

Ms. Shehla Zia and Ors. v. WAPDA

Supreme Court of Pakistan

12 February, 1994

Citation: P L D 1994 Supreme Court 693

Judges: Nasim Hasan Shah, CJ., Saleem Akhtar and Manzoor Hussain Sial JJ

Order

Saleem Akhtar, J. – 1. Four residents of Street No. 35, F-6/1, Islamabad protested to the Water Resources and Power Development Authority, (WAPDA), against construction of a grid station in F-6/1, Islamabad. A letter to this effect was written to the Chairman on 15-1-1992 conveying the complaint and apprehensions of the residents of the area in respect of construction of a grid station allegedly located in the green-belt of a residential locality. They pointed out that the electromagnetic field by the presence of the high voltage transmission lines at the grid station would pose a serious health hazard to the residents of the area particularly the children, the infirm and the *Dhobi-ghat* families that live in the immediate vicinity. The presence of electrical installations and transmission lines would also be highly dangerous to the citizens particularly the children who play outside in the area. It would damage the greenbelt and affect the environment. It was also alleged that it violates the principles of planning in Islamabad where the green belts are considered an essential component of the city for environmental and aesthetic reasons. They also referred to the various attempts made by them from July 1991 protesting about the construction of the grid station, but no satisfactory step has been taken. This letter was sent to this Court by Dr. Tariq Banuri of LUCN for consideration as a human rights case raising two questions; namely, whether any Government agency has a right to endanger the life of citizens by its actions without the latter's consent; and secondly, whether zoning laws vest rights in citizens which cannot be withdrawn or altered without the citizens' consent.

Considering the gravity of the matter which may involve and affect the life and health of the

citizens at large, notice was issued to the Respondents who appeared and explained that the site of grid station was not designated as open space/green area as stated in the layout plan of the area. It was further stated that the site has been earmarked in an incidental space which was

previously left unutilized along the bank of a *nallah* and was not designated as open space or green area. It is about 6-10 feet in depression from the houses located in the vicinity of the grid station site. The grid station site starts at least 40 feet away from the residences in the area and construction of grid station does not obstruct the view of the residents. It was further stated that the fear of health hazard due to vicinity of high voltage of 132 KV transmission lines and grid station is totally unfounded. Similar 132 KV grid stations have been established in the densely populated area of Rawalpindi, Lahore, Multan and Faisalabad, but no such health hazard has been reported. It was also claimed that not a single complaint has been received even from the people working in these grid stations and living right in the premises of the grid stations. The installations are made in such a way that the safety of personnel and property is ensured. It was further stated that electromagnetic effects of extra high voltage lines of voltage above 5000 KV on human and animal lives and vegetation is under study in the developed countries, but the reports of results of such studies are controversial. In support of the contentions, the Capital Development Authority (CDA) submitted an extract from the opinion of Dr. M. Mohsin Mubarak, Director, Health Services, which reads as follows:-

"The fears of the residents about the effects of high voltage transmission lines are also not considered dangerous for the nearby residents. Even a small electric point with 220 volts current or a Sui Gas installation in the kitchen can prove to be extremely dangerous if specific precautions are not undertaken and maintained. The high tension wires are not likely to harm the residents if due protection criteria are properly planned and executed. The concept of dangerous and offensive trades and civil defence is not that the candle should not be lit. A candle must be lit to remove darkness and make the things more productive but care must also be taken not to let the candle burn everything around."

The comments of Government of Pakistan, Ministry of Water and Power recommending the construction of grid station were also filed, in which the following points were noted on the effect of electrical light and wiring on health of human beings:-

"(c) Although the studies of effects of electric lines and wiring on the health of human beings are being carried out by different agencies/institutions of the world, there are no established and conclusive findings about any serious effects of electric lines/wiring on the health of human beings.

(d) The effects of electricity can be considered on account of its two fields, namely the electric field and the magnetic field and in this regard, extracts of section S.11 and 8.13 of Transmission Line Reference Book of Electric Power Research Institute, California, USA on Biological Effects of Electric and Magnetic fields on people and animals are enclosed, which indicate that there is no restriction on permissible duration of working if the electric field intensity is up to SKV/m whereas in the case under consideration the electrical field intensity would certainly be lesser than O.KV/m which value as indicated in the said extract is for a location at a distance of 20m from a 525 KV Line. The nearest present live conductor is of only 132 KV and that too would be at a distance of more than 20m from the nearest house's boundary wall as shown in the enclosed map. This clearly shows that the nearby houses fall in a quite safe zone. As regards the magnetic fields, the intensity of the magnetic field at ground level close to transmission line varies from 0.1 to 0.5 gauss, which values are less than those in industrial environments especially in proximity to low voltage conductors carrying currents as mentioned in the above extracts. In view of the above details, there should be no concern about the health of residents of nearby houses.

