie* credible owing to the fact that they have been confirmed and reconfirmed by independent experts and have by far remained un-rebutted.

25. During the course of arguments and on perusal of the reports, the aspect of visual impairment of heritage sites has also been highlighted. It has been pointed out that in addition to physical impairment of protected or special premises, the aspect of visual impairment of such premises also needs to be factored in. Visual impairment occurs when the proposed development/installation or structure blocks the view of the premises or distracts an onlooker from appreciating the intrinsic beauty of such premises/structure. It has been argued that in the case of some of the sites, which are subject matter of these proceedings, there is a possibility of visual impairment that may have a negative impact on the heritage sites which are sought to be protected. We would, therefore, keep the said factor in mind during the course of our discussion.

26. We would, however, confine ourselves to the examination of material as well as dealing with the arguments advanced by the learned counsels for the parties regarding three major aspects of the case namely, the construction phase, the operational phase and the aspect of visual impairment in the light of opinions of experts in their respective fields.

27. As far as the construction phase of the OLMT Project is concerned, the learned counsel for the appellants have pointed out that other than the 11 sites regarding which a restraining order had been issued by the High Court, a major part of the construction work on the Project has already been completed. This statement has not seriously been contested by the Respondents. This is also evident from the photographs placed on record and the real time footage seen by us. Further, there is no evidence of any damage caused to any building in the vicinity of the line on account of the construction work done so far. We have been informed that 8250 holes were to be excavated/drilled along the 25.4 kilometers elevated track. Out of these 8028 holes have already been drilled / excavated / capped/ filled. A large number of holes falling within 200 feet of the monuments/premises (subject matter of these appeals) had also been drilled before the High Court issued a restraining order. These include 74 out of 164 holes within 200 feet of Shalamar Garden; 39 out of 39 within 200 feet of Gulabi Bagh; 30 out of 30 within 200 feet of Buddu's Tomb; 19 out of 48 within 200 feet of Lakshmi Mansion; 43 out of 48 within 200 feet of Chauburji; and 10 out of 45 holes within 200 feet of Zaibunnisa's Tomb.

28. The learned Advocate General, Punjab, has categorically stated that no damage of any nature has been caused to any building on either side of 25.4 kilometers elevated track including the 5 protected and one special premises, as a result of the completed excavation/ drilling/ filling/capping work. This categoric statement has neither been contested nor denied by the Respondent at any stage.

29. With regard to the cut and cover portion of the track, we have been informed that 3693 holes are to be excavated/drilled along the 1.7 kilometers underground track. Each of these holes has a diameter of 0.76 meters i.e. substantially less than 1.20 meters diameter of the holes in the elevated portion. All the excavations are to be undertaken on the road surface i.e. inside the footpaths on either side of the road using highly sophisticated drilling equipment that creates minimal vibration. 1862 holes have already been drilled/ excavated/ filled/concretized and tunnels excavated on either end of the 1.7 kilometers cut and cover length. No damage has so far been caused or reported to any building or structure on either side of the roads on which these 1862 piles have been completed and tunnels excavated/capped. This statement of the learned Advocate General, Punjab too has remained unrebutted.

30. From the material placed before us, which is based on verified data (not seriously contested by the Respondents), it is clear and obvious that so far despite full fledged construction activity no damage has been caused to any building / premises along the entire route of the OLMT Project. The Respondents did produce some photographs showing cracks in the wall of GPO and displacement of some bricks at Chauburji. However, on closer examination and seeking further information from the concerned quarters, it transpired that such damage had occurred on account of age of the building, normal wear and tear because of natural causes, environmental factors, seismic activity and earthquakes, etc which had occurred in the past, much before commencement of the OLMT Project. These had no nexus or connection with the construction activity relating to the said Project.

31. It may be appreciated that most of the protected and special premises are located in the midst of heavily populated areas surrounded by dense, haphazard, unplanned and unregulated, commercial and residential construction. Roads have been constructed in close proximity to these sites on which heavy vehicular traffic including heavily loaded trucks, trailers, buses and other transport vehicles ply throughout the year round the clock. This activity has gone on for decades. Such traffic creates much higher levels of vibration compared to the level of vibrations expected to be created during the construction and operational phases of the OLMT Project. However, no significant damage to any of the heritage sites has been attributed to vibrations emanating from heavy vehicular traffic on these roads.

32. It is common knowledge that ancient buildings suffer damage and decay on account of passage of time, elements of nature, extremities of weather, environmental factors, seismic activity and earthquakes, etc. These cannot be preserved indefinitely unless serious and planned effort is made to constantly repair, maintain, renovate, restore and reconstruct the damaged portions. It is indeed unfortunate that very little serious effort has so far been made to implement and enforce measures to protect, preserve, repair and restore such sites. The matter came to fore and was highlighted once construction work on the OLMT Project commenced.

33. We are constrained to observe that serious efforts need to be made by the concerned departments and agencies to preserve, conserve, restore and protect heritage sites and where

necessary, renovate, not only the sites which are the subject matter of these proceedings but all other sites of historic significance on a continual basis. This can be done by employing experts in their respective fields and allocating the requisite funds generously to finance such projects on long term basis. In this regard, we would issue appropriate directions to the concerned authorities in the later part of this judgment. Suffice it to say at this stage that, on our query, the learned Advocate General, Punjab under instructions, gave an undertaking that a sum of Rupees One Hundred Million would immediately be allocated to the Archaeology Department for the upkeep/maintenance and renovation of the sites which are subject matter of the present litigation.

34. Perusal of the reports submitted by NESPAK and M/s TYPSA – Asia which uses German “DIN” and US “Caltran” standards as benchmarks of acceptable levels of vibrations for old buildings / monuments / structures, with reference to the levels of vibration expected to be generated during the construction as well as operational phases of the OLMT Project indicates that the projected vibration levels expected to emanate during the construction and operation phases would remain within internationally acceptable limits. These levels, according to expert opinions placed before us are highly unlikely to cause any damage or deterioration to the protected and special premises. However, in our view a cautious approach has to be adopted. It has been stated that different pieces of equipment produce different levels of vibration and if various machines are used simultaneously during the construction phase, the aggregate levels of vibration may exceed acceptable limits. We have specifically confronted the learned

counsel for the Respondents as well as the learned Advocate General, Punjab with this observation of the experts. They have, on instructions and in consultation with their engineering experts(some of whom were present in Court), categorically stated that it would be ensured that one piece of equipment is used at any given time while undertaking work in the vicinity of the protected and special premises in question. If more than one item of equipment is required to be used, the aggregate levels of vibration shall not be allowed to exceed the acceptable limits as provided in the afore-noted international standards.

35. It has also been undertaken that technical experts shall constantly be present at the sites when work is undertaken in the vicinity of protected and special premises and all necessary equipment for the purpose of monitoring the levels of vibration, shall be made available to them. It has further been undertaken that if the experts point out any possibility or likelihood of vibration levels exceeding acceptable limits, or any damage being caused to any protected or special premises, on account of the construction activity, work shall immediately be stopped till such time that all necessary remedial measures have been taken to the satisfaction of the experts to ensure that vibration levels remain within permissible limits, and no such damage is caused to any protected or special premises on this score. Further, work shall commence only after experts have given written clearance for resumption. In this view of the matter, we have no reason to disbelieve or doubt the intention of the appellants and their *bona fides* to undertake work on the Project without taking undue risk of causing damage or deterioration to a protected or special premises.

36. The learned counsel for the Respondents were repeatedly asked to place on record any material showing that the reports of NESPAK, Dr. Uppal or TYPSA were incorrect, erroneous or unworthy of reliance. However, other than making generalized submissions based on apprehensions they were unable to place any credible material on record to discredit the said reports. We notice that the High Court also discarded two of these reports without examining their veracity or merit on the basis of a misconceived and imaginary notion of bias and partiality on the part of NESPAK, Dr. Uppal and Dr. Rogers. We are at a loss to understand how the reports of credible professionals could so lightly be discarded and brushed aside, without an in-depth comparative analysis with independent technical reports to be submitted by the Respondents, which were never submitted. Simply on the allegation that NESPAK, Dr. Uppal and Dr. Rogers had undertaken projects for the Respondents in the past and were therefore partial and biased, the High Court not only discarded the reports casting unjustified doubts about the independence and integrity of the experts but also proceeded to throw out conditional permission letters issued by authorities competent under the law to do so after due deliberation and application of mind to all relevant material. Likewise, the High Court tossed out the revised conditional permission letters issued by the Director General, Archaeology committee set up for the said purpose who were competent to do so, in an offhand, ungracious and dismissive manner without assigning any valid justification and legally sustainable reasoning. It lost sight of the fact that the revised permission letters were issued after examination of all technical data and reports of experts and imposed stringent conditions and

incorporated adequate safeguards to address most of the genuine concerns of the Respondents. Unfortunately, these aspects were not even considered let alone discussed and deliberated upon. We are unable to understand why and how the High Court could discard the opinions of experts and persons mandated by law to take decisions based on such opinions, arrogate such powers to itself and proceed to substitute unchallenged and unrebutted technical opinions of experts with those of its own despite complete lack of training and expertise in the fields of structural engineering and vibration sciences. In our opinion, the High Court erred in law and quite obviously exceeded its jurisdiction in doing so, without assigning valid, cogent, sound and legally sustainable reasons. We are therefore, unfortunately, unable to agree with or uphold the findings of the learned High Court in this regard.

37. As far as the operational phase of the Project is concerned, even the learned counsel for the Respondents have candidly conceded that the vibration levels would be considerably lower than those expected during the operational phase. The experts have also opined that there is hardly any foreseeable danger of occurrence of any damage to the protected or special premises on account of operation of the trains in question, provided all necessary remedial and mitigating measures suggested by them are adopted and put in place. We have further been informed that although the maximum design speed of the train is 80 kilometers per hour, the train would actually operate at an average speed of 34.8 kilometers per hour which would also vary (on the lower side) on account of location of 28 stations (more or less one station every one kilometer) on the route of the OLMT Project covering a distance of 27.1

kilometers. However, as a matter of abundant caution, we direct and the appellants have undertaken to operate the train on experimental basis for at least two weeks to test, monitor and ensure that vibrations occurring on account of operation of the trains are well within acceptable limits. It has also been undertaken that in case levels of vibrations emanating from running of the trains exceed acceptable limits, operations shall immediately be discontinued and all necessary remedial measures will be taken to ensure that vibrations are brought down to acceptable limits. Under no circumstances shall the train be operated where its operation may possibly cause damage to the protected or special premises. In this context, we also direct that sophisticated and state of the art vibration measuring and monitoring equipment be installed at suitable places in or around the protected and special premises to constantly monitor the levels of vibration created by operation of the train. Further, the Archaeology Department shall constitute special teams consisting of qualified experts which will periodically inspect all protected and special premises to detect any damage or deterioration occurring at the sites for any reason. They shall maintain proper records and logbooks for the said purpose. They shall bring all necessary facts relating to the condition of the antiquities and special premises to the notice of the Director General, Archaeology who will take all steps necessary to ensure safety and long term preservation of the buildings and structures in question.

38. We have also been informed that all requisite information and data relating to the operational phase was verified through state of the art systems using XIA. H. Zang methodology

and alignment analysis was conducted by Finite Element Analysis (FEA). The results which were based on actual verified data show that the vibration levels likely to occur at the operational stage would remain well below internationally acceptable limits. Despite supportive opinions of experts and as a matter of abundant caution, we also direct that the citizens and community may also be involved in the monitoring process; a hotline may be established, telephone number whereof shall be prominently displayed in public areas around all antiquities and special premises. Tourists, visitors and members of the community should be encouraged to report any damage or deterioration observed in the protected or special premises for any reason to the competent authorities. If any such information is received, the same shall be investigated by a team of experts appointed by the Director General, Archaeology within 15 days of such information being reported. The team shall suggest ways and means to repair/restore any damage or deterioration that may have occurred to any antiquity or protected premises for any reason. On recommendations being received, the Archaeology Department shall commence repair/renovation work without any delay and the requisite funds shall be made available by the concerned quarters within 30 days of a request being made.

39. As far as the question of visual impairment is concerned, we note that all protected and special premises are located in heavily populated areas of the city. Unplanned localities and townships have sprung up around and in close proximity to such buildings. Construction has been undertaken haphazardly and without any sort of planning or regulation which has seriously compromised the visual integrity of most of the protected and special

premises. The report submitted by Dr. Rogers suggests remedial measures. These appear to be effective and practical and must be implemented. In a later part of this judgment, we would pass appropriate directions in this regard.

40. We have also been informed that a buffer Zone was proposed around Shalamar Garden many years ago. It was recommended that encroachments in the Zone be removed and it be converted into a green area with proper landscaping to restore and enhance the grandeur, glory and beauty of the Garden. The said recommendations have been lying in cold storage and become victims of procrastination and red tapism. We direct that positive steps may be taken to implement the said recommendations as far as practicable within a reasonable timeframe.

41. The Respondents have primarily raised objections relating to the visual impairment of two sites namely Shalamar Garden and Chauburji. As far as Chauburji is concerned, we have found that some visual impairment many occur because of the alignment of the viaduct which passes at a short distance from the structure. We have carefully examined the possibility of directing alteration of the alignment of the viaduct or directing that the said portion be constructed underground. However, we have been informed by experts (which information has not been rebutted) that realignment is not possible for a host of technical reasons in addition to the fact that the area is densely populated with private properties. Any realignment would entail considerable human cost in the form of large scale cause displacement of families, in addition to prohibitive increase in the cost of the Project. The idea of an underground

tunnel though attractive at first glance is fraught with technical difficulties including the fact that underground streams carrying waste water from various localities of Lahore pass under the proposed alignment. It would therefore be almost impossible to construct an underground tunnel with the available technical and financial resources. There is no other feasible option except to rely on remedial and mitigating measures suggested by Dr. Rogers in her report. We accordingly order that all such measures and steps recommended by her be implemented in letter and spirit.

42. As far as the visual impairment of Shalamar Garden is concerned, we note that there is no significant visual impairment of the said location. This is in view of the fact that the Garden is surrounded by clusters of residential and commercial buildings of all shapes and sizes as well as busy roads. A densely populated township has developed on three sides of the Garden. A busy dual carriage way (GT Road) runs on the fourth side. However, fortunately the Garden has high walls around it. A person standing in the street cannot see inside the Garden from the street level. As such, there is no question of any visual impairment. A person walking in the Garden may possibly be able to see glimpses of the viaduct or the train from certain points. This aspect does not *stricto sensu* constitute visual impairment. However, even this issue can adequately and effectively be addressed by adopting remedial and mitigating measures recommended by experts.

43. The learned counsel for the Respondents have vehemently argued that the viaduct passes over/at a very close distance from the Hydraulic Tank of Shalamar Garden which is

situated outside the Garden. We have carefully gone through the photographs as well as the structural sketches submitted by both parties. We find that the hydraulic tank is in a state of total disrepair and has undergone considerable deterioration. We have been assured that there is no likelihood of any further damage to the said hydraulic tank by reason of construction of some piers supporting the viaduct, close to it. We would however direct the Archaeology Department as well as the Government of Punjab to ensure that the hydraulic tank is repaired/restored as far as possible to its original position. Such further steps may also be taken, as may be necessary, so that further deterioration or damage is not caused to the structure of hydraulic tanks.

44. In addition to Shalamar Garden, we notice that the elevated track of OLMT passes near some other sites which are subject matter of these proceedings. All these sites exist on thoroughfares and are surrounded (at in some cases hidden) by heavy urban development. None of these sites has a visual landscape integrity. Therefore, the visual impact of construction of the elevated track will be of no material consequence for the purpose of visual landscape obstruction of such sites.

