



*Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it's the only thing that ever has.*

—Margaret Mead

# SHEHRI

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## QUETTA EARTHQUAKES AND QUETTA BUILDING CODE: CITIZENS PERSEVERANCE SUCCEEDS

*Crisis preparedness and management have never figured highly on the list of our urban planning priorities. The aftermath of the Quetta tragedy clearly illustrates this fact. Qazi Faez Isa, analysis the Quetta Earthquake, the related issues and discusses the efforts being made by some concerned citizens to improve Quetta's disaster (earthquake) management potential*

**S**HEHRI, has been in the forefront in drawing attention to the Quetta Building Code, enacted after the infamous 1935 Earthquake, which killed 60,000 persons and flattened Quetta. Regretfully the Balochistan Government and the Quetta Municipal Corporation in recent years have observed the Building Code only in the breach. Millions of rupees were made when buildings were allowed to be constructed exceeding the maximum permissible height, and on the designated mandatory open areas. The authorities whose job was to enforce the Code and safeguard the public interest for a share in the proverbial pie became accomplices of corrupt builders.

Almost ten years ago I had written an article entitled "QUETTA EARTHQUAKE - May 31, 1935, Can this happen again?" (DAWN dated 10th June 1988). In retrospect this article makes interesting reading. A few excerpts from this article are reproduced:

"Presently buildings in Quetta are coming up at a frightening rate and speed with scant regard to the earthquake factor. There seems to be no supervision or planning. In an earthquake area, it is essential that there be open spaces and parks in congested areas of

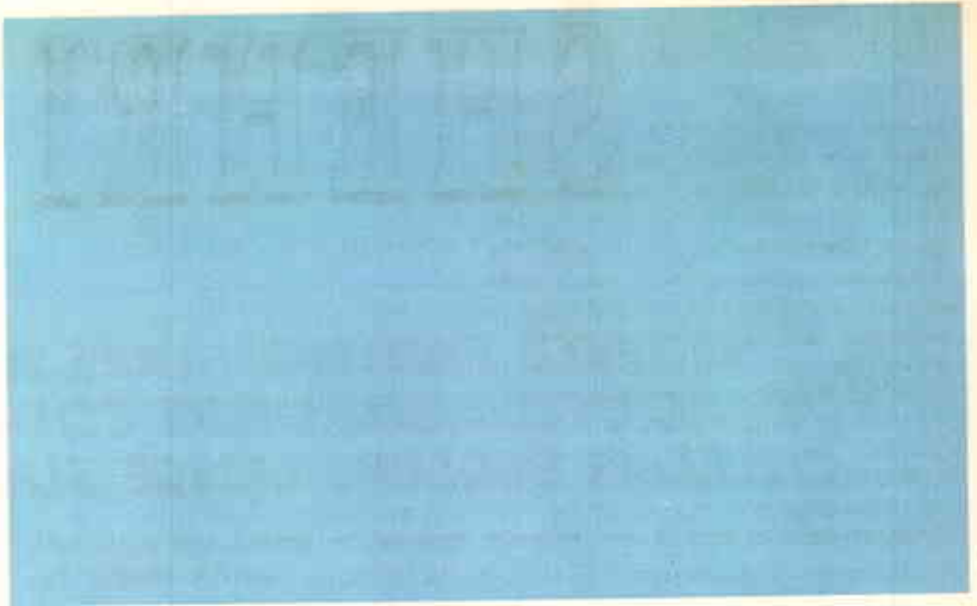
the city, where citizens may collect when buildings start coming down on them. Quetta city has the unique distinction of having a solitary park, the Liaquat Park, which too is away from the congested city area."



"A golden opportunity presented itself to the authorities to have a park in the heart of the city when a decision was taken to move to another location, the well laid out vegetable and fruit market situated in Kandhari Bazaar. Meetings held by citizens of Quetta

demanding that when the vegetable and fruit market is pulled down a park be set out in its stead. But the Municipality and the authorities recommended a multi-storeyed shopping complex. This betrayal of trust was undoubtedly motivated by the money which is to be made on the allotment and sale of shops."