(e) The apprehension that the grid station would generate and transmit excessive heat to houses is unfounded as the main equipment i.e. power transformers are properly cooled by circulation of oil inside transformer tanks and by means of cooling fans."

These opinions of the WAPDA and CDA are based on Transmission lines Reference Book, 345 KV and above/2nd Edition, extract of which had been filed and relevant parts of which are reproduced as follows:-

"Although health complaints by substation workers in the USSR were reported (40.41), medical examination of linemen in the USA (38.39), in Sweden (19) and in Canada (56.58), failed to find health problems ascribable to electric fields. As a result of unclear findings and research in progress, no rules for electric-field intensity inside and outside the transmission corridor have been universally established. In some cases, design rules

have been established to allow construction of EHV transmission lines to proceed with the maximum possible guaranteed protection of people from possible health risks. Many studies of magnetic-field effects on laboratory items have been performed. For instance, a good general review and discussion offered by Sheppard and Eisenbud (59). Magnetic fields have been reported to affect blood composition, growth, behaviour, immune systems and neural functions. However, at present there is a lack of conclusive evidence, and a very confusing picture results from the wide variation in field strengths, frequency, exposure durations used in different studies." WAPDA also submitted extracts from A.B.B. literature regarding insulation and coordination/standard clearances data based on LEC specification in 'which 'minimum clearance for 500 KV equipment and installation has been given as 1,100 ft. and 1,300 ft. for phase-to-phase air clearance and phase-to-phase earth air clearance.

2. The Petitioners were also asked to furnish material in support of their claim. They have filed news clippings from magazines, research articles, and opinions of scientists to show that electromagnetic radiation is the wave produced by magnetism of any electrical current and thus electromagnetic fields can affect human beings. The first item is a clipping from the magazine The News International, September 18; 1991, entitled 'Technotalk'. It refers to a book 'Electropollution -- How to protect yourself against it' by Roger Coghill. It has been observed that "now researchers are asking whether it is more than coincidence that the increase in diseases like cancer, ME, multiple sclerosis, hyperactivity in children, allergies and even AIDS have occurred alongside enormous growth in the production and use of electricity". It further states that "the first warning sign came from the USA in 1979 when Dr. Nancy Wertheimer and Dr. Ed Leeper found that children living next to overhead electricity lines were more likely to develop leukaemia. Since then, further studies have shown links with brain tumours, depression and suicide". One US researcher found that electrical utility workers were 13 times more likely to develop brain tumour than the rest of the population. A midlands doctor discovered a higher than average rate of depression and suicide in people living near electric power cables. The photo copy of an article published in Newsweek, July 10, 1989, entitled 'An Electromagnetic Storm' has been filed. In this article the apprehensions and problems considered by the scientists have been discussed and reference has been made to the researches in this field in which, finally it was concluded as follows:-

"The question is whether we know enough to embark on a complete overhaul of the electronic environment. Avoiding electric blankets and sitting at arm's length from one's VDT screen (their fields fall off sharply after about two feet) seem only prudent. But drastic steps to reduce people's involuntary exposures might prove futile. For while research clearly demonstrates that electromagnetic fields can affect such process as bone growth, communication among brain cells, even the activity of white blood cells, it also shows that weak fields sometimes have greater effects than strong ones. Only through painstaking study will anyone begin to know where the real danger lies. On one point, at least, Brodeur and many of those he criticizes seem to agree: we're not quite sure what we're up against, and we need urgently to find out."

3. An article published in the magazine 'Nature', Volume 349, 14 February 1991 entitled 'EMF - Cancer Link Still Murky' refers to a study made by epidemiologist John Peters from the University of Southern California, who released his preliminary results from a case control study of 232 young leukemia victims. The results implied that leukemia reasons are co-related to electromagnetic field (EMF) exposure and that they are not dependent on how exposure is estimated.

4. In an article from Electronics World & Wireless World, February 1990 entitled 'Killing Fields', the author has discussed and produced a large number of case studies from which it was observed that at least there was two-fold increase in adult leukaemia link to fields from wires near human beings. It was further observed that if one accepts a casual link to power line electromagnetic fields as much as 10-15% of all childhood cancer cases might be attributed to such fields. There has been a growing concern and research in the US and seven American States have adopted rights of way, but no such step has been taken in UK. The case studies also showed that:-
"Among recent residential studies, general physician Dr. Stephen Perry published correlations between the magnetic-field exposure of people living in multi- storey blocks (of nine storeys or more) in Wolverhampton, with the incidence of heart disease and depression. Magnetic field strengths measured in all 43 blocks with a single rising cable showed very significantly higher readings (p 0.0002) in those apartments categorized as 'near' the cable, averaging 0.315 T (highest: 0.377 T) against 0.161 T (lowest: 0.148 T) in the 'distant' apartments. In line with these measures, significantly more 'myocardial infraction, hypertension, ischaemic heart disease and depression was reported in those living near the cable.'