45. The learned counsel for the Respondents were vehement in their assertion that UNESCO had threatened to remove Shalamar Garden from the list of World Heritage sites, unless work on the OLMT Project was immediately stopped. However, the decisions adopted in the 41st Committee Meeting which are available on the website of UNESCO do not support the claim of learned counsel for the Respondents. The emphasis of UNESCO World

Heritage Committee appears to be on control and monitoring of urban encroachments and to discuss measures relating to management and protection arrangements of the Garden. It has nowhere been stated that the Garden will be removed from the list of World Heritage sites if the Project goes ahead. However, considering that Shalamar Garden features in the list of world heritage sites, we direct that every possible effort be made to meet the recommendations of UNESCO by way of taking mitigating and remedial measures. Further, the Appellants in collaboration with UNESCO shall adopt all practicable measures to control and monitor urban encroachments and explore the possibility of creating a buffer zone by coordinating efforts of all concerned departments.

46. It has also been pointed out to us that the OLMT Project will actually improve accessibility to antiquities and special premises for local as well as international tourists. This is in view of the fact that the roads leading to such sites are highly congested making the commute from most parts of the city, time consuming, cumbersome and difficult. Further, the views from elevated vantage points are likely to attract and encourage tourists to visit the sites and appreciate their historic value.

47. We have been informed that Lahore is one of the few cities in the world with population in excess of 10 million which do not have a mass transit train system. London developed its first metro system in 1843. More than 150 cities of various sizes all over the world have had rapid transit train systems for decades. In scores of cities in Asia, Africa and Latin America, such systems are currently under construction. The citizens of Lahore also deserve an

efficient, affordable and environmentally friendly mass transit system to cater for their current and future transportation needs. Even the Respondents admit that a mass transit system is the only viable solution to address the issue of traffic congestion on the roads and absence of adequate and affordable transport facilities for the rapidly increasing population of Lahore. It has been submitted by the Respondents that they do not oppose the Project. Their objection is limited to the mode and manner in which it is being implemented near some of the sites mentioned above.

48. All over the world, where heritage sites are located within cities, the development of the cities is planned in a manner so as to maintain a balance between infrastructural development while retaining/preserving and maintaining the heritage sites. This is often a difficult balance to maintain, but a number of cities all over the world have successfully managed to do so. London, Rome, Istanbul, Beijing, Delhi, Jaipur, etc are but a few examples. We have no reason to believe that this cannot be done in Lahore. There can be no two views about the importance of our historical and heritage sites and the need to preserve and protect them and to safely pass them on to the future generations. But the same need not be at the cost of depriving the citizens of Lahore of an efficient, reliable, dependable and modern mass transit system and to force them to live with an outdated, overstrained, inefficient and expensive system which in addition to all its faults is badly polluting the city pushing air pollution to levels, many times the safe and internationally acceptable limits. Preservation and development are not mutually exclusive and can go side by side complementing each other as has successfully been accomplished in many cities of the world. All it

requires is proper planning and efficient implementation. We, therefore, direct the Government of the Punjab to ensure that every possible effort is made to create and maintain such balance. Further, we direct that in future if any project of this nature is to be undertaken, the Project must be widely publicized through the print and electronic media at least six months prior to the proposed date of commencement. Public hearings should be held and the citizens must be allowed to express their views. All requisite permissions/approvals, licenses and NOCs etc must be obtained from the concerned departments/agencies before actual work on the Project is commenced so that all those who wish to raise objections have adequate time and sufficient information to approach the competent *fora* in case they have genuine objections.

49. We have repeatedly asked the learned counsels for the Respondents, if they have an alternative workable plan. The only suggestions they could come up with involved either realignment of the route or constructing the line underground for the portion where it passes near the sites in question. This would entail an underground portion of about 6.9 kilometers and an astronomical increase in the cost of the Project. Both proposals are neither financially feasible nor practically workable and would require re-planning and realignment of the routes and revision of the entire mass transit policy for Lahore which envisages a mass transit project described above which has taken years of planning, data collection and designing. The proposals put forth by the Respondents would disrupt and throw into disarray the entire master plan which has been prepared by international experts in the field of mass transit projects a part of which (Green Line) has already been completed

and is presently operational. No valid reason has been pleaded that may persuade us to take such drastic an action. In the facts and circumstances of the present case, it was even otherwise beyond the jurisdictional domain of the High Court in exercise of its powers under Article 199 of the Constitution of Islamic Republic of Pakistan, 1973 to delve into highly technical and purely policy issues which were better left to be dealt with by experts having relevant knowledge, training and expertise in their respective fields and the competent authorities authorized and empowered by law to do so. Reference may usefully be made to Dossani Travels Pvt. Ltd. v. Travels Shop Pvt. Ltd **(PLD 2014 Supreme Court 1).**

50. We have carefully gone through the reports submitted by NESPAK, Dr. Uppal, Dr. Rogers, M/s TYPSA –Asia and Dr. Cunningham and noticed that the Respondents have not placed on record any authentic technical data / analysis that may reflect negatively on or rebut the accuracy of the reports, opinions and the conclusions drawn by various experts from the data and information made available to them. We are, therefore of the opinion that the conditions imposed and mitigating and remedial measures suggested by the experts if implemented in letter and spirit would adequately address the apprehensions expressed by the Respondents. We, accordingly, endorse and approve the NOCs/permission letters issued by the competent authorities and the recommendations of experts relating to execution, mitigation and remedial measures required to be adopted by the executing agency and allow the Project to proceed subject to the following conditions and directions: -

i) The appellant shall make all necessary arrangements to ensure that the monuments remain stable and undamaged in all respects during the execution of the Project as specified in the HIA and Study of Control of Vibration, Noise and Foundation;

ii) Vibration monitoring shall be undertaken as a part of the monitoring plan using the crack measure devices such as Avongard Standard Tell-Tale throughout the construction period and for an additional period of 10 weeks from the date of commencement of commercial operation of the train or such further time as may be directed by the Director General, Archaeology. In case, it is found that vibration levels at any stage of the construction or operation are exceeding safe limits, construction work / operation shall immediately be discontinued and remedial action shall be taken to ensure that such levels are brought down to acceptable limits. Such actions may inter alia include use of one piece of equipment at a time, during the construction phase, adjustment of train speed, addition of buffers and such other remedial and mitigating measures as may be recommended by the experts;

iii) Technical experts shall be present at the sites during the construction phase in the vicinity of the antiquities and special premises with all necessary equipment for monitoring vibration levels. In case, vibration levels exceed the acceptable limits, work shall immediately be stopped, remedial measures taken to the satisfaction of experts and further work shall not commence unless written clearance for resumption of work is given by the experts;

iv) An independent and experienced Conservation Engineer shall be appointed to monitor the Project, both during the construction and operation phases. He shall submit monthly reports to the Advisory Committee which shall make such further recommendations to the Director General, Archaeology as may be required to ensure that the

Project as a whole is meeting all technical requirements meant to preserve, protect and conserve the antiquities or protected premises;

v) *On completion of the project, the train shall be operated on experimental basis for at least 2 weeks on the entire length of the route and the vibration levels shall be monitored to ensure that the same are within the acceptable limits. Commercial operation shall not commence unless written clearance is given by the experts confirming that vibration levels have consistently been found to be within acceptable limits;*

vi) *The speed of the Train shall be reduced while passing near the monuments as recommended by the Directorate General of Archaeology from time to time on the basis of data made available to it;*

vii) *State of the art vibration measuring equipments shall permanently be installed at suitable places in and around the antiquities and special premises to monitor levels of vibration created by operation of the train. Records of the same shall be maintained and regularly checked by a responsible officer deputed to do so;*

viii) *Special teams consisting of qualified experts will be set up which will periodically inspect all antiquities and special premises to detect any damage or deterioration at the sites. Proper records and logbooks shall be maintained for this purpose;*

ix) *Any damage or deterioration shall be reported to the Director General, Archaeology in writing who shall take remedial steps necessary to ensure safety of the buildings and structures;*

x) *Recommendations of the Advisory Committee (already set up) shall be placed before the Directorate General of Archaeology, who shall take necessary steps to ensure that the same are complied with in letter and spirit by all concerned agencies, contractors, sub-contractors and operators;*

xi) Where excavation is necessary it shall be carried out in a way that it would not affect any structure or foundation of the antiquities or special premises. Where necessary special arrangements shall be made to stabilize and strengthen the structure of the antiquities and special premises. All necessary safety arrangements shall be made in accordance with the best engineering expertise during excavation, construction and execution phases of the Project;

xii) The executing agency shall install accelerometers, velocity transducers, noise detectors and vibration measuring equipment near the antiquities and special premises. The appellant shall ensure implementation of additional mitigation and remedial measures as mentioned in vibration analysis report by NESPAK, Heritage Impact Assessment (HIA) as well as in the reports submitted by Dr. Uppal and Dr. Rogers;

xiii) Excavation would be carried out in a way that would not affect any of the exposed or buried structure of the Special Premises;

xiv) In case of any adverse impact to the antiquities or special premises during excavation, construction or execution, the appellant and all other related agencies shall immediately and forthwith stop and discontinue further work, take all possible actions to protect and conserve the antiquities and special premises and in this regard, involve such experts and consultants as may be necessary to ensure that the causes and effects of the adverse impact are effectively removed;

xv) A dedicated hotline shall be set up, telephone numbers whereof shall be prominently displayed in public areas around all antiquities and special premises for reporting damage or deterioration observed by members of the public or tourists;

xvi) In case, any information/report is received by the Director General, Archaeology the same shall be investigated within 7 days and after receiving

recommendations (if any) from experts repair/ renovation work shall be commenced within 30 days;

xvii) No building material or equipment shall be stored/stockpiled within protected area of the monuments;

xviii) No change shall be made in the alignment of the track which brings any part of it nearer to the monuments than the distances set out hereinabove;

xix) Dust pollution during construction shall be controlled through extensive sprinkling of water on regular basis and taking such other steps including but not limited to covering the monuments with protective sheets in order to avoid any damage from dust;

xx) The design of the viaduct and nearby stations in terms of colour and designing shall be in harmony with the setting and appearance of the monuments;

xxi) The Hydraulic Tank of Shalamar Garden shall be restored, as far as possible, to its original position and the surrounding area will be converted into a green area;

xxii) Structures on the southern side of the Shalamar Garden shall be camouflaged through construction of a wall in consultation with the Directorate General of Archaeology. All practicable efforts shall be made to create a buffer Zone around Shalamar Garden as per proposal already pending in the Directorate General of Archaeology and other competent forums;

xxiii) The decorative motifs of Shalamar Garden would be replicated on the train station near the Shalamar Garden to create harmony with the Garden;

xxiv) The tile mosaic motifs of the Gulabi Bagh Gateway would be replicated on the nearby station of the Gateway to create harmony with the historic Gateway;

xxv) The area around the Chauburji Gateway would be properly attended and developed into a greenbelt;

xxvi) The decorative motifs of the Chauburji Gateway would be replicated on the nearby station of the Chauburji Gateway to create a harmony with the historic Gateway;

xxvii) The area around the Zaib-un-Nisa's Tomb would be properly attended and developed;

xxviii) The decorative motifs of the Zaib-un-Nisa's Tomb would be replicated on the nearby station of the Zaib-un-Nisa's Tomb to create harmony with the historic;

xxix) The Respondents shall in consultation with UNESCO and other international agencies prepare phase-wise plan to control and monitor urban encroachments and the process of creating buffer zone around the Shalamar garden;

xxx) All future projects which directly, indirectly and incidentally involve antiquities or heritage sites shall in the first instance be widely publicized through print and electronic media at least 6 months prior to proposed date of commencement of the project and public hearings shall be conducted to hear objections, if any against such project; and

xxxi) For all future projects, NOCs, licences, approvals and permissions as required by law shall be obtained before work on the project site is commenced.

51. In addition to the above, we direct the Government of Punjab within a period of 30 days from the date of this judgment to take the following steps:-

a) Set up an Antiquity and Special Premises Fund with the sum of Rupees One Hundred Million which shall be dedicated to monitoring, renovation and reconstruction work of 11 protected and special premises mentioned hereinabove. It shall be a revolving fund and shall be replenished on yearly basis. It shall be utilized firstly for the maintenance, preservation, restoration and renovation work of the protected and Special Premises,

subject matter of this lis and thereafter on other Antiquities and Special Premises situated in Lahore as may be recommended by the special Committee of Experts constituted under this Judgment;

b) *A broad based Special Committee of Experts consisting of Director General, Archeology Department; a Professor of the Department of Archeology, University of the Punjab; Head of Department of Structural Engineering, University of Engineering and Technology, Lahore; a Senior Professor nominated by the Chairman of Board of Directors of National College of Arts; chaired by a retired Judge of this Court nominated by the Chief Justice of Pakistan shall be notified which shall oversee implementation of the judgment of this Court and the directions issued herein. This Committee shall also make such further recommendations to the Chief Minister Punjab to undertake such measures as may be necessary to implement and enforce the directions and recommendations made in this judgment. The tenure of the Committee shall be one year from the date of its notification;*

c) *The Government of Punjab shall retain the services of at least three Experts having expertise in the field of archeology and renovation, preservation and maintenance of antiquities and special premises. One of the experts shall be a person having expertise in structural engineering. All three experts will work as a Technical Committee with tenure of one year. The Technical Committee shall report to advise and assist the aforesaid Special Committee of Experts. The Committee shall, if required and with the approval of Director General, Archeology retain services of such other experts as it may consider necessary to undertake its work more effectively regarding the steps required to be taken to monitor the protected and Special Premises all over Lahore and suggest remedial measures that may be necessary to ensure the safety of all protected and special premises in Lahore; and*

d) *We also emphasize the fact that the present condition of the protected and special premises calls for major preservation, renovation, reconstruction and repair work. The Government of Punjab shall take immediate steps and we have been assured by learned Advocate General, Punjab that such steps shall immediately be taken to start repair and renovation work for which the requisite funds will be made available within thirty days from the date of this judgment.*

52. In view of the foregoing discussion, the Impugned Judgment of the Lahore High Court is set aside and the instant appeals are allowed in terms noted above. Civil Petition No.3101-L of 2016 is unanimously dismissed and Leave to Appeal is refused.

53. Before parting with this judgment, we would like to record our appreciation for valuable assistance rendered by learned counsel for the Appellants namely; Mr. Shahid Hamid, Sr.ASC, Mr. Makhdoom Ali Khan, Sr.ASC, Kh. Haris Ahmed, Sr.ASC, and Mr. Shakeel-ur-Rehman, learned Advocate General, Punjab and Ms. Asma Jehangir, Sr.ASC and Kh. Ahmed Hussain, ASC for the Respondents alongwith their respective teams. We would also like to acknowledge and commend the hard work assistance and backup provided by the Law Clerks of members of the Bench.

Judge

Judge **Judge**

Judge **Judge**

Announced in open Court
On 08.12.2017 at Islamabad.