"After the Earthquake, all of Quetta city was rebuilt in accordance with regulations set out by Harry Oddin-Taylor ("O.T."), the builder of the Sukkur Barrage. O.T. set out specific regulations and prescribed even the quantity of cement to be used. The construction of every building was watched and monitored at every stage. A checking system was introduced, involving coloured cards which builders had



Faint, illegible text located below the photograph of the building.



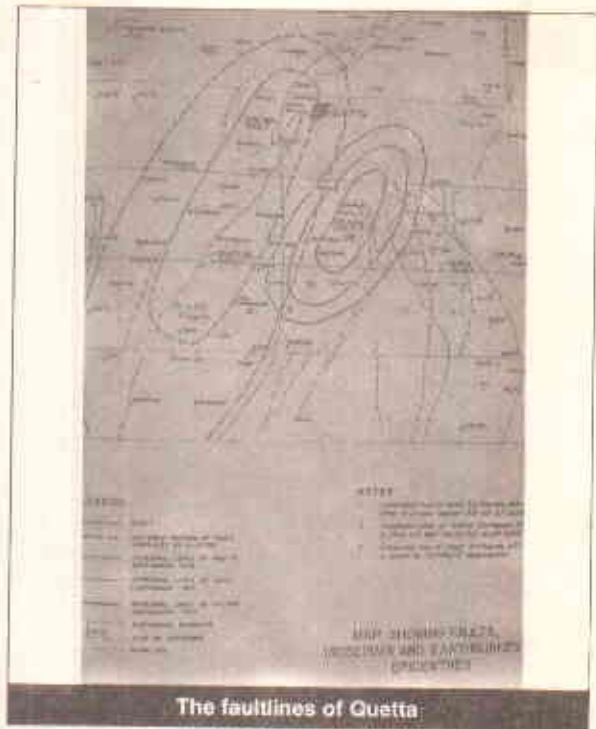
siderable destruction of property was caused. In the multi-storeyed buildings in Quetta, cracks and fissures appeared, which have made them dangerous to inhabit. In its typical apathy and incompetence, Quetta Municipal Corporation has as yet to conduct a survey and properly document the same.

Another article on Quetta was written (DAWN dated 29th May 1992) and various pressing issues were addressed. It was again pointed out that:

“Due to Quetta being situated in an area of high seismic activity, multi-storeyed buildings were not previously permitted. However, whether it is corruption, apathy on the part of building authorities or the following of the example set by Quetta’s Municipality (Baldia Shopping Complex) a number of multi-storey buildings are now coming up fast.”

“The earthquake of 1935 which had totally levelled Quetta city, had the salutary effect of buildings being constructed along sound engineering lines. Town planning and building principles were adhered to. A recurrence of the jolt of 1935, which is considered as amongst the ten worst recorded earthquakes in terms of casualties, restricted construction to a single storey and rarely up to two storeys high.”

Unfortunately, other than earning the displeasure of the corrupt politicians, officials and builders the campaign to arrest the violation of the Quetta Building Code failed. The ears of the Government remained deaf. Confronted with this dismal state of affairs the next step was taken and a constitutional petition was filed before the Honourable High Court of Balochistan (C.P. No. 125 of 1995). The Petition first came up for hearing before the Court on the sixtieth anniversary of the 31st May 1935 Earthquake. On this very day another earthquake struck Quetta, however, this was a mild one and measured only 5.2 on the Richter scale.



The faultlines of Quetta

In the affidavit-in-rejoinder filed in the case it was stated that: “It is submitted that exactly 60 years after the 1935 earthquake to the very day Quetta was jolted. Whether the same was a mere coincidence or a portent of what is in store for the residents of Quetta, only Allah Almighty can know. However, God forbid if a calamity does strike, let it not be said that no warning was received. Multistorey builders are playing with the lives of the residents of Quetta.”