Other articles in the same magazine were entitled "Killing Fields, the Epidemiological Evidence" and "Killing Fields, the Politics" in which suggestion was made that "until results of this research become available more Corium should be placed on all new buildings or routing of power lines which causes 50 Hz fields in houses to exceed every cautiously set limit".

In certain information sent by Mark Chernaik, Environmental Law US, to Brig. (Rtd.) Muhammad Yasin, Projects Coordinator, Sustainable Development Policy Institute (SDPI), it is stated that "when electric current passes through high voltage transmission lines (HVTLs), it produces electric and magnetic fields. Although both can affect biological systems, the greatest concern is the health impacts of magnetic fields. A magnetic field can be either static or fluctuating. Magnetic field from HVTLs fluctuates because the electric currents within HVTLs are alternating currents (AC) which reverse direction 50 to 60 times per second (50 to 60 Hz). Magnetic fields pass nearly unimpeded through building materials and earth". It refers to four recent epidemiological studies which show that the people exposed to relatively strong static and fluctuating magnetic fields have higher rates of leukaemia as compared to general population. It gives the figures that the rate of leukaemia was higher in over 1,70,000 children who lived within 300 meters HVTLs in Sweden from 1960-85. Children who were exposed to fluctuating

magnetic fields greater than 0.20 Ut were 2.7 times more likely to have contracted leukaemia and children who were exposed to greater than 0.3 Ut were 3.08 times more likely to have contracted leukemia than other children (Reference: Feychting, M. & Ahlbom, A (October 1993)Magnetic Fields and Cancer in Children Residing in Swedish Higher Voltage Power Lines" - American Journal of Epidemiology, Vol.138, p.467). It also refers to an article "Childhood Cancer in Relation to Modified Residential Wire Code Environmental Health Perspectives, Vol.101, pp.76-80, in which studies were carried out in respect of cancer in children living in the Denver area of US. It was reported that children living in homes within 20 meters of HVTLs or primary distribution lines were 1.9 times more likely to have contracted cancer in general and 2.8 times more likely to have contracted leukaemia in particular than children living in homes with relatively moderate or low exposure to magnetic fields. Likewise reference has been made to the study relating to leukaemia in workers who maintain and repair telephone lines in US and the

rate of cancer in Norwegian electrical workers who were exposed to magnetic fields. It also states that power company challenged the existence of link between leukaemia and exposure to magnetic fields on the basis that there is no biological mechanism which can explain the link. It has been stated that "there is a plausible (but still unproven) biological explanation for the link between leukaemia and exposure to magnetic fields". It also suggests methods to reduce magnetic fields from HVTLs.

5. Dr. Tariq Banuri has also made a statement and given his opinion as an expert on Environmental Economics and a student of Social Management. According to him:-

"(a) The earlier consensus on the limited degree of the harmful effects of radiation does not exist. While at this point the expert evidence is not conclusive regarding its impact, the burden of proof has shifted from individuals to the organisation. As a result, Courts in the US have recommended more stringent safety standards.

(b) Given the absence of proper safeguards and standards in Pakistan's research, it is unlikely that studies done in Pakistan would help decide the issue. Perforce, we would have to rely on the results of cross-country studies, or on those of studies conducted in industrialized countries. We should not regard the results in other countries as inappropriate for our purposes. These are the only results we are likely to be able to use in the foreseeable future.

(c) Even in the latter countries, until such time as the matter gets resolved, the profession is likely to place greater weight on the critical and more recent studies than would be warranted by their frequency or number. In other words, a single study showing additional harmful consequences has more weight, than hundreds of studies that argue that there is no change." According to him precautionary principles should be adopted and there should be a balance in existing situation, developments and the environmental hazards.