Judge

APPROVED FOR REPORTING

EJAZ AFZAL KHAN,J.-Every thickly populated city like Lahore needs a Mass Transit System. The system already in place with rapidly growing population has become inadequate. A project of this type could have been conceived at least two decades ago. But the people at the helm could not appreciate its importance. They realized to pay heed to it when the water was to go above their heads. It is never too late to mend is an adage which could console even the late starter. Since the things do not remain static and stationary, the problems the late starters face become greater in magnitude. They, thus, have to mend fences according to the situation which has changed a great deal. Had this project been launched twenty years ago it would not have harmed anything of significance because there was sufficient space all around. Take for instance the ShalimarGarden. In the seventies of the twentieth century it was the sole monument in the area having nothing around it. But today it is surrounded by buildings on almost all the sides. Whatever setup we may have today and whatever odds we may come across, the project of the Orange Line Metro Train (OLMT) which is a dire need of the people living in Lahorehas to be launched and completed.The main issue we are confronted with is the preservation of the heritage sites (Antiquities and Special Premises). If the establishment of the Mass Transit System is indispensable so is the preservation of the heritage sites. What perils does this project purportedly bring to the heritage sites could be summed up as under:

1) Visual impairment of the sites and
2) Damage to the building structure of the heritage sites by vibration during the phase of construction and that of operation.

Before examining the aforesaid aspects, we have to consider the present state and surrounding of each of the heritage sites.

2. The first heritage site in the sequence is Shalimar Garden. It is surrounded by densely constructed houses on three and a dualcarriageway, on the fourth side, which is frequented by heavy vehicular traffic. The proposed railway track is being constructed in the mid of the said dual carriageway. The proposed construction does not cause any visual impairment of the site because the Garden is walled on all the fours. A pedestrian walking on one or another side of the road cannot see anything inside the Garden. Vibration caused by the operation of the train does not pose any threat to the Garden when there is a considerable distance between the walls of the Garden and the railway track. Hydraulic tank is also a part of the heritage site.But it is not likely to be damaged by the proposed construction of the railway track as none of the piers for the track has been raised in the area where the tank lies.

3. The next heritage site is Gulabi Bagh's Gateway. Its left, right and back are covered by double-story buildings, whereas, front is flanked by a dual carriageway. Railway track is being constructed in the middle of the road which has least impact on the site. If the buildings on its left, right and back have done little to damage it, the railway track too would do little to damage its viability. Vibration caused by the train could be said to pose a threat to the heritage site but when the one caused by the vehicular traffic despite being of much greater magnitude has not posed any, there is absolutely no occasion for being paranoid about the vibration caused by the train. There are cracks in the dome and the crown of the arches but in any case the structure

has not reached an edge where it could be declared dangerous as per report of Dr. Ayesha Pamela Rogers. Even if it be so, the benchmark could not be the fast dilapidating state of the building but the one which isrestored on its being repaired and revamped. In case it is left in the present state, tomorrow even a violent gust of wind could cause its collapse. Measures to protect the site have to be taken in any case. The proposed railway track, in this context, is not a threat to the existence of the site. NESPAK and TYPSA, too, do not see any threat to the site on account of the construction of the track and operation of the train. Safeguards provided by law and highlighted in the report of Professor Coninghamhave also been taken care of in the NOC issued by the Director-General of Archaeology, Government of Punjab. Visual impairment is the only problem to be attended to but the fact is that the space left at the moment across the site does not cause any visual impairment as the pedestrians walking on one or another side of the road could well see the façade of the garden. In this situation, we cannot pursue the ideal or what ought to have been. We have to preserve whatever can possibly be preserved. We, thus, do not see anything as could hinder or hamper a 'go-ahead' signal to the proposed construction of the railway track as far as this site is concerned.

4. Buddhu's tomb is another impediment so-called in the construction of the railway track. It is also situated alongside the dualcarriageway. The part of the railway track near the site is resting on fourpiers raised on the strip in between the dual carriageway. Vibration caused by the operation of the train cannot affect much less adversely the fabric of the site and structure of what is built therein. This is not an opinion based on guesswork. This is an opinion based on deduction. The basis for that said deduction is

that the vibration caused by the heavy vehicular traffic which, thus far, did not cause even a crack in any part of the structure on the site. What is strange and even surprising is that disaster on account of vibration caused to the site by the operation of train has been visualized without comparing the vibration caused by the vehicular traffic which appears to be of much greater magnitude. The proposed and partially completed Mass Transit System cannot be obstructed on the basis of assumptions which have no concrete foundations. The piers already raised in between the dual carriageway do not obstruct the vision of pedestrians walking on either side of the road.

5. Having said so, we now pass on to LakshamiBuilding. This building has been demolished but its façade still stands in its original position and this is what is sought to be protected and preserved. Construction of the railway track does not meddle, nor does it compromise the sanctity of its façade for two reasons: the first is that a road intervenes in between the building and the railway track, the second is the heavy vehicular traffic plied on the road whose vibration by no scale of measurement is less than that of the train. Even visual impairment does not appear to be a problem as the pedestrians on one or another side of the road could see the façade of the building. A look at the photographs of the building and its surroundings shows that piers have been partially constructed without causing any damage to the façade. Even otherwise the proposed railway track does not intervene with the building because of the distance between the two. We have been just left wondering how the completion of this project is opposed on the basis of the apprehension which are conjectural.

6. We now deal with Chauburji. This site makes a complex reading. The proposed railway track encroaches upon its courtyardas the piers have been raised therein but when we compare the distance between the heritage site and the road and the distance between the piers and the site, the latter appears to be far greater than the former. But in any case, the proposed railway track causes less intrusion and less visual impairment to the site as compared to the road and vehicular traffic. Known or conventionally recognized standards of protecting the monuments cannot be adhered to without realigning the road and the track. If the road could stay where it stands so could continue the proposed construction of the track as it too does not cause any harm to the site.Vibration caused by the train will not cause any damage to the site when vibration caused by the vehicular traffic did not cause any so far. Protection of the site in terms of ideal against this backdrop is just unworkable. We, thus, have to accept it as it is.

7. Zaib-un-Nisa's tomb is another heritage site whose existence is alleged to be jeopardized by the proposed construction of the railway track, notwithstanding it is far off the road and has all along been surrounded by double story buildings on all the sides. How the proposed construction of the railway track could cause visual impairment and how the vibration of the train could cause any damage thereto, are the queries begging answers. It is, therefore, nothing but creating a storm in a tea cup. Even otherwise, if the heavy construction aroundthe heritage site and the vehicular traffic plied on the dualcarriageway could not cause a hairline crack, apprehending any threat to the site from the proposed construction of the railway track and the operation of the train would be just chimerical.

8. Now we are to see whether the proposed railway track impinges on the health and existence of the heritage sitesinspite of the fact that the track is going underground which in the technical parlance is called cut and cover. The study which has been undertaken by the experts in this connection led to certain reservations. These reservations when considered carefully do not appear to be of a nature as could justify change of site but observance of certain measures which ensure their protection against an imagined or actual danger arising out of the operation of the train. It may, however, be noted that many of the measures already taken adequatelycater for the reservations. It is,thus, not the end of the chapter which would end with the construction of the track and operation of the train. Any measure which is ancillary and reasonably incidental could still be taken at any time if and when anything endangering the heritage sites appears or emerges. Much hue and cry has been raised about the vibration caused by the operation of the train and its effect on the heritage sites. We have again been left wondering as to how vibration caused by the OLMT could damage the wellengineered and well architectured structure of the sites when much greater vibration caused by heavier trains of Pakistan Western Railway did not cause even a crack in the walls of the guard rooms constructed alongside the barriers of the railway tracks more than hundred years ago.

9. How do the experts look at the railway track and its impact on the heritage sites in terms of vibration and visual impairment? A careful perusal of their opinions would reveal that each of them has his own angle of vision. Yet their opinions are not antithetical to each other. They do not see anything in the railway track as could impinge on the health and existence of the heritage

sites in any form. Dr. Ayesha Pamela Rogers' expert opinion would support the conclusion when she says that the vibration produced during the construction and operational phase for all sites and sides will be within the permitted limits. She sees an enemy of the sites in dust which could be raised during the phase of construction but it cannot be blown out of proportion when much greater dust is raised by the heavy vehicular traffic plied on the dualcarriageway which runs across the sites. She nevertheless suggested ways and means for the treatment of the problem emerging from the construction of the railway track and operation of the train which could well be taken care of. At times her eyes are more focused on the surrounding than the heritage site as if the site is an angle and not an object of vision. But it too can be attended to, by beautifying the surroundings which have been impaired by the unplanned massive construction. Beautification of the surroundings at any rate, is a yearning which at no stage becomes unmeaning. According to NESPAK the vibration will have least impact on the sites. TYPSA appears to be in agreement with NESPAK. Report of Professor Coningham focuses more on the imagined violation of law than the damage to be caused to the heritage sites. His expertise in the field does not enlighten us much on the technical aspects of the proposed construction. Report given by Dr.Javed Uppal expressed satisfaction with the measures already taken and to be taken to ensure foolproof protection of the heritage sites against noise and vibration. His report does not suggest the change of site for the construction of the railway trackbut it has not been given much weight by the High Court. The reason in this behalf is not any lapse in his expertise but his supposed bias on account of a position he held in the government of Punjab a few years ago.

10. Let us see how and where does the construction of the railway track make inroads in the domain of the law protecting the heritage sites and how and where do the NOCs violate its letter and spirit? Before we answer these questions, we would like to go through the relevant provisions of Section 22 of the Antiquities Act 1975:

> *"22. Execution of development schemes and new constructions in proximity to immovable antiquity.– Notwithstanding anything contained in any other law for the time being in force, no development plan or scheme or new construction on, or within a distance of two hundred feet of, a protected immovable antiquity shall be undertaken or executed except with the approval of the Director General."*

What does Section 11 of The Punjab Special Premises Ordinance 1985 envisage in this behalf can well be seen from the words reproduced as under:

> *"11. Execution of development schemes and new constructions in proximity to Special Premises.— No development plan or scheme or new construction on, or within a distance of two hundred feet of a Special Premises shall be undertaken or executed except with the approval of the Government or a Committee."*

11. The provisions reproduced above show that the legislature provided adequate safeguards for the protection of the heritage sites in terms of distance between the sites and the constructions proposed to be raised in their proximity. In case the

distance provided by the law cannot be adhered to because of the irreversible developments taking place in the meantime,what could be the way out to kill the snake and yet save the stick. The answer provided by the law is an NOC issued by the DG Archaeology in respect of Antiquities and an NOC by the Special Committee constituted under the Ordinance in respect of Special Premises.But in no case it could be accepted asa gospel truth. It could be changed, modified or revised if the NOC issued for the proposed construction violates the sanctity of the site. It is not injusticiable. The High Court and for that matter this Court could issue an appropriate order, writ or direction if the NOC for the proposed construction has been issued without safeguarding the sanctity and integrity of the sites. Let us see how do the NOCs issued by the competent authority in this behalf deal with the risk to the Antiquities. NOCs on being read provide the following measures which are common in all:

> *"A) No building material or equipment shall be stored/stocked within the protected area of the monuments.*
>
> *B) No change shall be made in the alignment of the track which brings any part of it nearer to the monuments than the distances set out in the Report of the Advisory Committee.*
>
> *C) Dust pollution during construction shall be controlled through extensive sprinkling of water on regular basis.*
>
> *D) Such further special arrangements shall be made, as necessary, to keep the monument stable and un-damaged in all respects during the execution of the*

project as specified in HIA and Study of Control of Vibrations, Noise and Foundation.

E) The design of the viaduct and nearby station in terms of colour and reflectivity should be in harmony with the setting and appearance of the monuments.

F) Vibration monitoring must be undertaken as part of a Monitoring Plan using the crack measures devices such as Avogard Standard tell-tales throughout construction period of and for a period of 10 weeks after commencement of train operations and more time period if so directed. If levels of vibrations exceed safe limits further action must be taken to bring such levels down such as adjustment of train speed, additional buffer, etc., Visual Inspection of indicators other than cracks shall also be part of the Monitoring Plans.

G) An independent and experienced Conservation Engineer must be engaged by the executing agency, and later by the operating agency, to monitor the Project both during its construction and operational phases who shall submit monthly reports to the Advisory Committee which shall in turn make such further recommendations as may be required to the Directorate- General Archaeology. This monitoring shall be in addition to monitoring by the technical staff of the Directorate- General Archaeology.

H) The speed of the train shall be reduced while passing in front of monuments as recommended by

the Directorate General of Archaeology from time to time on the basis of the available data.

l) Recommendations of the Advisory Committee shall be complied by all the involved agencies in letter and spirit."

Some of the measures are site specific which read as under:

A) The area around the Hydraulic tank would be properly attended and developed into green belt.

B) Shabby structures on the southern side of the Shalamar Garden would be camouflaged through construction of a wall in consultation of Directorate General of Archaeology.

C) The decorative motifs of the Shalamar Garden would be replicated on the nearby station of the Garden to create a harmony with the historic Garden.

D) The tile mosaic motifs of the Gulabi Bagh Gateway would be replicated on the nearby station of the Gateway to create harmony with the historic Gateway.

E) The area around the Chuburji Gateway would be properly attended and developed into a green belt.

F) The decorative motifs of the Chuburji Gateway would be replicated on the nearby station of the Chuburji Gateway to create a harmony with the historic Gateway.

G) The area around the Zaib-Un-Nisa's Tomb would be properly attended and developed.

H) The decorative motifs of the Zaib-Un Nisa's Tomb would be replicated on the nearby station of the Zaib-Un Nisa's Tomb to create harmony with the historic Tomb.

NOC issued by the competent authority for Special Premises contained the following conditions:

a. *Excavation would be carried out in a way that it would not affect any of the exposed or buried structure of the Special Premises.*
b. *Wherever necessary special arrangement would be made to stabilize and strengthen the standing structures of the Special Premises.*
c. *Area of the Special Premises would not be used for storing material or parking construction machinery and safety arrangements shall be made in accordance with the best engineering practice during excavation, construction and execution phases of the project.*
d. *If any damage occurred to Special Premises the executing agency will conserve that part from its resources in consultation with the Directorate General Archaeology.*
e. *An independent and experienced Conservative Engineer shall be engaged by Lahore Development Authority/ Punjab MasstransitAuthority, to monitor the Project during excavation, construction and execution phases who shall submit regular reports to the Directorate-General Archaeology which shall be presented to the Committee which may make further recommendations as may be required. This monitoring shall be in addition to monitoring by the technical staff of the Directorate-General Archeology.*
f. *Excavation would be carried out in a way that it would not affect any exposed or buried structure of the Special Premises. Wherever necessary special*

arrangement would be made to stabilize and strengthen the standing structures of the Special Premises.

g. *The executing agency shall install accelerometers, velocity transducers and noise detectors nearby the Special Premises.*

h. *The executing agency shall ensure the implementation of the additional mitigation measures as mentioned in vibration analysis Reports of NESPAK and Heritage Impact Assessment.*

i. *In case of any adverse impact to the Special Premises during excavation, construction and execution phases of the Project, the executing agency will take all possible actions to conserve that part from its resources in consultation and as per advice of the Directorate General of Archaeology.*

j. *In case of any violation of the above-mentioned conditions during the excavation, construction or execution phase of the Project this Permission/NOC will be treated as withdrawn and the executing agency (LDA) and any other involved agencies shall be dealt with in accordance with the provisions of the Punjab Special Premises (Preservation) Ordinance, 1985.*

These NOCs cannot be looked askance at when the conditions provided therein are effective and adequate. Rigid adherence to the distance provided by law in view of the roads and buildings already constructed has become practically impossible. It, therefore, cannot be over emphasized in the present state of things unless of course the entire mass of roads and buildings is razed and erased. If that is not possible, we have to live with it and go ahead without getting bogged down into a controversy which may

distract the executors of the project from the completion of the Mass Transit System which is launched for the welfare of the people.