The Respondents in the case tried to underplay the significance of the highly dangerous seismic location of the city and attempted to persuade the Honourable High Court that the Petitioners were needlessly being alarmists.

The legal battle had commenced. Extensive research into the history of the earthquakes in the Quetta region was conducted and placed before the Honourable High Court. Recommendations contained in the Quetta Master Plan advising against vertical growth of Quetta, were also cited.

One such paper, which was part of the compilation of Technical Papers sponsored by Quetta Development Authority, and written by an expert on seismotectonic studies, Mr. Mansur Ahmad, stated that:

“Quetta area lies within an active seismic region, which has experienced several destructive earthquakes during the last 60 years. The most destructive earthquake was that of 1935 which almost com-





**Will time stop again at Quetta?**  
 (In the ruins of Quetta, a wrecked clock marks the time when disaster struck the city during the night of May 31st, 1935)

pletely destroyed Quetta city. After 1935 earthquake, it was realized that future construction should be designed to withstand, expected seismic forces. Therefore, the Government of Balochistan prepared and enforced, a Building Code in 1937 to regulate the construction of private buildings within the limits of Quetta Municipality. This code recommends adoption of a seismic factor of  $G/8$  (0.125 g) along with the recommendations, requiring specific type of construction and materials."

This expert on seismotectonics, in his article, made a frightening observation, that, in view of the recent advancements made in the science of seismology, "it has been realized that areas near active faults could experience far higher accelerations, than what has been recommended in the Seismic Code of Quetta."

The divisional bench of the Honourable High Court comprising of Mr. Justice Amir-ul-Mulk Mengal (now Chief Justice) and Justice Javed Iqbal delivered a landmark Judgment (reported in PLD 1997 Quetta at page 1, Begum Saida Qazi Isa and two others versus Quetta Municipal Corporation and five others). Mr. Justice Amir-ul-Mulk Mengal observed, that, "a dangerous situation has arisen due to construction of multi-storeyed buildings in Quetta Town, without observing provisions of Building Code, thus putting

into peril the lives of inhabitants and passer-bys. The entire population of Quetta cannot be allowed to be put in danger for the benefit of a few builders who are constructing plazas and multi-storeyed buildings, as against the provisions of Building Code, 1937". "The population of Quetta, if construction of such buildings are allowed, shall be put to the threshold of horrible destruction in case, God forbid, any earthquake of high grade jolts the town."

The town was indeed jolted eight months after the Judgment was delivered. Since the 28th February 1997 earthquake hundreds of earthquakes, have been recorded, some too low in intensity to be felt, others powerful enough to cause alarm and fear. Wave upon wave of earthquakes continue to come, and there is no telling whether they are ebbing or building up to deliver a more powerful blow. If under construction multi-storeyed buildings were allowed to be raised to heights in excess of the maximum prescribed under the Quetta Building Code, many more lives would have surely been lost. Undoubtedly, this Judgment has saved many lives. The recent earthquake made front page news both at home and abroad. In the BBC's World News, it was stated that many more deaths and injuries would have occurred if there were more multi-storeyed Buildings in the area.

The High Court directed the Quetta Municipal Corporation, Quetta Development Authority, Building Control Board and the Government of Balochistan "not to allow construction of any multi-storeyed building in future, within local limits of Quetta City as against the provisions of Building Code, 1937".

The victory of the Citizens confirmed the motto which SHEHRI has adopted - "Never doubt that a small group of thoughtful, committed citizens can change the World. Indeed it's the only thing that ever has". □

*(Qazi Faez Isa, is a Barrister-at-Law, and Chairman Shehri-CBE)*

The Annual General Meeting of Shehri-CBE has been scheduled for the 12th of April, 1997 (3 p.m.) The venue of the meeting is the Shehri office. This will be an election year.