6. The Petitioners have also relied on an article entitled "Regulatory and Judicial Responses to the Possibility of Biological Hazards from Electromagnetic Fields generated by Power Lines" by Sherry Young, Assistant Professor of Law, Claude W. Pettit, College of Law Ohio Northern University, BA. Michigan State University, Howard Law School published in Villanora Law Review, Vol. 36, p. 129 in 1991. It is an exhaustive and informative article which deals with the current state of knowledge about the biological effect of exposure to electromagnetic fields, the responses of the legal system to the possibility of biological hazards, evaluations and the proposals for regulatory response. It refers to various studies

made in USA, Sweden and Canada about ELF exposure and cancer in children and adults. After referring to the various studies and the results arrived at the author has summed up as follows:-

"While the implications of these studies justify additional research, it would be both difficult and futile to base any significant regulation of electric transmission and distribution systems on rather limited data currently available. At best, various experiments have demonstrated that particular cells or animals have shown particular responses to exposure to ELF fields of particular frequencies and intensities for specific duration. The mechanism by which those effects occur are not known. It is also unknown whether the changes that have been observed are in fact harmful to the organisms involved, whether they would be harmful if they occurred in humans, or whether exposure to ELF fields results in numerous biological effects that in fact cancels each other out. Additionally, it is unknown whether humans or other animals are able to adapt to exposure, either immediately or after some threshold period of adjustment.

It is known that in some of the experiments demonstrating biological effects, the effects disappeared upon increased, as well as decreased, exposure. Therefore, it is impossible to conclude that any given level of exposure will be harmless, no matter how precisely its frequency, intensity and duration is regulated, nor can it be established that any given level of exposure is definitely harmful. Consequently, it is impossible at this time to prescribe alternations in electric transmission and distribution systems that are likely to significantly reduce the risks, if any, of exposure to ELF fields. At present, the scientific evidence regarding the possibility of adverse biological effects from exposure to power-frequency fields, as well as the possibility of reducing or eliminating such effects, is inconclusive. The remaining question is how the legal system, including both the judiciary and the various regulatory agencies, should respond to this scientific uncertainty."

The research project known as the New York Power Line Projects (NYPLP) was established to investigate independently and without any bias, several projects particularly for considering the implication of the Wythmer and Leeper study which suggested association between proximity to power lines and childhood leukaemia. The author has summarised the conclusion of this project as follows:-

"The panel concluded that they had documented biological effects of electric and magnetic fields and that several of those findings were worthy of further consideration because of their

possible implications for human health. The panel was not able, however, to identify any adverse health effects. Although the replication of the Wyrthemer and Leeper study basically confirmed the study's finding of an association between power line configurations and childhood cancer, the panel was unable to offer any recommendation based on this and other epidemiological studies because of methodological difficulties with quantifying magnetic field exposure levels and the lack of any established casual relationship between weak magnetic fields and cancer." Finally

the panel recommended further research in the following areas: (1) the possible association between cancer and exposure to magnetic fields and effects of exposure on learning ability; (2) the possible existence of thresholds for biological effects; and (3) methods of power delivery for use that would reduce magnetic fields." After this report, staff task force was appointed by the Chairman of the New York Public Service Commission to evaluate the report of NYPLP and develop recommendations for consideration by it. The task force noted that "the researchers had not determined whether the effects that had been established would persist at lower field intensities or when there was threshold flow/ whiff the effects disappeared." Nonetheless the task force found that the results were disturbing enough to require additional epidemiological studies preferably in New York. The recommendations made by N Y P L P were endorsed by the task force.

7. Dr. Mirza Arshad Ali Baig who was at that time Director-General of Planning and Development and Industrialization of Pakistan Council of Scientific and Industrial Research, to a query made by Dr. Tariq Banuri has given his opinion as follows:-

"The information that is so far available with me, suggests that transmission lines give rise to magnetic fields which have extremely high intensity compared with naturally occurring fields. This is particularly the case with sources operating at power frequencies of 50 or 60 Hz where magnetic fields of very high magnitude compared with the natural are common. Any one near the transmission lines is, therefore, exposed to excessive magnetic field. Magnetic fields give rise to induced electric fields and currents which in turn interact with the blood flow as well as living

tissues. Such tissues which are vulnerable to electrical excitation e.g. visio-sensory stimulation that generate magneto-phosphenes, are likely to be affected on long term exposure and under high intensity of the field. So far there is no direct evidence of effects

of exposure to magnetic fields. But there are indications that an excess in the incidence of cancer among children and adults is associated with very weak (0.1 to 1m T) 50 or 60 Kg magnetic flux densities such as those directly under high tension wires, welding arcs, induction heaters and a number of home appliances. The ill-effects have just started surfacing up because of availability of some health facilities and institutions where ailments of many kinds are being reported. In Pakistan these effects may easily be attributed to anything other than scientific. Instead of waiting for abnormal cues to be reported in our situation it is perhaps imperative that we go for sustainable development and discourage installation of transmission lines over residential areas anywhere."