12. The main thrust of the arguments of the learned ASCs for the appellants was that the final NOCs issued by the authorities conform to the opinions of the experts viz-a-viz the measures to be taken during the phase of construction and that of operation which are by all means effective and adequate and fully cater for the apprehensions of the respondents. We endorse the views of the experts because they also conform to the grave ground realities emanating from our surrounding. We could not, thus, prefer the unknown to known and theoretical to practical.

13. The learned ASCs for the respondents addressed lengthy arguments but they are based more on their apprehension than rational and realistic understanding of the controversy. They stridently criticized the opinions of the experts without precisely pointing out any infirmity or imperfection therein. They, however, extolled to the skies the report of Professor Coningham without realizing that it focused, more on legal than the technical aspects of the construction of the railway track. They could not give relevant facts and figures either on technical or factual plain. They see heal-all in the arrival of the experts from UNESCO as Zoroastrians see heal-all in reappearance of Zoroastor. We should not, however, forget that we have our own problems. We can understand them better by studying them in the context of our surroundings and solve them accordingly by applying our minds. What in the prevailing state of things would be sane, sound and sensible could be decided by the local experts who know the ins and outs of the project and its impact on the sites. The measures and conditions suggested in the NOCs in view of the reports of the experts reflect

the understanding of the problems and their solution according to our surroundings.

14. We, therefore, allow these appeals, set aside the impugned judgments and direct the appellants to go ahead with the project by rigidly adhering to the measures suggested by the experts for the protection and preservation of the heritage sites.

JUDGE

IN THE SUPREME COURT OF PAKISTAN
(Appellate Jurisdiction)

PRESENT:
MR. JUSTICE EJAZ AFZAL KHAN
MR. JUSTICE SH. AZMAT SAEED
MR. JUSTICE MAQBOOL BAQAR
MR. JUSTICE IJAZ UL AHSAN
MR. JUSTICE MAZHAR ALAM KHAN MIANKHEL

C.M.A. NOS.8215 AND 6171 OF 2016 AND CIVIL APPEAL NO.2144 OF 2016, C.M.A. NO. 6225 OF 2016 AND CIVIL APPEAL NO.2145 OF 2016, C.M.A. NO.6226 OF 2016 AND CIVIL APPEAL NO.2146 OF 2016, C.M.A. NO.6291 OF 2016 AND CIVIL APPEAL NO.2147 OF 2016
(Against the judgment dated 19.8.2016 of the Lahore High Court, Lahore passed in WP No.39291/2015

C.M.A. NOS.8215 & 6171 OF 2016 AND CIVIL APPEAL NO.2144 OF 2016
National Engineering Services Pakistan [NESPAK] (Pvt.) Limited
Applicant(s)/Appellant(s)
Versus
Kamil Khan Mumtaz and others Respondent(s)

C.M.A. NO. 6225 OF 2016 AND CIVIL APPEAL NO.2145 OF 2016
Punjab Mass transit Authority through its Managing Director, Lahore
Applicant(s)/Appellant(s)
Versus
Kamil Khan Mumtaz and others Respondent(s)

C.M.A. NO.6226 OF 2016 AND CIVIL APPEAL NO.2146 OF 2016
Lahore Development Authority through its D. G. and another
Applicant(s)/Appellant(s)
Versus
Kamil Khan Mumtaz and others Respondent(s)

AND

C.M.A. NO.6291 OF 2016 AND CIVIL APPEAL NO.2147 OF 2016
Province of Punjab through Chief Secretary, Lahore and others
Applicant(s)/Appellant(s)
Versus

Kamil Khan Mumtaz and others Respondent(s)

...

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(For respondent No. 19 in CA 2145/16)
(For respondent No. 16 in CA 214716)

Dates of Hearing: 3rd to 6th, 10th to 14th & 17th April, 2017

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JUDGMENT

MAQBOOL BAQAR, J. Brought in question through the above appeals is the judgment dated 19th August 2016, whereby a learned Division Bench of the Lahore High Court, whilst partially allowing the petitions filed by the respondents No. 1 to 3, declared that the No Objection Certificates ('**NOCs**') issued by the Director General, Archaeology, Punjab and the Chief Secretaries' Committee, for the construction of Lahore Orange Line Metro Train ('**OLMT**') Project, was without lawful authority, and of no legal effect, and directed the Director General, Archaeology to engage an independent panel of consultants/ experts of international stature, preferably in consultation with UNESCO, to carry out an independent study regarding the protected immovable antiquities and special premises situated along the alignment of the OLMT track. The Court also directed that the request for permission sought under section 22 of the Antiquities Act, 1975 ('**the 1975 Act**'), and under section 11 of the Punjab Special Premises (Preservation) Ordinance, 1985 ("**the 1985 Ordinance**"), respectively, be considered by the competent authorities in the light of the study and report of the said experts, afresh. The Court also directed the Government to frame rules under section 22 of the 1975 Act, and under section 11 of the 1985 Ordinance.

2. Through their petitions, the respondents No. 1 to 3 have challenged before the High Court the aforesaid NOCs, as being violative of section 22 of the 1975 Act, and section 11 of the 1985 Ordinance, respectively. It was contended that the construction of the OLMT Project that will run along five heritage buildings, and five special premises (the monuments), will cause severe damage to the structure of the said monuments, harm their integrity and shall also

cause their visual impairment. It was submitted that the project is being constructed within the protective/buffer zone of two hundred feet (200 ft.), prescribed by the 1975 Act, and the 1985 Ordinance respectively, and in dangerously close proximity to the said monuments. It was submitted that the vibrations induced during the construction activity by use of various equipments/ machinery, and by the transit of the project train, in such close proximity would cause severe and irreversible damage to the said monuments, some of which are more than 370 years of age. It was submitted that as per the internationally recognized standards and scientific data, and literature, the amplitude of the vibrations induced and suffered as aforesaid shall be far in excess of the threshold/tolerance level which shall certainly cause irreversible harm and damage to the monuments. It was claimed that the viaduct structure of the project being constructed in close proximity to the monuments would certainly impair their visual integrity and would break the view line, between the viewers and the monuments. It was further submitted that one of the heritage premises, being the Shalimar Gardens, because of its Outstanding Universal Value ('**OUV**') has been inscribed on the World Heritage List maintained by UNESCO. However because of the impugned construction and the resultant harm envisaged on account thereof in the shape of physical damage, and visual impairment, the relevant Committees of UNESCO, not only requested the Government to change the alignment of the OLMT project, but also to suspend the construction of the project along with the alignment of the Shalimar Gardens, and close to its hydraulic tank which is a core element of the Garden. However subsequently on account of certain assurances given by the Government of the Punjab, they

agreed not to press for the suspension of the work, but insisted upon the change of alignment/route as requested earlier with a caution that non-compliance may result in removing the monument from the World Heritage List. It was submitted that the above monuments are the heart and soul of the city of Lahore and carry with them our glorious past which we are obliged to protect and preserve, and to hand over them in a safe and sound condition to the next generation.

3. It may be relevant to note here that the original feasibility study in relation to the OLMT project was undertaken by a consulting firm, namely, MVA Asia, for a 27.1 km track (20.2 km elevated and 6.9 km underground), including 26 stations (20 elevated and 6 underground) at a total cost of US$ 2.00 billion exclusive of land acquisition. An addendum to the study was completed by NESPAK, one of the appellants before us, in the year 2014, in which the length of the track remained 27.1 km and aligned over or under the median of the road as envisaged by MVA Asia. However, as claimed by the appellants, in order to minimize the land to be acquired for the track, the underground portion was reduced to 1.7 km and the cost was thus reduced to US$ 1.6 billion. It was decided that 1.72 kms of the total 27.1 km length of the route would be cut and cover (underground) and the remaining 25.4 km would be an elevated viaduct.

4. The viaduct of the OLMT project consists of U-shaped girders (two separate channel shaped track way in pre-stressed concrete) resting upon the piers which are generally 30m apart. The viaduct system is supported on piles and a pile cap substructure system. The 1.85m thick pile cap consists of 6 piles of 1.2m diameter and 18m length. Piers of viaduct are generally of 2300mm (1.2 m)

diameters. The height of piers is generally 13.5 m. A 10m long transom (double cantilevered reinforced concrete arms) rests over the top of piers to support the U shaped girders.

5. In the 1.7 km cut and cover (underground) section, construction methodology is to erect barricades on either side of the road, about 12 meter apart, drill holes of a dia of 0.76 meters in straight lines on either side of the road, lower iron cages into the holes and concrete the same, excavate the area in between to a depth of 3 meters, construct a 0.8 meter thick reinforced concrete roof joining the concreted piles on either side, then excavate the earth under the tunnel formed by the roof and the piles on either side with a clear height of 5.60 meters, place a concrete slab 0.6 meters on the floor of the tunnel, and wall the gaps (0.30 to 0.45 meters wide) in between the concrete piles with water proofing materials and vibration dampening materials.

6. The viaduct bridge and the cut and cover subway/tunnel shall carry BI type trains (according to Chinese standard), consisting of 5 vehicles. The axel load of type BI train is 140 kN, and the axel load of empty vehicle is 80 kN.

7. The Project has a total of 26 stations, 24 of which are elevated and two are underground. The proximate rider ship would be 2,45,000/- per day. The operation time of the trains would be from 5:30 a.m. to 11:30 p.m. (18 hours daily). The total estimated cost of the Project as approved on 13.05.2015 is US$1.629 billion, equal to Rs. 165.226 billion, out of which the cost of civil works is Rs.54.421 billion. According to the appellants civil work worth 46% of the total estimated cost thereof, amounting to Rs. 27.999 billion, has been completed up to 30th August, 2016.

8. The Project passes along the following monuments:

Antiquities:

(i) Shalimar Garden (World Heritage Site)-95 feet away from the train tracks

(ii) Gulabi Bagh Gateway-69 feet away from the train tracks

(iii) Buddu's Tomb-59 feet away from the train tracks

(iv) Chauburji-53 feet away from the train tracks

(v) Zebunnisa's Tomb-110 feet away

Special Premises:

(i) Lakshmi Building-34 feet away from the train tracks

(ii) General Post Office (GPO)-42.3 feet away from the train tracks

(iii) Aiwan-e-Auqaf (Shah Chiragh) Building-66 feet away from the train tracks

(iv) Supreme Court Building-58.1 feet away from the train tracks

(v) Mauj Darya Darbar & Mosque-15.8 feet away from the train tracks

9. On 16.11.2015, the Director General Archaeology issued no objection certificate for construction of the OLMT project along the alignment of five (5) heritage buildings protected under the Act of 1975. Similar NOC was issued on 30.11.2015, in respect of the special premises protected under the 1985 Ordinance. By order dated 28.1.2016, passed in the respondents' petition, a learned Division Bench of the Lahore High Court suspended the said two NOCs, and restrained the present appellants form carrying on any construction work within two hundred feet (200 ft.) of the said monuments. According to the appellants, it was on 15.2.2016, that the "advisor committee" under the chairmanship of the DG Archaeology, decided to request LDA to engage an independent structural engineer to evaluate the effect of the OLMT project on the monuments during construction and operational phases. The

committee also decided to engage Dr. Ayesha Pamela Rogers to conduct a Heritage Impact Assessment (HIA), of the project. In pursuance of the above, on 24.2.2016, Dr. Engineer Javed Uppal submitted his vibration assessment report, whereas Dr. Ayesha Pamela Rogers submitted her report on 05.3.2016. M/s NESPAK, who has submitted a vibration analysis report in respect of the viaduct/elevated section of the project earlier, submitted their such report in respect of the cut & cover/subway section, in February 2016. By order dated 14.10.2016, this Court was pleased to appoint M/s TYPSA Asia Consultant Engineering and Professor Cunningham, whose names were separately suggested by the appellants and respondents respectively, as technical experts for verification of the credibility of the two NESPAK reports. Cunningham report was submitted before this Court on 13.11.2016, and the TYPSA report was so submitted on 19.11.2016.

10. We have heard the learned counsel for the parties and perused the relevant record, including the various reports submitted in the matter from time to time, thoroughly.

11. As succinctly put by Mr. Kamil Khan Mumtaz, the effect of vibrations on the monuments depends on:

- Magnitude of Vibration produced by a particular action
- Distance between vibration source and the vibration receiver
- The condition of the monument
- Nature of mediums through which it travels to receiver (soil, concrete etc.)

12. National Cooperative Highway Research Program (2012), as quoted by Dr. Pamela Rogers, states that "Operation of

heavy construction equipment, particularly pile drivers, and other impact devices such as pavement breakers, creates seismic waves that radiate along the surface of the earth and downward into the earth. These surface waves can be felt as ground vibration. Vibration from operation of this equipment can result in damage to buildings including cracks, tilting and subsidence. As seismic waves travel outward from a vibration source, they excite the particles of rock and soil through which the waves pass and cause the particles to oscillate.

13. The term "threshold damage vibration level" is defined as the highest vibration level at which no cosmetic, minor, or major damage occurs. The manner in which a particular building will respond dynamically to strong ground vibration depends on many factors, among which are the soil on which the building is founded, the building's foundation (e.g., spread footing, piles), the building's mass and the stiffness of the building's main structural elements. The condition of a building and its maintenance are important factors when assessing susceptibility to vibration damage and must be taken into account when setting vibration limits.

14. The study of the vibration induced by a train transit in a building located along the line requires solution of the following three sub-problems:

- source problem, i.e. the definition of the physical mechanism responsible for the generation of vibrations induced by the transit of trains, and the evaluation of the vibration level at a short distance from the track;
- propagation problem, i.e. the study of propagation of vibration from the source to the building;

- structural response, evaluation of the modification to the vibration signal induced by the building components (i.e. foundations, load bearing structure, including infill walls, and floor plates).

15. The physical parameters of the transit facility, the geology, and the receiving building all influence the vibration levels. The important physical parameters can be divided into following four categories:

- Operational and Vehicle Factors: This category includes all the parameters that relate to the vehicle and operation of the trains. Factors such as high speed, stiff primary suspensions on the vehicle, and flat or worn wheels will increase the possibility of problems from ground-borne vibration.

- The ideal rail vehicle, with respect to minimizing ground-borne vibration, should have a low unsprung weight, a soft primary suspension, a minimum of metal-to-metal contact between moving parts of the truck, and smooth wheels that are perfectly round. A limit for the vertical resonance frequency of the primary suspension should be included in the specifications for any new vehicle.

- Geology: Soil and subsurface conditions are known to have a strong influence on the levels of ground-borne vibration. Among the most important factors are the stiffness and internal damping of the soil and the depth to bedrock. Experience with ground-borne vibration is such that vibration propagation is more efficient in stiff clay soils, than in loose sandy soil, and shallow rock seems to concentrate the vibration energy close to the surface and can result in ground-borne

vibration problems at large distances from the track. Subways/Tunnels founded in rock will result in lower vibration amplitudes close to the subway due to efficient propagation, as the vibration level does not attenuate as rapidly in rock as it does in soil. Factors such as layering of the soil and depth to water table can have significant effects on the propagation of ground-borne vibration. Soil layering will have a substantial, but unpredictable, effect on the vibration levels since each stratum can have significantly different dynamic characteristics. The presence of the water table may have a significant effect on ground-borne vibration, but a definite relationship has not been established.

Factors Related to Vibration Receiver

Foundation Type: The general rule-of-thumb is that heavier the building foundation, the greater the coupling loss as the vibration propagates from the ground into the building.

Building Construction: Since ground-borne vibration and noise are almost always evaluated in terms of indoor receivers, the propagation of the vibration through the building must be considered. Each building has different characteristics relative to structure-borne vibration, although the general rule-of-thumb is, the more massive the building, the lower the levels of ground-borne vibration.