## POLICY MATTERS

### Oversee Committee to suggest improvements in KBCA

The former caretaker Minister for Housing & Town Planning, Mr. Maqbool Rahimtoola and the Director General, Development Authority (KDA) after meetings with Shehri members formed an "OVERSEE COMMITTEE" to oversee the functioning of the Karachi Buildings Control Authority on 17th Dec. 1996, officially notified for a period of two years.

The Committee may undertake the following functions, subject to control and direction of the Government:

- (i) To oversee and monitor the grant of permissions for high rise buildings within the building and Town Planning Regulations.
- (ii) To recommend updating of buildings and Town Planning Rules/Regulations from time to time.
- (iii) To ensure effective enforcement of buildings and Town Planning Rules/Regulations.
- (iv) Take measures to protect and preserve, environment of the City.
- (v) To recommend policy measures to regulate the growth of the City both vertically as well as horizontally.
- (vi) To make recommendations for amending Sindh Building Control Ordinance, 1979 where-ever necessary.
- (vii) To suggest ways and means of making the Authority more efficient.
- (viii) To draft rules for giving effect to the provisions for the Sindh Building Control Ordinance, 1979 for consideration of the Government.
- (ix) To take measures to ensure that the provisions for amenity parks, playgrounds, public services and recreational areas in various housing and other schemes are properly utilised and allotted.
- (x) To make recommendations for the effective preservation and restoration of buildings of

architectural, cultural or historical interest.

- (xi) To coordinate with any Task Force, advisors, experts or other persons performing any functions under the Sindh Building Control Authority Ordinance, 1979.
- (xii) To make laws/rules/recommendations for the Freedom of Information for lay out and buildings plans.

Later on, a ten member "Task Force" to deal with irregular and unlawful construction activities in the city, was also formed.

Four sub committees have also been constituted viz.

1. Committee to oversee Karachi Building Control Authority (KBCA).
2. Regulations, Bylaws & Monitoring.
3. Public participation and transparency in the workings of the KBCA.
4. Immediate improvements in KBCA.

The Oversee Committee has already made a number of suggestions, including an autonomous status of KBCA, having exclusive zones for the construction of highrises in the city and due to the efforts of the Committee, a public information counter has been opened in KDA.

Various other steps are under process, such as measures to deal with the owners of illegal buildings, plinth level verification certificate procedures, regular maintenance of field books by the KBCA, and suspension of licences of architects and engineers of unauthorised buildings and proper verification of owners and builders.

A public information counter has also been opened at KDA, Civic Centre. The counter provides information and registers complaints with a view to improving the functioning of KBCA. The counter operates from 10.00 a.m. to 1.00 p.m. (Saturday's through Thursday). At public service are Chief Controller Buildings (COB) of circles A to H of the city. □



**MEMBERS OF KBCA OVERSEE COMMITTEE**

(Non-Government members)

- 1) Prof. Mohammad Nauman  
NED Engineering University
- 2) Prof. Noman Ahmed  
Dept. of Architecture & Planning  
Dawood College of Engineering
- 3) Mr. Ardeshir Cowasjee
- 4) Dr. Jamil Ahmed  
Chairman, PEC
- 5) Mr. Farhat Adil.  
NESPAK
- 6) Mr. Misbah Najmi  
Chairman, PCATP
- 7) Mr. Abdul Karim Tai  
Chairman, ABAD
- 8) Mr. Arif Hasan (URC)
- 9) Mr. Qazi Faiz Isa  
Barrister-at-Law
- 10) Mr. Saleem Thariani
- 11) Mr. Aftab Mohammad Khan  
Pakistan Institute of City & Regional  
Planning
- 12) Mr. Roland De'souza  
Shehri CBE

**MEMBERS OF KBCA OVERSEE COMMITTEE**

(Government members)

- 1) Mr. Jamil Ahmed Siddiqui  
Secretary, Housing & Town Planning
- 2) Mr. Wajid Rana  
Director General  
Karachi Development Authority
- 3) Mr. Mohammad Hussain  
Senior COB, KBCA
- 4) Mr. Aftab Ahmed Qureshi  
Director General  
Lyari Development Authority
- 5) Mr. G. Sarwar Kherio  
Director General  
Malir Development Authority
- 6) Mr. Dasti M. Ibrahim  
Law Officer, KDA
- 7) Mr. Munir Ahmed Memon  
Deputy Director, (SEPA)
- 8) Mr. Tahir Ahmed  
Director Bldg. Control Deptt.  
Hyderabad Development Authority
- 9) Mohiuddin Yousfi  
Asst. Director  
Bldg Control Deptt. HDA.