The opinion of Dr. Mohammed Hanif, Officer Incharge, Environmental Research and Pollution Control Section of Pakistan Council of Scientific and Industrial Research, Lahore dated 10-7-1991, after referring to various studies and research made in USA, concluded as follows:-

"According to my conclusion that I draw from the literature so far read by me, there is going to be proven ill-health effects on human beings associated especially with the high voltage transmission. However, for a while setting aside the question of the ill-health effects, of high energy concentrated electrical waves, there remains a constant concern about the safety factor. The high structures especially to be installed for the transmission of electricity and the high voltage current passing through these transmission-lines, continue to pose constant danger to the people and the property of the area under their direct hit, in case these structures collapse due to any cause."

A documented research paper entitled Electromagnetic (EH) Radiation-- A Threat to Human Health, by Brig. (Rtd.) Muhammad Yasin of Sustainable Development Policy Institute has also been relied upon by the Petitioners. The author has referred to some reported research conclusions as follows:--

"(i) The risk of dying from acute myliod leukaemia is increased by 2.6 if you work in electrical occupation especially if you are a telecommunication engineer or radioamateur.

(ii) Service personnel exposed to non- ionising radiation are seven times more likely than the unexposed colleagues to develop blood cancer, forming organs and lymphatic tissues and are likely to develop thyroid tumours.

(iii) 10 to 15% of all childhood cancer cases might be attributable to power frequency fields

found in homes (23/115 V 50 - 60 Hz). The risk of childhood cancer more than doubles in homes where the average 60 Hz magnetic field is over 300 MT." He has also referred to studies in Sweden on the effect of high tension power lines on the health of children and detected higher risk of leukaemia. This study also indicated that prolonged exposure to electromagnetic fields has links of leukaemia in adults. His conclusion and recommendations are to create awareness, to adopt safety standards prescribed by developed countries and undertake studies and research.

8. From the afore stated material produced on record which contains up-to-date studies and research, it seems that so far no definite conclusions have been drawn by the scientists and scholars. But the trend is in support of the fact that there may be likelihood of adverse effects of electromagnetic fields on human health. It is for this reason that in all the developed countries special care is being taken to establish organizations for carrying on further research on the subject. The studies are, therefore, not certain, but internationally there seems to be a consensus that the lurking danger which in an indefinite manner has been found in individual incidents and studies cannot be ignored. WAPDA on the other hand insists on executing the plan, which according to it is completely safe and risk free. The material placed by WAPDA is based on studies carried out two decades back. The other statement is based on their personal observation of their workers who are working in grid stations and further that from the locality no such complaint has been made as in the present case. The research and opinion relied upon by WAPDA is not the latest one nor from authentic sources because they are merely relying upon old opinions. In the present day controversies, everyday new avenues are opened, new researches are made and new progress is being reported in the electrical fields. It would be advisable for WAPDA to employ better resources and personnel engaged in research and study to keep themselves up-to-date in scientific and technical knowledge and adopt all such measures which are necessary for safety from adverse effects of magnetic and electric fields. On the other hand the materials placed by the Petitioners are the latest researches carried out to examine the effect of magnetic fields on health and also about the possible dangers that may be caused to human beings. In the absence of any definite conclusion that electromagnetic fields do not cause childhood leukaemia and adult cancer and in the presence of studies, the subject requires further research. The conclusions drawn earlier in favour of the power company are doubtful-the safest course seems to be to adopt a method by which danger, if any, may be avoided. At this

stage it is not possible to give a definite finding on the claims of either side. There is a state of uncertainty and in such a situation the authorities should observe the rules of prudence and precaution. The rule of prudence is to adopt such measures which may avert the so-called danger, if it occurs. The rule of precautionary policy is to first consider the welfare and safety of the human beings and the environment and then to pick up a policy and execute the plan which is more suited to obviate the possible dangers, or make such alternate precautionary measures which may ensure safety. To stick to a particular plan on the basis of old studies or inconclusive research cannot be said to be a policy of prudence and precaution. There are instances in American Studies that the power authorities have been asked to alter and mould their programme and planning in such a way that the intensity and the velocity is kept at the lowest level. It is highly technical subject upon which the Court would not like to give a definite finding particularly when the experts and the technical evidence produced is inconclusive. In these circumstances the balance should be struck between the rights of the citizens and also the plans which are executed by the power authorities for welfare, economic progress and prosperity of the country.