> Acoustical Absorption: The amount of acoustical absorption in the receiver room affects the levels of ground-borne noise.

16. Indeed, "Historical structures are particularly vulnerable to the effects of vibrations generated at an adjacent site. Deferred maintenance and past alterations may have produced structural weak points that are susceptible to damage. Historic finishes, such as plaster walls and ceilings, lack the flexibility to accommodate abnormal movement, while shallow foundations (common in historic buildings) may lack the rigidity to resist vibration induced movement." (Randl 2001)

17. However, we have noted that all analysis and studies which purportedly formed the basis for the issuance of the NOCs, in question were carried out/undertaken, without certain very relevant basic and crucial information and specifications, like there is absolutely no technical information/evaluation about the stability, strength, endurance level/threshold, or vulnerability/susceptibility of the structure of any of the eleven (11) monuments in relation to the OLMT project, out of which monuments five (5), being protected antiquities under section 10 of the 1975 Act, are by definition, "ancient" buildings. There is absolutely no information about the foundations, their strength, shape, size, and extent of these monuments. Absolutely no physical/technical examination/test or analysis of the monuments has been conducted in relation to the subject project, though all of the above information & tests were absolutely inevitable to determine the endurance/threshold level and the susceptibility of the monuments in relation to the amplitude of the vibration caused by the construction machinery/equipments, and/or by transit of the train.

18. Although the proponents seem to have undertaken extensive field investigation of the soil and subsurface condition, through base hole test along the alignment of the project and generally on the side of the road, and about 5-meter from the centre line, and it is claimed that standard penetration tests were used to determine the compactness/density of the soil, and that silty clay and clayey silt upto 6-8 meters in depth, and thereafter silty sand and sandy silt have been found, and further that Lahore's soil is generally silty clay and clayey silt, however, no geotechnical investigations were carried out between the track alignment and the monuments or around the monuments which would have been more prudent and appropriate for achieving precision, more so for the reason that no verification, by any geologist, has been submitted to support the claim that there shall be absolutely no material variation in the nature, properties, qualities and characteristics of the different strata of the soil and the other relevant components contiguous to and around the monuments.

19. As is well known the vibration amplitude reduces as it propagates from the source to the receiver. The larger the distance, the lesser the amplitude. In the present case, there are two different sources of vibration, one is the operation/deployment of the construction machinery/ equipment, during the construction phase, and the other would be the transit of train during the operational phase. Construction machinery, as can be seen from the photographs at page 8 of CMA No.8592/2016 in CA 2144/2016, operates from and is deployed upto the point well beyond the viaduct piers, and beyond the raft in the elevated section, and are so deployed upto the point beyond the edge of the trench for the tunnel/box of the cut and cover section. Whereas the train transit

induced vibration is transmitted into the soil and propagates towards the monuments, from the raft of the pier, and from the edge of the cover/roof slab of the cut and cover tunnel/box, as the medium through which the vibration is transmitted beyond the train track changes from that of the viaduct and cut and cover systems, respectively, into the contiguous soil at these two points. Therefore the closest point for the vibration source for the monuments during construction is the edge of the trench of the raft, and the edge of the top/roof slab of the cut and cover tunnel/box. Certainly the source of vibration must be calculated from the point of origin of the energy. However, the distance for calculating/evaluating the level of vibration for the construction phase has, in respect of elevated viaduct system, been taken from the middle line of the width of the pier, instead of the edge of the trench of the raft, and for the cut and cover section, it has been taken from the edge of the cover/roof slab of the subway tunnel/box, instead of the edge of the trench of the cut and cover tunnel. Thus the NESPAK measurements of the viaduct system refers to the distance in between the middle of the viaduct piers and the monument wall, whereas the actual distance is 6.43 meters (21 feet) closer to the monument then stated by NESPAK, and verified by TYPSA Asia. This additional/excessive distance of 6.43 meters (21 feet) has been calculated by taking into account the distance between the middle line of the pier and the edge of the raft/pile cap, being 5.4 meters (17.8 feet), plus the distance between the edge of the raft/pile cap and the edge of the trench dug for the raft/pile cap. Similarly, by ignoring the distance between the edge of the roof/top slab of the cut and cover trench/box and the edge of the tunnel trench, NESPAK has taken into account an additional

distance of 4.82 meters (15.81 ft.) in respect of the cut and cover section. Both the above additional/excessive distances/calculations are clearly demonstrated through photographs at pages 3 and 4 of the presentation submitted by Mr. Kamil Khan Mumtaz, and thus the level/amplitude of vibration received or to be received by the monuments has been calculated on the basis of distances greater than the actual, and cannot, therefore, be relied upon.

20. The calculation suffers from another inadequacy/inaccuracy as the size, shape and extent of the foundations of the monuments have not been discovered and have thus not been taken into account while calculating the relevant distance. Possibility of the footings/foundations setting of the monuments spreading/existing beyond the visible structure of the monuments, bringing the monuments still closer to the Project site cannot therefore be ruled out.

21. As noted earlier neither have the structures of the monuments been examined, or assessed nor is any structural resilience data thereof available, however, from the record of the present case, it can well be seen that the monuments, especially the protected heritage amongst those, are quite old in age. Atleast three (3) of the antiquities are more than three hundred and seventy years (370 years) old. Some of the monuments, as recorded by Dr. Pamela Rogers, have suffered structural instability and have also developed signs of stress, cracks and neglect. However, NESPAK in determining the vibration impact tolerance level of the monuments, have applied a threshold value of 3 mm/s which is prescribed by German Standard DIN 4150-3 for "buildings of great intrinsic value". Whereas, as noted by structural engineer,

Muhammad Khalil Rehman in his note dated 05.1.2017, (annexure 'D' to CMA No.196/2017 in CA 2144/2016), the technical advisory note TAV-04-01-R020 at page 17 of the CALTRAN manual states that there is a real possibility of structural damage to historical buildings and buildings in poor condition by transit of a train from within 15 meters (50 ft to 100 ft) thereof. It may be noted that it is in fact the CALTRAN standard that has been applied by NESPAK in relation to the construction machinery/equipment in this case. However, for monuments/heritage buildings it has used DIN Standard instead, which, as noted above, prescribes the threshold limit in respect of "Building of Great Intrinsic Value" and not for "heritage building", for closer to which category, it is CALTRAN which prescribes a tolerance level of 2mm/s (0.08/s), under the description 'ancient monuments or ruins".

22. A reference to the following passages from a research study/paper in relation to 'Metro Train induced vibration on historic building in Changu, China" published in a journal of Zhenjiang University – Science A (Applied Physic and Engineering) also may be relevant in the present context.

> "Generally, it is extremely rare for vibrations from train operations to cause any sort of building damage, even minor cosmetic damage (Heckl *et al*., 1996). However, there is sometimes a concern regarding long-term vibration effects on historic buildings located near the subway lines. Traffic vibrations are usually low, but lasting, which could lead to potential damage, like building material fatigue and foundation settlement to historic buildings. For structures that have suffered from weathering, desquamation, or have cracks, even low velocities could give

> rise to fatigue damage with frequent occurrences."
>
> "For modern steel structures or reinforced structures, it is believed that a PPV lower than 10 mm/s will rarely cause any sort of building damage. For historic buildings and memorials, the criteria are usually stricter, from 3 to 10 mm/s PPV, depending on local codes, which are summarized by Ma *et al.* (2009). Numerous measurements show that typical ground vibration levels from underground tunnels lie in the range of 0.05–1.00 mm/s, lower than the values in the codes mentioned above, but there remains the possibility of damages to historic buildings. That is, the PPVs between 3 and 10 mm/s do not generally consider architectural damage, but rather structural damage."
>
> "The Chinese National Code (GB/T 50452-2008) gives a criterion of 0.10–0.75 mm/s, which is now one of the strictest allowable values in the world and could be used to evaluate architectural damage. In this code, the fatigue limit is used to fix the allowable velocities. When the cyclic stress is lower than the limit, the materials and structures are unlikely to be destroyed by fatigue. In this case study, for the brick-masonry structure listed as a State Protected Historic Site, the allowable horizontal PPV at the top of the monument is 0.15–0.25 mm/s, according to GB/T 50452-2008.

23. With the various inaccuracies, inadequacies, anomalies and lacunas as discussed in paras 17 to 21 hereinabove, the safe distance from the project alignment to the monuments, as mentioned by Dr. Pamela Rogers is thirty two feets (32 ft.), but the Supreme Court Registry Building, Saint Andrew Church and Mauj Daraya Darbar are situated at much shorter distances. Whereas the Lakshmi building lies just outside the said limit, which monument,

according to her, is already in a fragile state of existence. The monuments have thus been rendered unsafe by the proposed construction of the project, even as per Dr. Rogers calculations.

24. The Mughal era hydraulic tank near the entrance of the Shalamar Garden, which is integral part of the Garden is, according to Dr. Rogers, very close to the alignment of the viaduct, and will in fact be partially underneath the viaduct and is particularly at risk. The continuous low level vibration from the Train transit, in the opinion of Dr. Rogers, may cause structural damage to the existing fabric, which opinion is in consonance with the opinion expressed by a study published by Zhenjiang University reproduced at page 16 hereof. It is also crucial to note that the cumulative effect of the various construction machineries operating simultaneously has also not been taken into account, which may have a serious bearing in fixing the level of vibration.

25. A further anomaly in the NESPAK report is that the peak acceleration and peak velocities (vibration) for Supreme Court and St. Andrew Church buildings are given as less than such value of Mauj Darya Darbar, even though the distances of construction/operation point(s) for Mauj Darya Darbar is given greater than such distance for that of the Supreme Court building.

26. As noted earlier, the definition of the physical mechanism that generates vibration is the foremost component, and the most crucial factor for the study/analysis and evaluation of vibration. In the present case such physical mechanism is a train, said to be a "Chinese standard BI train". It may also be recalled that the specifications like unsprung mass**,** distance between axles, primary suspension and stiffness of the suspension, of the vehicle are the most relevant, and crucial specifications/information for

evaluating the transit induced vibration. However, despite request from TYPSA Asia, data regarding the unsprung mass and the dynamic stiffness of the relevant elements was not furnished to them. It was because of lack of information that many specifications and details were assumed to be similar to a model used in a study/paper known as XIA.H.Zhang. N, which was feed by NESPAK in the Structural Analysis Computer Program, SAP2000, to simulate the excitation of the Metro train as supposedly being compatible to "Chinese standard BI train". However absolutely no information has been laid, and no explanation submitted before us, as to the basis of the assumed compatibility between the said train and the XIA model and therefore, it cannot be said with any certainty that the specification values and configuration used to assess and evaluate the amplitude of the vibration generated by the subject train are in fact the same as that of the XIA model train, relevant details of which model also have not been placed before us and the result thus achieved cannot be sanctified by this Court.

27. It may be relevant to observe here that Typsa-Asia who were appointed as experts to verify the credibility of the Nespak reports, have in their report proceeded to endorse the Nespak reports without analysing the same properly and by ignoring the various deficiencies, discrepancies, inadequacies and anomalies therein, as discussed in detail hereinbefore. It can also be seen from the Typsa's report that certain very crucial information and details sought by Typsa from Nespak were either not provided or where provided were incomplete or inadequate, and as acknowledged in the report itself, in respect of some issues, Typsa had to proceed on assumptions. Typsa's report is therefore of no avail in the matter.

28. As discussed in detail in the following passages from a World Bank publication titled, "The Economic of Uniqueness, investing in historic city cores and cultural heritage assets for sustainable development", which is a collection of research papers authored by leading scholars and practitioners in heritage economics. It is now well recognised that "heritage is a public good", and "yields public good benefits". It provides "crucially needed continuity and stability", helps in "poverty alleviation" and that heritage "anchors people to their roots, builds self esteem and restores dignity", and serves as a "driver of local economic development and prosperity". Heritage "might deteriorate or depreciate if not maintained and impose on the present generation a duty of care so they can be handed to future generation". "The positive influence of cultural heritage on liveability, economic growth and local economic development is also now well established. Whereas undoubtedly liveability is not a middle class luxury. It is an economic imperative:

> "In a world where more than half of the population now lives in cities and more than ninety 90 percent (90%) of urban growth occurs in the developing world, cities try hard to modernize without losing their unique character, embodied in their historic cores and heritage assets. As cities expand rapidly, conservation and continued use of heritage can provide crucially needed continuity and stability. In other words, the past can become a foundation for the future".
>
> "Cities that are the most successful at attracting investment and businesses to meet the aspirations of their citizens, while alleviating poverty and promoting inclusion are those that harness all of their resources, including their

heritage. In addition, heritage anchors people to their roots, builds self-esteem, and restores dignity. Identity matters to all vibrant cities and all people".

"Heritage is a public good and the economic justification for public sector investment is well established".

"The good news is that there is an increasing trend toward financing projects aimed at conserving and incorporating heritage into development strategies. All countries, developed and developing, are indeed investing more into conserving their city cores and heritage, with projects focusing particularly on landmarks and other major assets".

"In economics, heritage can be seen as an asset, with the theoretical basis in capital theory. The concept of capital has then been extended into the field of culture and heritage, with the definition of cultural capital".

"Like any other form of capital, both cultural and natural capital have been inherited from the past, might deteriorate or depreciate if not maintained, and impose on the present generation a duty of care so they can be handed down to future generations".

"It is widely acknowledged that heritage has a value to the community in which it is located. Among the resources that these cities need to harness are their heritage assets, which are unique features that differentiate them from other cities".

"Tourism has emerged as one of the fastest-growing sectors of the world economy. The average growth of tourism arrivals, as the world economy recovers, is likely to continue to grow in the decades to come. This is especially due to

growing interest in visiting and enjoying vibrant cities and heritage assets".

"Tourism, by virtue of being a labour intensive activity, can allow the large pool of unemployed and underemployed individuals in developing countries to get jobs and in turn create the conditions for a sustained and broad-based growth".

"Tourism has spill over effects in other economic sectors: the foreign direct investment associated with it can in fact bring managerial skills and technology with potential benefits to other sectors. Policies designed to foster tourism ..... can enhance growth in other sectors and distribute wealth more widely".

"Investment in heritage was driven by the need to conserve and upgrade specific endangered assets in the phase of rapid urbanization, and to prevent and mitigate the possible adverse impacts of large infrastructural projects".

"Heritage yields public good benefits that can be classified in the same ways as environmental non-market benefits".

"This book takes inspiration from Nobel Prize Laureate Robert Merton Solow's quotation: "Over the long term, places with strong, distinctive identities are more likely to prosper than places without them. Every place must identify its strongest, most distinctive features and develop them or run the risk of being all things to all persons and nothing special to any. [...] Liveability is not a middle-class luxury. It is an economic imperative."

"The positive influence of cultural heritage on liveability, economic growth, and local economic development has been increasingly studied and discussed in the last few decades".

> "Historic city cores and their cultural heritage assets can have an effective role in differentiating a city from its competitors and in improving liveability and attractiveness".
>
> "In a context of rapid urbanization, old cities struggle to modernize without completely losing their character. In the absence of a strategic public intervention to steer their transformation, many of them simply drift into a haphazard mix of demolition, new construction, and building upgrading ..... The level of economic activity these cities can sustain typically increases, sometimes substantially, but in the process these places also lose their distinctive traits and become less liveable. This is not merely a concern of culture-loving intellectuals in the rich world, who may be too privileged to fully value the benefits of rapid urbanization. In many cases, the inhabitants of these cities also regret the loss of a sense of place and the disappearance of the physical markers of their identity".
>
> "The frantic transformation of centuries-old Asian cities into soulless agglomerations of generic architecture is an obvious illustration of this trend. Moreover, there is an element of irreversibility in transformations of this kind, as recovering what was lost is enormously more expensive than it would have been to preserve it in the first place".
>
> "Admittedly, there is also an increasing trend toward financing heritage projects, aimed at protecting and restoring unique buildings or architectural ensembles".