9. Dr. Parvez Hasan, learned counsel for the Petitioners contended that the Rio Declaration on Environment and Development has recommended the precautionary approach contained in Principle No. 15, which reads as follows:--

"Principle 15-In order to protect the environment, precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

The concern for protecting environment was first internationally recognised when the declaration of United Nations Conference on the Human Environment was adopted at Stockholm on 16-6-1972. Thereafter it had taken two decades to create awareness and consensus among the countries, after which in 1992 Rio Declaration was adopted. Pakistan is a signatory to this declaration and according to Dr. Parvez Hasan although it has not been ratified or enacted, the principle so adopted has its own sanctity and it should be implemented, if not in letter, at least in spirit. An international agreement between the nations if signed by any country is always subject to ratification, but it can be enforced as a law only when legislation is made by the country through its legislature. Without framing a law in terms of the international agreement, the covenants of such agreement cannot be implemented as a law nor do they bind down any party. This is the legal

position of such documents, but the fact remains that they have a persuasive value and command respect.' The Rio Declaration is the product of hectic discussion among the leaders of the nations of the world and it was after negotiations between the developed and the developing countries that an almost consensus declaration had been sorted out. The environment is an international problem having no frontiers, creating trans-boundary effects. In this field every nation has to cooperate and contribute. For this reason the Rio Declaration would serve as a great binding force creating discipline among nations while dealing with environmental problems. Coming back to the present subject, it would not be out of place to mention that Principle No. 15 envisages a rule of precaution and prudence. According to it if there are threats of serious damage, effective measures should be taken to control it and it should not be postponed merely on the ground that scientific research and studies are uncertain and not conclusive. It enshrines the principle that prevention is better than cure. It is a cautious approach to avert a catastrophe at the earliest stage. Pakistan is a developing country. It cannot afford the researches and studies made in developed countries on scientific problems particularly like the subject at hand. However, the researches and their conclusions with reference to specific cases are available, information and knowledge is at hand and we should benefit out of it. In this background if we consider the problem faced by us in this case, it seems reasonable to take preventive and precautionary measures straightaway instead of maintaining status quo because there is no conclusive finding on the effect of electromagnetic fields on human life. One should not wait for conclusive finding as it may take ages to find it out and therefore, measures should be taken to avert any possible danger. For that reason one should not go to scrap the entire scheme but could make such adjustments, alterations or additions which may ensure safety and security or at least minimise the possible hazards.

10. The issue raised in this petition involves the welfare and safety of the citizens at large because the network of high tension wires is spread throughout the country. One cannot ignore that energy is essential for present-day life, industry, commerce and day-to-day affairs. The more energy is produced and distributed, the more progress and economic development become possible. Therefore, a method should be devised to strike balance between economic progress and prosperity and to minimise possible hazards. In fact a policy of sustainable development should be adopted. It will thus require a deep study into the planning and the methods adopted by WAPDA for construction of the grid station. The studies in USA referred to above have suggested that certain modes can be adopted by which high tension frequency can be decreased.

This is purely a scientific approach which has to be dealt with and decided by the technical and scientific persons involved in it. It is for this reason that both the parties have agreed that National Engineering Services Pakistan (Pvt.) Ltd., (NESPAK), should be appointed as a Commissioner to examine the plan and the proposals/schemes of WAPDA in the light of the complaint made by the Petitioners and submit its report. If necessary they should suggest any alteration or addition which may be economically possible for constructing a grid station. The location should also be examined and report submitted at the earliest possible time.

11. At this stage it may be pointed out that in all the developed countries great importance has been given to energy production. Our need is greater as it is bound to affect our economic development. But in the quest of economic development one has to adopt such measures which may not create hazards to life, destroy the environment and pollute the atmosphere. From the comments filed by WAPDA it seems that they, in consultation with the Ministry of Water and Power, have prepared a plan for constructing grid station for distribution of power. While making such a plan, no public hearing was given to the citizens nor was any opportunity afforded to the residents who are likely to be affected by the high tension wires running near their locality. It is only a one-sided affair with the Authority which prepares and executes its plan. Although WAPDA and the Government may have been keeping in mind the likely dangers to the citizens' health and property, no due importance is given to seek opinion or objections from the residents of the locality where the grid station is constructed or from where the high tension wires run. In USA, Public Service Commission has been appointed for the purpose of regulating and formulating the plans and permission for establishing a grid station. It hears objections and decides them before giving permission to construct such a power station. No such procedure has been adopted in our country. Being a developing country we will need many such grid stations and lines for transmission of power. It would, therefore, be proper for the Government to establish an Authority or Commission manned by internationally known and recognised scientists having no bias and prejudice, to be members of such Commission. Its opinion or permission should be obtained before any new grid station is allowed to be constructed. Such Commission should also examine the existing grid stations and the distribution lines from the point of view of health hazards and environmental pollution. If such a step is taken by the Government in

time, much of the problem in future can be avoided.

12. The learned counsel for the Respondent has raised the objection that the facts of the case do not justify intervention under Article 184 of the Constitution. The main thrust was that the grid station and the transmission line are being constructed after a proper study of the problem, taking into consideration the risk factors, the economic factors and also necessity and requirement in a particular area. It is after due consideration that planning is made and is being executed according to rules. After taking such steps, the possibility of health hazards is ruled out. There is no question of it affecting the property and health of citizens, nor is any fundamental right violated which may warrant interference under Article 184. As far as the first part of the contention regarding health hazards is concerned, sufficient discussion has been made in the earlier part of the judgment and need not be repeated. As far as the fundamental rights are concerned, one has not to go too far to find the reply. Article 9 of the Constitution provides that no person shall be deprived of life or liberty save in accordance with law. The word 'life' is very significant as it covers all facts of human existence. The word 'life' has not been defined in the Constitution but it does not mean nor can it be restricted only to vegetative or animal life or mere existence, from conception to death. Life includes all such amenities and facilities which a person born in a free country, is entitled to enjoy with dignity, legally and constitutionally. For the purposes of the present controversy, suffice to say that a person is entitled to protection of law from being exposed to hazards of electromagnetic fields or any other such hazards which may be due to installation and construction of any grid station, any factory, power station or such like installations. Under the common law, a person whose right of easement, property or health is adversely affected by any act of omission or commission of a third person in the neighbourhood or at a far off place, he is entitled to seek an injunction and also claim damages. But Constitutional rights are higher than legal rights conferred by law, be it municipal law or common law. Such a danger as depicted, the possibility of which cannot be excluded, is bound to affect a large number of people who may suffer from it unknowingly because of lack of awareness, information and education. Also because such sufferance is silent and fatal and most of the people who would be residing near, under or at a dangerous distance from the grid station or such installation do not know that they are facing any risk or are likely to suffer by such risk. Therefore, Article 184 can be invoked because a large number of citizens throughout the country cannot make such

representation and may not like to make it due to ignorance, poverty and disability. Only some conscientious citizens aware of their rights and the possibility of danger come forward and this has happened so in the present case.

13. According to Oxford dictionary, 'life' means "state of all functional activity and continual change, peculiar to organised matter and specially to the portion of it constituting an animal or plant before death and animate existence." In Black's Law Dictionary, 'life' means "that state of animals, humans, and plants or of an organised being, in which its natural functions and motions are performed, or in which its organs are capable of performing their functions. The interval between birth and death. The sum of the forces by which death is resisted. 'Life' protected by the Federal Constitution includes all personal rights and their enjoyment of the faculties, acquiring useful knowledge, the right to marry, establish a home and bring up children, freedom of worship, conscience, contract, occupation, speech, assembly and press". Constitutional Law in America provides an extensive and wide meaning to the word 'life'. It includes all such rights which are necessary and essential for leading a free, proper, comfortable and clean life. The requirement of acquiring knowledge, to establish home, the freedoms as contemplated by the Constitution, the personal rights and their enjoyment are nothing but part of life. A person is entitled to enjoy his personal rights and to be protected from encroachments on such personal rights, freedom and liberties. Any action taken which may create hazards in life will be encroaching upon the personal rights of a citizen to enjoy life according to law. In the present case this is the complaint the Petitioners have made. In our view the word 'life' is constitutionally so wide that the danger and encroachment complained of would impinge the fundamental rights of a citizen. In this view of the matter the petition is maintainable.

14. Dr. Pervez Hasan, learned counsel has referred to various judgments of the Indian Supreme Court in which the term 'life' has been explained with reference to public interest litigation. In *Kharak Singh v. State of UP* [AIR 1963 SC 129], for interpreting the word 'life' used in Article 21 of the Indian Constitution, reliance was placed on the judgment of Field, J. in *Munn v. Illinois* [(1876) 94 US 113 at page 142] where it was observed that " 'life' means not merely the right to the continuance of a person's animal existence but a right to the possession of each of his organs -his arms and legs etc." In *Francis Coralie v. Union Territory of Delhi* [AIR 1981 SC 746] Bhagvati, J. observed that "right to life includes right to live with human