29. Heritage has to be preserved and protected in all respects, all of it virtue, qualities, facets and characteristics are to be secured from all kinds of harms, including impairment of its visual integrity. According to Dr. Pamela Rogers, the concept of visual

integrity is frequently considered crucial in relation to the preservation of a heritage sites. Visual integrity may pertain specifically to vistas, panoramas, viewpoints, and silhouettes. Visual Integrity can also be taken to mean the capacity of a heritage to maintain its visual distinctiveness, and to visually demonstrate its relationship with its surroundings.

30. The importance of and significance attached to the protection of important views, and their contribution, and relevance in building an image for a historic town, and also in promoting the welfare of the people, can be well appreciated from the following passage of a research paper:

> "Preservation of the character of historic towns and mitigating the impacts of new development has been a challenging task for spatial planning authorities throughout the world. In preserving the character of historic towns, protection of important views of heritage buildings and landmarks plays an important role. Most of these heritage buildings strongly contribute in forming an image for the historic town. The existence of such views, often containing well known cherished landmarks and landscapes, enriches our daily lives, attracts tourist and helps our communities prosper. "Views play an important part in shaping our appreciation and understanding of historic environment, in towns and cities and in the countryside. Some views are designed to be seen as a unity, more commonly; a significant view is a historical composite, the cumulative result of a long history".

31. It may, in the above context, be beneficial also to reproduce certain extracts from an article authored by Leo Hollis, titled "How are protected views shaping cities" quoted in the

impugned judgment, as being reflective of the emphasis that the city planners put on protected views in order to preserve the fundamentals of a city and to protect the character of the landscape that characterizes the features of that city, and also the emphasis laid on the significance attributed to preserving such views, as follows:-

> "In recent months, the council has been responding to widespread concerns that the city of "dreaming spires" was about to be swamped by a rash of tall new buildings. As a result, alongside English Heritage and other agencies, the council has devised policies that create a series of protected views, triangular sections that cut across the map in order to preserve the vertical skyline of the city."
>
> "A section of city panoramas from particular points of historic or local interest have been protected, taking in, not just individual historical buildings, but also the topography, the city as a landscape of natural features, variegated heights and forms, combining into a pleasing image..."
>
> "...Since the 1960s, different city governments have looked at the preservation of views as a way of controlling the shape, in particular the vertical outline, of cities. How tall should a building be and where should it fit in? Are skyscrapers only for downtown? What kind of building - office, monument, and apartment block - should be allowed to rise into the sky? What can it obscure and what must it not overshadow?"
>
> "...For some, cities are changing too fast and in the wrong places. They are losing their character and being replaced by a ubiquitous glass and steel architecture that offers no sense of location.

> Tall towers are replacing the human scale of the city's heritage."
>
> "...Protected views are ways of managing change: restricting growth in some parts, ring - fencing and preserving the significant aspects. It prioritizes the ocular encounter with the city. The metropolis must "look right to be right."
>
> "...there was public concern about the "Manhattanisation" of the financial district of San Francisco that many people thought would damage the "city pattern". This was developed into a general plan passed into law in 1995, including the preservation of "major views whenever it is feasible, with special attention to the characteristic views of open space and water that reflect the natural setting of the city and give a colorful and refreshing contrast to man's development."
>
> "For example, are protected views the best way to preserve the heritage of the city? The 2006 Street View study conducted by Edinburgh city council noted some places were "fundamental" to the city, and key views were "precious" and even "sacrosanct" in providing a "sense of the city".

32. In the case of **Penn Central Transportation Co. v. City of New York** *438 U.S.104 (1978)*, the U.S. Supreme Court whilst upholding the decision of the New York City's landmark Preservation Commission, denying permission to construct an office tower on top of the Grand Central Terminal, a railroad station in midtown Manhattan, endorsed the governmental restriction on historic building, and upheld the historic preservation as a legitimate governmental objective. The Court also sanctified the preservation programs around the country by upholding New York City's historic

preservation laws, which restricted changes to the property designated landmarks and historic preservation.

33. The judgment recognized the fact that the municipal laws to encourage or require preservation of the heritage building were enacted in the back drop of the historic building being destroyed as the same were not being valued as much as those ought to have been, and also without exploring the possibility of preserving them, and in view of a widely shared belief that the heritage building enhance the quality of life for all and serve as an example of quality for today, thus it was observed that:

> "Over the past 50 years, all 50 States and over 500 municipalities have enacted laws to encourage or require the preservation of buildings and areas with historic or aesthetic importance. These nationwide legislative efforts have been precipitated by two concerns. The first is recognition that, in recent years, large numbers of historic structures, landmarks, and areas have been destroyed without adequate consideration of either the values represented therein or the possibility of preserving the destroyed properties for use in economically productive ways. The second is a widely shared belief that structures with special historic, cultural, or architectural significance enhance the quality of life for all. Not only do these buildings and their workmanship represent the lessons of the past and embody precious features of our heritage, they serve as examples of quality for today. “Historic conservation is but one aspect of the much larger problem, basically an environmental one, of enhancing - or perhaps developing for the first time - the quality of life for people."

34. The conclusion drawn by the Commission was approved by the U.S. Supreme Court in the following words:-

> "Landmarks cannot be divested from their setting …….…….. and we must preserve them in a meaningful way - with alterations and additions of such character, scale, materials and mass as will protect, enhance and perpetuate the original design rather than overwhelm it."

35. In the case of **South Lakeland District Council v. Secretary of State for the Environment** *[1992] 2 Advisory Committee 141*, his Lord Justice Bridge observed, that:

> "Was it the Parliament's intention that the decision-maker should consider very carefully whether a proposed development would harm the setting of the listed building (or the character or appearance of the conservation area), and if the conclusion was that there would be some harm, then consider whether that harm was outweighed by the advantages of the proposal, giving that harm such weight as the decision-maker thought appropriate; or was it Parliament's intention that when deciding whether the harm to the setting of the listed building was outweighed by the advantages of the proposal, the decision-maker should give particular weight to the desirability of avoiding such harm? And that
>
> "there is no dispute that the intention of section [72(1)] is that planning decisions in respect of development proposed to be carried out in a conservation area must give a high priority to the objective of preserving or enhancing the character or appearance of the area. If any proposed development would conflict with that objective, there will be a strong presumption against the grant of planning permission, though,

> no doubt, in exceptional cases the presumption may be overridden in favour of development which is desirable on the ground of some other public interest.

36. Similar views were expressed in the case of **Hetherington (UK) Ltd. v. Secretary of State for the Environment** *[1996] 69. P & CR. 874*.

37. In the case of **Barnwell Manor Wind Energy Ltd. v. East Northamptonshire District Council etc.** *[2014] EWCA Civ 137*, in an appeal against the order quashing the decision of a Planning Inspector, whereby the former granted planning permission for a four-turbine wind farm on land north of Catshead Woods, Northamptonshire, in the face of section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990, which required that the planning authority, while considering as to whether or not grant planning permission for development which affects a listed building or its setting, shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses, and in dealing with the question as to what extent the visible presence of turbine proposed to be erected in the wind farm site (which was around 1.3 KM from the boundary of the registered park and 1.7 KM from the New Beild itself), would affect the significance of the heritage assets concerned, the inspector observed that the tribune array would not intrude on any obviously intended planned view out of the garden or from the garden lodge, as in his view, a reasonable observer would know that the turbine array was a modern addition to the landscape, separate from the planned historic landscape or building they were within, or considering or interpreting, and thus

held that the presence of the wind turbine array would not be so distracting that it would prevent or make unduly difficult, an understanding, appreciation or interpretation of the significance of the elements that make up Lyveden New Bield and Lyveden Old Bield, or their relationship to each other. And therefore, the effect on the setting of these designated heritage assets would not reach the level of substantial harm.

38. His Lordship of the Court of appeal, referring to South Lake and Hetherington (UK) Ltd. (supra) with approval, proceeded to observe that:

> "...In my view, Glidewell LJ's judgment is authority for the proposition that a finding of harm to the setting of a listed building is a consideration to which the decision-maker must give "considerable importance and weight." And also "That conclusion is reinforced by the passage in the speech of Lord Bridge in South Lakeland to which I have referred (paragraph 20 above). It is true, as Mr. Nardell submits, that the ratio of that decision is that "preserve" means do no harm". However, Lord Bridge's explanation of the statutory purpose is highly persuasive, and his observation that there will be a "strong presumption" against granting permission for development that would harm the character or appearance of a conservation area is consistent with Glidewell LJ's conclusion in Bath. There is a "strong presumption" against granting planning permission for development which would harm the character or appearance of a conservation area precisely because the desirability of preserving the character or appearance of the area is a consideration of "considerable importance and weight."

39. Discussing the decision of **Ouseley J. in Garner v. Elmbridge Borough Council** *[2014] EWCA Civ 891*, His Lordship observed:

> "...Garner is an example of the practical application of the advice in policy HE9.1: that substantial harm to designated heritage assets of the highest significance should not merely be exceptional, but "wholly exceptional". And concluded that:
>
> "For the reason I agree with Lang J's conclusion that Parliament's intention in enacting section 66(1) was that decision-makers should give "considerable importance and weight" to the desirability of preserving the setting of listed buildings when carrying out the balancing exercise:" And that "the Inspector did not give considerable importance and weight to this factor when carrying out the balancing exercise in this decision. He appears to have treated the less than substantial harm to the setting of the listed buildings, including Lyveden New Bield, as a less than substantial objection to the grant of planning permission. The Appellant's Skeleton Argument effectively conceded as much in contending that the weight to be given to this factor was, subject only to irrationality, entirely a matter for the Inspector's planning judgment. In his oral submissions Mr. Nardell contended that the Inspector had given considerable weight to this factor, but he was unable to point to any particular passage in the decision letter which supported this contention, and there is a marked contrast between the "significant weight" which the Inspector expressly gave in paragraph 85 of the decision letter to the renewable energy considerations in favour of the proposal having regard to the policy advice in PPS22, and the

> manner in which he approached the section 66(1) duly. It is true that the Inspector set out the duty in paragraph 17 of the decision letter, but at no stage in the decision letter did he expressly acknowledge the need, if he found that there would be harm to the setting of the many listed buildings, to give considerable weight to the desirability of preserving the setting of those buildings. This is a fatal flaw in the decision even if grounds 2 and 3 are not made out."

40. In **North Norfolk District Council v Secretary of State for Communities and Local Government etc.** *[2014] EWHC 279 (Admin)*, High Court of Justice, Queen's Bench Division where wind turbine was to be erected in open countryside on the side of Cromer Ridge, which is one of the highest points in North Norfolk with implications both for visibility and for wind performance. There were a number of listed buildings in the area. The application for planning permission was revised by the Council on the ground of its impact on landscape and heritage assets. The High Court of Justice, Queen's Bench Division, proceeded to hold as follows:

> "But the question remains whether in substance he did have that special regard to the desirability of preserving the settings of the heritage assets as part of the consideration that led to his decision, notwithstanding that, as I find, in approaching that question he did not expressly have regard to the statutory requirement as such. In approaching that question I remind myself of the helpful guidance in Garner that it is not necessary for the decision maker to pass through a particular series of legal hoops to comply with Section 66(1) nor, I would add, does he have to recite any particular mantra or form of words to demonstrate that he has done so. However,

> adopting the formulation of Mr Justice Ouseley approved by the Court of Appeal in Garner, that does not mean that the decision maker can "treat the desirability of preserving the setting of a listed building as a mere material consideration to which (he) can simply attach the weight (he) sees fit in (his) judgment. The statutory language goes beyond that and treats the preservation of the setting of a listed building as presumptively desirable. So, if a development would harm the setting of a listed building, there has to be something of sufficient strength in the merits of the development to outweigh that harm. The language of presumption against permission or strong countervailing reasons for its grant is appropriate. It is an obvious consequence of the statutory language rather than an illegitimate substance for it."
>
> "...However, the problem that it faces is that, on the conclusion to which I have come, the inspector did not in fact have regard to the statutory duty but applied a simple balancing exercise under paragraph 134 of the NPPF. In the particular circumstances of this decision it is not possible to know how the balance would or might have been affected if he had special regard to the desirability of the preservation of the settings in accordance with the approach helpfully summarized in Garner and set out in the other authorities to which I have referred."

41. Perusal of the following passage from **Binay Kumar Mishra v State of Behar and others** *(AIR 2001 Patna 148)*, may also be relevant:

> "It needs no emphasis to mention that protection and preservation of our cultural property against the dangers of damage and destruction resulting from theft, vandalism, clandestine excavations

> and illicit traffic is our sacred duty, which we owe to posterity. Cultural heritage along with environment is very essential to the well being and to the enjoyment of man's basic rights- even the right to life itself. This justifies on the statute book, the aforesaid legislations aimed at taking all possible measures to stop the impoverishment of the cultural heritage. The concern for protection of such heritage is not limited to India. Governments of most of the countries in the world today are addressing themselves to this problem. The entire humanity is anxious about it..."

42. The famous **Taj Mehal case,** reported as *(1997) 2 SCC 353,* which was a watershed case of supervision done by the Supreme Court of India for three long years culminating into passing of orders whereby the industries situated within the Taj Trapezium Zone and emitting pollution by the use of Coal as fuel and causing damage to the Taj Mehal were ordered to be dealt with in a certain manner. The Court also appointed an expert committee, who's report along with other reports of the committees were considered by the Court before rendered the final judgment. The expert advice through UNESCO was also sought. The case is significant for its rulings that the objective behind the litigation was to stop pollution while encouraging development of industry. It was held that sustainable development was the answer. In the final analysis the industries were directed to change over to natural gas as an industrial fuel. Other industries were directed to be relocated to other industrial areas.

43. In **EMCA Construction Co. v. Archaeological Survey of India and others,** *(2009) 113 DRJ 446*, the learned Delhi High Court upheld the interim order passed by the court below, and directed

the Central Government to remove the structures within 100 meters of the Humayun's Tomb.

44. As highlighted in the following passage from an authenticated professional study/research paper, visual assessment study and visual impact study have now become, integral and significant part of designing and planning process, whereas view scope analysis, and view protection are of crucial importance to the discipline of visual assessment and impact study:

> "The importance of visual assessment study in urban analysis has long been recognized. The construction of the city of Rome and early Italian hill-towns have been influenced by established lines of sight (Bacon, E.1967), and the planned development of visually prominent locations. The visual impact studies have now become part of urban design and planning process. Several cities throughout world conduct similar studies related to view scope analysis and view protection (for example, London View Management Framework, 2010; Seattle View Protection Policy, 2001)".

45. The following passage may also be relevant to the present discussion:

> "In the Indian context studies and research specifically focusing on views of historic landmarks and their preservation were not given importance. But <u>there is a need for such research to protect the views of large number of our ancient monuments, which are constantly threatened by the surrounding urban development which obscure the traditionally enjoyed views</u>."

46. Dilating upon the approach, object and the purpose of visual impact assessment, and the essential requirements, scope

and parameters of the study, it is stated that "The assessment process aims to be objective and to quantify effects as far as possible. However, it is recognized that subjective judgment is appropriate. If it is based upon training and experience, and supported by clear evidence, reasoned argument and informed opinion. Whilst changes to a view can be factually defined, the evaluation of townscape and visual amenity does require qualitative judgments on the significance of effects to be made. The conclusions of this assessment therefore combine systematic observation and measurement with informed professional interpretation".