dignity and all that goes along with it, namely, the bare necessities of life such as adequate nutrition, clothing, shelter and facilities for reading and writing in diverse form.” The same view has been expressed in *Olga Tellis and others v. Bombay Municipal Corporation* [AIR 1986 SC 180] and *State of Himachal Pradesh and another v. Umed Ram Sharma and others* [AIR 1986 SC 847]. In the first case, right to life under the Indian Constitution was held to mean right to livelihood. In the latter case the definition has been extended to include the ‘quality of life’ and not mere physical existence. It was observed that "for residents of hilly areas, access to road is access to life itself. Thus, apart from the wide meaning given by US Courts, the Indian Supreme Court seems to give a wider meaning which includes the quality of life, adequate nutrition, clothing and shelter and cannot be restricted merely to physical existence. The word ‘life’ in the Constitution has not been used in a limited manner. A wide meaning should be given to enable a man not only to sustain life but to enjoy it. Under our Constitution, Article 14 provides that the dignity of man, subject to law, and the privacy of home shall be inviolable. The fundamental right to preserve and protect the dignity of man under Article 14 is unparalleled and could be found only in few Constitutions of the world. The Constitution guarantees dignity of man and also right to ‘life’ under Article 9. If both are read together, the question will arise whether a person can be said to have dignity if his right to life is below the bare necessities, like without proper food, clothing, shelter, education, health care, clean atmosphere and unpolluted environment. Such questions will arise for consideration which can be dilated upon in more detail, in a proper proceeding involving such specific questions.

15. Dr. Pervaz Hasan has also referred to several judgments of the Indian Supreme Court in which issues relating to environment and ecological balance were raised. Relief was granted in these cases as the industrial activity causing pollution had degraded the quality of life. In *Rural Litigation & Entitlement Kendra and others v. State of UP and others* [AIR 1985 SC 652], mining operations carried out through blasting was stopped and directions were issued to regulate it. The same case came up for further consideration and concern was shown for the preservation and protection of environment and ecology. However, considering the need for defence and for earning foreign exchange, some quarries were allowed to be operated in a limited manner subject to strict control and regulations. These judgments are reported in AIR 1987 SC 359 and 2426, AIR 1988 SC 2187 and AIR 1989 SC 594. In *Shri Sachidanand Pandey and another v. The State of*

West Bengal and others [AIR 1987 SC 1109], part of a zoological garden was given to the Taj Group of Hotels to build a five-star hotel. This transaction was challenged in the High Court without success. The appeal was dismissed. Taking note of the fact that society's interaction with nature is so extensive that "environmental question has assumed a proportion affecting all humanity", it was observed that:-

"Obviously, if the Government is alive to the various considerations requiring thought and deliberation and has arrived at a conscious decision after taking them into account, it may not be for this Court to interfere in the absence of mala fides. On the other hand, if relevant considerations are not borne in mind and irrelevant considerations influence the decision, the Court may interfere in order to prevent a likelihood of prejudice to the public."

In *M.C. Mehta v. Union of India* [AIR 1988 SC 1115] and *M.C. Mehta v. Union of India* [AIR 1988 SC 1037], the Court on a petition filed by a citizen taking note of the fact that the municipal sewage and industrial effluents from tanneries were being thrown in the River Ganges whereby it was completely polluted, the tanneries were closed down. These judgments go a long way to show that in cases where life of citizens is degraded, the quality of life is adversely affected and health hazards are created affecting a large number of people, the Court in exercise of its jurisdiction under Article 184(3) of the Constitution may grant relief to the extent of halting the functioning of factories which create pollution and environmental degradation.

16. In the problem at hand the likelihood of any hazard to life by magnetic field effect cannot be ignored. At the same time the need for constructing grid stations which are necessary for industrial and economic development cannot be lost sight of. From the material produced by the parties it seems that while planning and deciding to construct the grid station, WAPDA and the Government Department acted in a routine manner without taking into consideration the latest research and planning in the field. No thought seems to have been given to the hazards it may cause to human health. In these circumstances, before passing any final order, with the consent of both the parties we appoint NESPAK as Commissioner to examine and study the scheme, planning, device and technique employed by WAPDA and report whether there is any likelihood of any hazard or adverse effect on health of the residents of the locality. NESPAK may also suggest variation in the plan for minimizing the alleged danger. WAPDA

shall submit all the plans, scheme and relevant information to NESPAK. The Petitioners will be at liberty to send NESPAK necessary documents and material as they desire. These documents should reach NESPAK within two weeks. NESPAK is authorised to call for such documents or information from WAPDA and the Petitioners, which in their opinion, is necessary to complete their report. The report should be submitted within four weeks from the receipt of the order after which further proceeding shall be taken. WAPDA is further directed that in future prior to installing or constructing any grid station and/or transmission line, they would issue public notice in newspapers, radio and television, inviting objections, and to finalise the plan after considering the objections, if any, by affording public hearing to the persons filing objections. This procedure shall be adopted and continued by WAPDA till such time the Government constitutes any commission or authority as suggested above.

M.BA./S-869/S

Order accordingly.