47. For the purpose of Viewscape Assessment for Protecting the Views of Monuments, it is found "important to study the visual relationship between sacred monuments and places from where the views are available, so as to identify the most important views for protection".

48. The results of the study demonstrate the method for assessment of views so as to identify the significant viewscapes for preservation and enhancement.

49. In order to protect the important views, it was found necessary to assess the factors which affect the quality of views, and the quality of place from where the view is available and to examine the following attributes of the view scope.

(a) Visibility of the monument;
(b) Classification of view, based on distance;
(c) Type of view;
(d) Dominance in skyline;
(e) Background and Foreground of the viewing plane;
(f) Obstruction Type.

In case of the viewing place, the relevant attributes being:

a) Type of viewing place;
b) Place characteristics of the view point, i.e.,

i. location,
ii. assessment view point,
iii. place elevation,
iv. activities,
v. land use,
vi. general ambience, and,
vii. potential viewers.

50. Using the methodological View Assessment Framework, it was found that significance of views varies according to the location, visibility, quality of view, quality of viewpoint, view type, etc. Among the variety of criteria used for assessing the view significance, the visibility of structure, its dominance in the skyline and type of view has more weightage than the others. The visibility of the structure is graded, based on the percentage of visibility in a three point scale as Highly Visible, Moderately Visible and Poorly Visible. In classifying the view based on distance, most of the panoramic views are distant views. Among the various types of views, the street end view gains significance due to its spatial configuration. ..... Most of the street end views can be appreciated under the immediate and intermediate view ranges.

51. This study not only classifies the significant views, viewpoints, visual corridors which need to be protected but also identifies the obstructing elements which need to be removed from the viewscape. The study has also revealed that the characteristics of the viewing place have very little influence on the significance of the view. Even if the general ambience of the viewing place is poor, it is still appreciated and frequented if the point offers the best view available. However, improving such view places will enhance the viewing experience.

52. In her HIA report Dr. Pamela Rogers has described the concept of visual integrity as crucial to the preservation of a heritage sites. She states that 'Visual integrity" may pertain

specifically to vistas, panoramas, viewpoints, and silhouettes, and describes the Visual Integrity as the capacity of a heritage to maintain its visual distinctiveness, and to visually demonstrate its relationship with its surroundings.

53. In relation to the OLMT project she submits that "Two points are of importance in assessing visual impacts; firstly, the height of the elevated track in relation to the view-lines to and from the heritage sites, and secondly, of the current Visual Character of the heritage site in its setting. This refers to the value and character of existing views of Sensitive Receivers within the visual envelope (the area where views and viewers may be affected, the area within which the proposed development is wholly or partly visible to the visual receivers).

54. Amongst the four key potential impacts on the subject heritage as identified in Dr. Rogers HIA report, are Visual barriers and intrusions created by the viaduct. Dr. Rogers claims that the various potential impacts identified in the report, can bear directly on the significance of the heritage buildings. As an illustration she submits that a direct line between a visitor to Ziab-un-Nisa Tomb upwards towards the elevated track may imply strong negative impact. She opined that the nature of an elevated viaduct design inevitably creates residual impacts that cannot be fully mitigated. As regards Chouburji, she states that much of the significance of the said monument lies in its value as a highly visible icon of the city of Lahore, and that the setting of the building will be directly impacted and will require reinstatement. Though she states that visibility of the Shalimar Garden to a passerby as a landmark will not be impacted by the operation of the train, as by definition the garden within its peripheral wall is inward looking, she however

points out that the elevated viaduct shall cause visual intrusion from the upper terrace of the garden which may have impact on its significance. In her assessment the visual impact of the project on Chouburji shall be "very high", whereas in respect of Shalimar Garden, Ghullabi Bagh gateway, Budhu Ka Awa and Lakshmi building it shall be "high", and the impact in respect of GPO, Aiwan-e-Auqaf and Zaibun Nisa Tomb shall be "medium". Such impact in respect of Supreme Court, Branch Registry, Saint Andrew Church and Mauj Darya Darbar has been assessed by her as "low".

55. According to her, threat to the significance to Gulabi Bagh gateway from the impact of the elevated viaduct shall be by way of visual intrusion. Regarding Chouburji, she further states that the operational phase impact thereon shall primarily be by way of visual impairment.

56. Amongst the various attributes of the relevant monuments recognized by Dr. Rogers as carrying their significance, is the monuments visibility to a passerby as a landmark.

57. Dr. Roger states that "Deciding on the acceptability of impacts requires a professional value judgment about the severity and importance of a case" and that "The impact is acceptable if the assessment indicates that there will be no significant effects on the fabric, setting or values of a heritage place or on the function or performance of intangible heritage". According to her, "the impact is unacceptable if the adverse effects are considered too excessive and are unable to mitigate practically" and that "the impact is undetermined if significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study, further detailed study will be required". She however states that the "existing impacts, need to be factored

into the assessment of potential additional impacts from any proposed development or action". Though she envisages two different, rather conflicting, scenario, one where the new development, because of the earlier changes, may have a limited effect, and the other, where it may worsen the situation further by adding to and joining the earlier impairment, she however does not prescribe any criteria and/or explain the phenomenon for the said two conflicting scenarios in the stated situation.

58. She however has found the impacts acceptable, purportedly for three different reasons, the first being the existing impairment. The second being, her view that the impact can be mitigated, and the third, that the benefits of OLMT project to public overweigh its harm to the monuments. We find the above analysis and stances as misconceived and untenable. In the first place, as noted above, no reason or explanation has been given in the report, as to why the impact of the project will not worsen the situation and will rather be mild, although as noted above, according to her the situation may assume either of the two. She has also not analyzed and evaluated the level of the existing impact, in a scientific and detailed manner (the manner, approach and methodology for such exercise has been discussed in the earlier part of the judgment). We find it crucial to observe here that the approach in relation to heritage should be that its view must not be made worse even when it has suffered any past apathy, as even if the general ambience of the viewing place is poor, it may still be frequated and appreciated as being the best view available. There can hardly be any qualm about the suggestion that efforts should be made to improve the existing view rather than deteriorating it further.

59. It is crucial to note that it is no body's case that there exist any previous intrusion or obstruction directly in front of any of the monuments blocking or impairing the front view or the façade thereof. Whereas the elevated viaduct is being constructed not only within the 200 ft. protective/ buffer zone, and in close proximity to the monuments, but is being built right in front of the monuments, with 2300 mm diameter, supporting piers within 30m of each other throughout the length of the viaduct, which admittedly will cause visual intrusion, break the view line, and grossly overwhelm the monument. It is crucial to keep in mind, as noted above, that some other obstructions which may presently be existing in the shape of some over grown trees, encroachments, illegal/unauthorized construction**,** signages, hoardings, roof projections, etc. (which may be impairing some view, of some monuments, to some extent, and some of which obstructions may not be of permanent nature, or could be removed, or be amenable to correction), certainly do not exist right in front of the monument and don't obstruct, overwhelm, eclipse and/or temper their view as will the viaduct system. It may be observed that the piers of the viaduct at some points and from certain angles may possibility block almost the entire view of the monument and that for someone moving in an automobile, the pier may prove far more obstructive than for those not riding such transport. As regards the view from the Metro Train, it may be observed that it will be available to only those few amongst its passengers who will be sitting along the windows, looking over the monuments, and that their view too would be very limited and restricted, as because of more than 12m height and a close distance, (which distance, it may be noted will be shorter than the distance between the raft of the viaduct and the monument

because of the largely extended arms of the transoms), and also because of the posture of the passengers, only some portion of the monuments excluding much of it façade shall be visible, and that too they will not be able to enjoy and appreciate properly because of the speed of the moving train. As regards the contention that the Shalamar Gardens being inward looking, the viaduct will harm the visual impact from the Garden and not towards it, it may be observed that it is the whole complex of the "Shalamar Gardens" that presents a visual experience and pleasure, including its walls gates, and other components, which clearly, rather mainly falls within its visual envelope, form an integral part of the monument, and are essential components of the majestic ambience and aura of the complex, and undoubtedly the view and the visual impact of these features of the complex shall be obstructed and impaired by the elevated viaduct. However, as to whether or not the effect of visual impairment in relation to these features would be of a tolerable nature would be a value judgment to be made by some independent, reputable and credible professional in the field.

60. The so called mitigating measures suggested in the report by way of "improved exterior landscaping", "sympathetic design", "greening of the structure", "design and public art opportunities" besides being of generic nature, would hardly work to mitigate the admitted adverse impacts and, may we respectfully say, are in fact wholly inconsequential and irrelevant.

61. No doubt OLMT project, being a mass transit project, offers fast mobility facility to the people of Lahore and is planned to cater to about 245,000 passengers everyday and as claimed, the facility shall be an efficient, affordable and environment friendly transport service, and shall help in reducing traffic congestion and

the travelling time between places. The vehicles to be employed being electric trains will certainly cause reduction of hazardous transport related emissions, but if we recall heritage also has its immense significance, and offers lot of public goods and yields public benefits and also help in poverty alleviation. Its positive influence on liveability and economic growth and human development is now well recognized. Heritage holds into its field some finer graces of civilization. It anchors people to their root, builds self esteem and restores dignity and provides an impetus for local economic development and prosperity.

62. However, it is crucial to understand that the present is not a case of competing interest, and the concern all around should be to achieve sustainable progress and development, and more so when the same could have been, and can still be successfully achieved with some effort, prudence and diligence. Why should we allow irreversible damage to our priceless assets that we have in the shape of centuries old heritage, like the elegant and splendid master piece from the times of brilliant Mughal civilization, the Shalamar Gardens, which, has been recognized as an "asset of outstanding universal value", having "significance", which "is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity", deserving permanent protection as a "heritage of highest importance to the international community as a whole", and has thus been inscribed on the world heritage list, and like the monumental gateway known as "Chauburji" because of its four towers, which expand from the top, not present any where in the sub-continent, which is a beloved urban landmark, and a highly visible icon of Lahore.

63. It is no body's case that the OLMT project be scrapped. All that is required, is to ensure that no harm to the monuments is caused by the impact of the project which is, not only our obligation under the mandate of the aforesaid two statutes, but, as shall be discussed later, also is our commitment to the international community. It hardly needs any emphasis that the purpose, object, intent, and spirit of the said two laws i.e. the 1975 Act and the 1985 Ordinance, are the preservation and protection of the "antiquities" moveable or immovable both, and the "special premises" respectively. Both the laws contain elaborate arrangement and provisions for carrying out the aforesaid intent and purpose, including that of declaration and listing of particular properties as antiquities, for enforcing their protection, and of making arrangements for custody, preservation and protection of the antiquities, for examining and acquisition of any land containing antiquities, for purchasing or taking on lease of the antiquities, for exercising right of pre-emption in respect of any antiquity, for declaring any antiquity to be a protected antiquity, for enforcing compulsory acquisition of any antiquity, for prohibition of destruction/damage of the protected antiquity, for prescribing and enforcing measures for protection and preservation of antiquity. And by way of prescribing a 200 ft protective zone under section 22 of the 1975 Act and section 11 of the 1985 Ordinance which require that no development plan or scheme or new construction shall be undertaken or executed within the distance of two hundred feet (200 ft.) of a protected moveable "antiquity" and "special premises" without the approval, in case of the former, of the Director General, and in relation to the later, of the Government of the Punjab. It may be relevant to mention here that the above two

provisions are inconsonance with Article 103 of the "Operational Guidelines for implementation of World Heritage Convention", issued by UNESCO, (of which convention Pakistan is a signatory), which Article prescribes adequate buffer zone surrounding the monuments, to give an added layer of protection to the monuments, including its immediate setting, important view, and its other important attributes. The answer as to why our laws, have prescribed a limit of 200ft. for the preventive/ protective/buffer zone, seems to lie in the scientific fact, as recorded and illustrated by "CALTRON" (annexure "D" to CMA 196/2016), that it is at this distance of 61m (200 ft) that the extenuation of PPV (Peak Particle Velocity)/vibration is reduced to an almost imperceptible level.

64. In view of the foregoing discussion, we are of the firm view that in order to convert the statutory "No" as contained in the above two provisions, into a "Yes", the authorities concerned ought to have undertaken a scrutiny of the highest order, and the proposal ought to have undergone minute and thorough screening and due diligence, after collecting, and on the basis of, accurate relevant scientific data. In deciding the request for permissions/NOCs for construction OLMT project within the protective/buffer zone, the statutory intent of preserving and protecting the monuments, their views, attributes and character, should have been of the foremost and overwhelming importance, and the authorities ought to have satisfied themselves that the option of avoiding intrusion into the protective zone have been fully explored by the proponent, and the intervention was truly found to be really inevitable, and in the event of proven inevitability of the proposed intrusion, ought have satisfied themselves, on the basis of precise and accurate calculations, assessment, and evaluations of

the vibration induced by the Metro train proposed to be employed, and the machinery specified for construction purposes shall propagate safe level of vibration. Similarly, the measurements and calculations of distances between the various points at which the vibration was/is to generate and transmitted and upto the point where they were to hit the monuments, as detailed hereinbefore, ought to have been carried out with care and precision, and preferably the soil layers contiguous to the monuments should also have been tested and analyzed. The evaluation and analysis of the transit induced vibration also ought to have been based on detailed information of the relevant specification and configuration, but all of the above is lacking in the present case.

65. As noted above, many of the monuments are not just unique and magnificent and reflective of our glorious past carrying immense cultural, social and historical significance, and aesthetic charm and artistic beauty. The monuments being many hundred years old, admittedly bears signs of abuse and neglect, and suffers from vagaries of weather. Some of these have already developed cracks, however, unfortunately neither the endurance level of these monuments been evaluated/ determined nor is the susceptibility of their foundations and footings been measured. These foundations and footings have also not been taken into account while calculating the distance between the track and the monuments. The heritage impact assessment as discussed and analyzed above, clearly indicates and specifies various adverse impact the project will have on the monuments.

66. The statutory intent of protecting and preserving heritage and avoiding any harm thereto is so strong and overwhelming that potential harm to the heritage cannot be taken

lightly even where the harm is outweighed by the advantages of the proposed development. The authorities must give highest priority to the objective of law by preserving or enhancing the character and appearance of the heritage, and in case the proposed development militates against the statutory objective, the proposal will prevail only in exceptional cases.

67. It is an admitted position that originally the track of OLMT in front of Lakshmi building and Chauburji as planned by MV Asia, was to be laid underground however in order to cut down the cost of the project, the length of the underground section of the project was reduced and thus in front of these two monuments also the track is now being built on elevated viaduct instead, although in respect of Chauburji the option of diverting the alignment to a safe distance is admittedly available.

68. It may be relevant to mention here that in terms of Article 4 of "the Convention for protection, conservation, presentation and transmission to the future generations of the cultural and natural heritage" adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organization (UNESCO), to which convention Pakistan is a signatory, we are obliged to ensure the "identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage", and to do all that we can towards the said end to the utmost of our own resources and where appropriate with any international assistance and cooperation, in particular, financial, artistic, scientific and technical which we may be able to obtain. Pakistan being a signatory to the above convention, and a respectable and worthy member of the comity of nations, is obliged to comply therewith, and to fulfil its obligation

thereunder, more so for the reason that this country has also benefited from the technical assistance and financial help provided by UNESCO, in respect of Shalimar Garden and the Lahore Fort inscribed on the world heritage list in 1981, and has as per a UNESCO report, received through them a financial assistance of US $ 121,000, out of which US $ 44,000, was for Lahore Fort and the balance was for the Shalamar Gardens.

69. During its 40th Session held in July 2016 the World Heritage Committee of UNESCO adopted a resolution expressing its serious concern about the construction of the OLMT project and requested the State Party (the Government of Punjab) to prepare a visual impact study of the Project to be presented to the World Heritage Centre and the Advisory Bodies before pursuing the works of the OLMT associated with the Shalamar Gardens, and also requested them to submit to the World Heritage Centre, in conformity with paragraph 172 of the Operational Guidelines, Technical details, including Heritage Impact Assessment (HIA), for all the proposed projects that may have an impact on the outstanding universal value (OUV) of the property (Shalamar Gardens) prior to their approval, for review by the advisory bodies. The Committee also requested the State Party to invite ICOMOS Reactive Monitoring Mission to the property at its earliest convenience to examine the OLMT and to discuss the same with the relevant Government authorities and to review the management and protection arrangements of the property. A further request was made to submit to the World Heritage Centre by 1st February 2017 an up-to-dated report on the state of conservation of the property and the implementation of the various recommendations/proposals made by the Committee as mentioned in the resolution for

examination of the World Heritage Committee at its 41st Session in 2017 with a view to consider whether there is a certain or potential danger to the outstanding universal value of the property.

70. The latest report of the UNESCO World Heritage Centre indicates that the conservation issues regarding Shalamar Gardens was presented to the Heritage Committee this year, and that despite efforts made by the World Heritage Centre and ICOMOS, the Government of Punjab has not invited Reactive Monitoring Mission as requested by the Committee at its last session (decision 40 COM 7B.43), instead the Government, on 29th March, 2017, informed the World Heritage Centre that the Mission will be invited only after the decision of the present case.

71 The report also notes that no visual impact study or detailed report on the progress made regarding the enlargement of the buffer-zone, has been submitted to the World Heritage Centre, and that the report submitted by the Government discloses very little information about OLMT Project. It is further noted that the full potential impact of the project on the OUV of the Shalamar Gardens goes beyond the potential impact of vibration. If is further stated that the visual impact assessment has not been completed, and that since no comprehensive heritage impact assessment (HIA) in line with ICOMOS Guidelines has been carried out to address, not only the issue of vibration, but also the visual and noise impacts, the full impact of OLMT Project is yet to be formally defined and that HIA submitted by the Government in 2016 was not in line with the internationally recommended standards and has thus failed to address the full range of impact of the Project. The report also claims that the construction that has continued on both sides of the Shalamar Gardens is already impacting on the setting and integrity

of the Gardens and if the Project is allowed to be completed along the Gardens it will irreversibly compromise the authenticity and integrity of the property, thereby potentially threatening its OUV. The Committee through its decision adopted in its 41st Session noted that the Reactive Monitoring mission will be invited immediately after the decision of this Court is announced and requested to urgently complete and share with the World Heritage Centre the Visual Impact Study as decided by the World Heritage Committee at its 40th session as soon as possible, and at the latest on 1st December 2017; and to invite a joint World Heritage Centre/ ICOMOS Reactive Monitoring Mission to the property immediately after the announcement of the decision of this Court, to examine the Orange Line Metro Train Project and to discuss the same with the relevant Government authorities and to review the management and protection arrangements of the property and that highest priority must be given to considering how the Shalamar Gardens and their spiritual associations can be sustained alongside any necessary measures to satisfy the needs of a growing city, by setting out the precise and detailed nature of the potential impacts of the Orange Line Metro project on the OUV of the property, and whether and how mitigation measures can be undertaken.

72. It is now well established that right to life as envisaged by Article 9 of the Constitution includes all those aspects of life which go to make a man's life meaningful, complete and worth living. In the case of *Employees of Pakistan Law Commission vs. Ministry of Works* (1994 SCMR 1548), it has been laid down that Article 9 of the Constitution which guarantees life and liberty according to law, is not to be construed in a restrictive manner. Life has larger concept which include the right of enjoyment of life,

maintaining adequate level of living for full enjoyment of freedom and rights.

73. In the case of *Siddharam Satingappa Mhetre vs. State of Maharastra and others* (2011 SCC 694), Indian Supreme Court held that the protection against arbitrary privation of 'life' no longer means mere protection from death, or physical injury, but also an invasion of the right to 'live' with human dignity, and would include all those aspects of life which would go to make a man's life meaningful and worth living, such as his tradition, culture and heritage.

74. In the case of *P. Rathinam/Nagbhusan Patnaik vs. Union of India and another* (AIR 1994 Supreme Court 1844), It was held that word 'life' in Article 21 means right to live with human dignity and the same not merely connote continued drudgery. It takes within its fold, 'some of the finer graces of human civilization, which makes life worth living' and that the expanded concept of life would mean the 'tradition, culture and heritage' of the concerned person.

75. In the case of *Ramsharan Autyanuprasi & Anr v. Union of India (1988 SCR Supl. (3) 870; AIR 1989 Supreme Court 549),* it was held that it is true that life in its expanded horizons today includes all that give meaning to a man's life including his tradition, culture and heritage and protection of that heritage in its full measure would certainly come within the encompass of an expanded concept of Article 21 of the Constitution.

76. In the present case the relevant authorities have clearly failed to take into account the various crucial relevant aspects of the case, and have failed in their duty to enforce the mandate of

law as discussed above, and have ignored the heritage interest secured by law.

77. In the circumstances, we would dispose of the present appeals by directing the DG Archaeology, Government of Punjab to ensure that the heritage impact assessment in the matter be carried out afresh keeping in view the above discussion, preferably with the assistance of UNESCO, who seems ready and willing, rather keen to provide such assistance, if need be felt, some organization/body having expertise, experience and credibility like "English Heritage" be also associated with the exercise. The exercise be commenced at the earliest and preferably within 15 days from today, and fullest endeavour be made that the same be concluded expeditiously and preferably within one month from its commencement, and within 15 days thereafter the DG Archaeology and the Government of Punjab shall decide the request for the NOCs in the light of the report/findings of the fresh heritage impact assessment, with an endeavour to find practicable and viable solutions of the problems and issues that may be pointed out in the said assessment so that the project may be completed as early as possible.

JUDGE

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JUDGE

Announced in open Court on _____

Judge.

'APPROVED FOR REPORTING'

ORDER OF THE COURT

With majority of 4 against 1, Maqbool Baqar, J, dissenting, we endorse and approve the NOCs/permission letters issued by the competent authorities and the recommendations of experts relating to execution, mitigation and remedial measures required to be adopted by the executing agency and allow the Project to proceed subject to the following conditions and directions:-

i) The appellant shall make all necessary arrangements to ensure that the monuments remain stable and undamaged in all respects during the execution of the Project as specified in the HIA and Study of Control of Vibration, Noise and Foundation;

ii) Vibration monitoring shall be undertaken as a part of the monitoring plan using the crack measure devices such as Avongard Standard Tell-Tale throughout the construction period and for an additional period of 10 weeks from the date of commencement of commercial operation of the train or such further time as may be directed by the Director General, Archaeology. In case, it is found that vibration levels at any stage of the construction or operation are exceeding safe limits, construction work / operation shall immediately be discontinued and remedial action shall be taken to ensure that such levels are brought down to acceptable limits. Such actions may inter alia include use of one piece of equipment at a time, during the construction phase, adjustment of train speed, addition of buffers and such other remedial and mitigating measures as may be recommended by the experts;

iii) Technical experts shall be present at the sites during the construction phase in the vicinity of the antiquities and special premises with all necessary equipment for monitoring vibration levels. In case, vibration levels exceed the acceptable limits, work shall immediately be stopped, remedial measures taken to the satisfaction of experts and further work shall not commence unless written clearance for resumption of work is given by the experts;

iv) An independent and experienced Conservation Engineer shall be appointed to monitor the Project, both during the construction and operation phases. He shall submit monthly reports to the Advisory Committee which shall

make such further recommendations to the Director General, Archaeology as may be required to ensure that the Project as a whole is meeting all technical requirements meant to preserve, protect and conserve the antiquities or protected premises;

v) On completion of the project, the train shall be operated on experimental basis for at least 2 weeks on the entire length of the route and the vibration levels shall be monitored to ensure that the same are within the acceptable limits. Commercial operation shall not commence unless written clearance is given by the experts confirming that vibration levels have consistently been found to be within acceptable limits;

vi) The speed of the Train shall be reduced while passing near the monuments as recommended by the Directorate General of Archaeology from time to time on the basis of data made available to it;

vii) State of the art vibration measuring equipments shall permanently be installed at suitable places in and around the antiquities and special premises to monitor levels of vibration created by operation of the train. Records of the same shall be maintained and regularly checked by a responsible officer deputed to do so;

viii) Special teams consisting of qualified experts will be set up which will periodically inspect all antiquities and special premises to detect any damage or deterioration at the sites. Proper records and logbooks shall be maintained for this purpose;

ix) Any damage or deterioration shall be reported to the Director General, Archaeology in writing who shall take remedial steps necessary to ensure safety of the buildings and structures;

x) Recommendations of the Advisory Committee (already set up) shall be placed before the Directorate General of Archaeology, who shall take necessary steps to ensure that the same are complied with in letter and spirit by all concerned agencies, contractors, sub-contractors and operators;

xi) Where excavation is necessary it shall be carried out in a way that it would not affect any structure or foundation of

the antiquities or special premises. Where necessary special arrangements shall be made to stabilize and strengthen the structure of the antiquities and special premises. All necessary safety arrangements shall be made in accordance with the best engineering expertise during excavation, construction and execution phases of the Project;

xii) *The executing agency shall install accelerometers, velocity transducers, noise detectors and vibration measuring equipment near the antiquities and special premises. The appellant shall ensure implementation of additional mitigation and remedial measures as mentioned in vibration analysis report by NESPAK, Heritage Impact Assessment (HIA) as well as in the reports submitted by Dr. Uppal and Dr. Rogers;*

xiii) *Excavation would be carried out in a way that would not affect any of the exposed or buried structure of the Special Premises;*

xiv) *In case of any adverse impact to the antiquities or special premises during excavation, construction or execution, the appellant and all other related agencies shall immediately and forthwith stop and discontinue further work, take all possible actions to protect and conserve the antiquities and special premises and in this regard, involve such experts and consultants as may be necessary to ensure that the causes and effects of the adverse impact are effectively removed;*

xv) *A dedicated hotline shall be set up, telephone numbers whereof shall be prominently displayed in public areas around all antiquities and special premises for reporting damage or deterioration observed by members of the public or tourists;*

xvi) *In case, any information/report is received by the Director General, Archaeology the same shall be investigated within 7 days and after receiving recommendations (if any) from experts repair/ renovation work shall be commenced within 30 days;*

xvii) *No building material or equipment shall be stored/stockpiled within protected area of the monuments;*

xviii) No change shall be made in the alignment of the track which brings any part of it nearer to the monuments than the distances set out hereinabove;

xix) Dust pollution during construction shall be controlled through extensive sprinkling of water on regular basis and taking such other steps including but not limited to covering the monuments with protective sheets in order to avoid any damage from dust;

xx) The design of the viaduct and nearby stations in terms of colour and designing shall be in harmony with the setting and appearance of the monuments;

xxi) The Hydraulic Tank of Shalamar Garden shall be restored, as far as possible, to its original position and the surrounding area will be converted into a green area;

xxii) Structures on the southern side of the Shalamar Garden shall be camouflaged through construction of a wall in consultation with the Directorate General of Archaeology. All practicable efforts shall be made to create a buffer Zone around Shalamar Garden as per proposal already pending in the Directorate General of Archaeology and other competent forums;

xxiii) The decorative motifs of Shalamar Garden would be replicated on the train station near the Shalamar Garden to create harmony with the Garden;

xxiv) The tile mosaic motifs of the Gulabi Bagh Gateway would be replicated on the nearby station of the Gateway to create harmony with the historic Gateway;

xxv) The area around the Chauburji Gateway would be properly attended and developed into a greenbelt;

xxvi) The decorative motifs of the Chauburji Gateway would be replicated on the nearby station of the Chauburji Gateway to create a harmony with the historic Gateway;

xxvii) The area around the Zaib-un-Nisa's Tomb would be properly attended and developed;

xxviii) The decorative motifs of the Zaib-un-Nisa's Tomb would be replicated on the nearby station of the Zaib-un-Nisa's Tomb to create harmony with the historic;

xxix) The Respondents shall in consultation with UNESCO and other international agencies prepare phase-wise plan to control and monitor urban encroachments and the process of creating buffer zone around the Shalamar garden;

xxx) All future projects which directly, indirectly and incidentally involve antiquities or heritage sites shall in the first instance be widely publicized through print and electronic media at least 6 months prior to proposed date of commencement of the project and public hearings shall be conducted to hear objections, if any against such project; and

xxxi) For all future projects, NOCs, licences, approvals and permissions as required by law shall be obtained before work on the project site is commenced.

2. In addition to the above, we direct the Government of Punjab within a period of 30 days from the date of this judgment to take the following steps:-

e) Set up an Antiquity and Special Premises Fund with the sum of Rupees One Hundred Million which shall be dedicated to monitoring, renovation and reconstruction work of 11 protected and special premises mentioned hereinabove. It shall be a revolving fund and shall be replenished on yearly basis. It shall be utilized firstly for the maintenance, preservation, restoration and renovation work of the protected and Special Premises, subject matter of this lis and thereafter on other Antiquities and Special Premises situated in Lahore as may be recommended by the special Committee of Experts constituted under this Judgment;

f) A broad based Special Committee of Experts consisting of Director General, Archeology Department; a Professor of the Department of Archeology, University of the Punjab; Head of Department of Structural Engineering, University of Engineering and Technology, Lahore; a Senior Professor nominated by the Chairman of Board of Directors of National College of Arts; chaired by a retired Judge of this Court nominated by the Chief Justice of Pakistan shall be notified which shall oversee implementation of the judgment of this Court and the directions issued herein. This Committee shall also make such further recommendations to the Chief Minister Punjab to undertake such measures as may be necessary to

implement and enforce the directions and recommendations made in this judgment. The tenure of the Committee shall be one year from the date of its notification;

g) *The Government of Punjab shall retain the services of at least three Experts having expertise in the field of archeology and renovation, preservation and maintenance of antiquities and special premises. One of the experts shall be a person having expertise in structural engineering. All three experts will work as a Technical Committee with tenure of one year. The Technical Committee shall report to advise and assist the aforesaid Special Committee of Experts. The Committee shall, if required and with the approval of Director General, Archeology retain services of such other experts as it may consider necessary to undertake its work more effectively regarding the steps required to be taken to monitor the protected and Special Premises all over Lahore and suggest remedial measures that may be necessary to ensure the safety of all protected and special premises in Lahore; and*

h) *We also emphasize the fact that the present condition of the protected and special premises calls for major preservation, renovation, reconstruction and repair work. The Government of Punjab shall take immediate steps and we have been assured by learned Advocate General, Punjab that such steps shall immediately be taken to start repair and renovation work for which the requisite funds will be made available within thirty days from the date of this judgment.*

3. In view of the foregoing discussion, the Impugned Judgment of the Lahore High Court is set aside and the instant appeals are allowed in terms noted above. Civil Petition No.3101-L of 2016 is unanimously dismissed and Leave to Appeal is refused.

Judge

Announced in Open Court
On 08.12.2017.

Judge **Judge**

Judge **Judge** **Judge**

APPROVED FOR REPORTING