## KBCA PUBLIC NOTICE/WARNING

Do not book a shop, flat, or office, etc., in any completed or under-construction project before confirming that

- Plans of the project have been approved by KBCA, and a copy is available for inspection at site

- The builders/developers have the proper NOC of KBCA for sale of units in the project.

The public is warned that

- If a flat or shop or office has been built without an approved building plan and sale NOC, the purchaser will not be able to get ownership rights and the illegal structure will be dismantled/demolished. Furthermore, there is no way to ensure the durability of construc-

tion because of the absence of a valid approved plan and inspections by the authority.

- The "Sindh Building Control Ordinance 1979", makes it mandatory for the citizens to occupy premises, houses, buildings, shops, showrooms, etc., only after obtaining a completion certificate/occupancy certificate from KBCA.

- "Regularisation" of building violations has been banned under SBCO '79 since 1994, so builders cannot have violations regularised.

- Failure to comply with the Ordinance by the builder or the purchaser is punishable with imprisonment of two years or/and a fine of not less than Rs.20,000, or both. If the offence

is a continuing one, a fine of Rs.500 per day from the date of first commission will be levied.

Contact the KBCA Public Information Counter at Civic Centre, Gulshan-e-Iqbal for copies of approved plans and other relevant details.

You have the right to know, and you have the right to protect yourself!

Chief Controller of Buildings  
Karachi Building Control  
Authority (KBCA) Civic Centre,  
University Road,  
Gulshan-e-Iqbal, Karachi-5.  
Phone: 493-6981  
Fax: 493-2263



# LAND MANAGEMENT

## Saving the KTC amenity plots

The Karachi Transport Corporation (KTC) is being wound up. Eleven amenity plots in Karachi that were used as depots and bus-stands are in the process of being converted for commercial use and sold.

The citizens are full aware of the lack of proper and adequate bus terminals, parking yards, repair workshops, etc. in Karachi. Intercity buses, local buses and coaches are found stationed on public roads picking up passengers, having their vehicles repaired, and carrying out other activities that disturb the traffic, cause congestion, affect the safety of pedestrians and destroy the general convenience, peace and welfare of residential, commercial, industrial and recreational areas and neighbourhoods. The bus-owners are compelled to do this, owing to the lack of properly designated amenities and facilities like terminuses and workshops; they also have to pay huge amounts in *bhatta* to the police and district administrations.

It is thus deplorable and unforgivable that the KTC amenity plots be converted to commercial use and sold. The government states that they need money to pay off the debts of the corporation. We suggest that the government finds other means of discharging its debts, without depriving the citizens of Karachi of valuable amenity spaces.

To stop the mushrooming conversion of amenity plots, the Sindh Legislature, on October 4, '94 amended by an Act the KDA order of 1957, Article 57-A, Clause

(2) stating "No amenity plot ... shall be converted to or utilised for any other purpose". This represented the will of the people.

At the end of December 1996, Governor Kamaluddin Azfar issued an Amendment Ordinance to the KDA Order, stating "Provided that any amenity plot resting in the KTC may, with prior approval of the government, be converted to or utilised for another purpose". This represented the will of the caretaker government. We wrote in protest to the Governor, President, CM, and Minister H&TP on January 8, '97 - but have received no reply to date!

On Feb. 13, as required under law by the "KDA Order of 1957", and the "Karachi Building & Town Planning Regulations, 1997", the Director (Master Plan & Environmental Control Department), KDA issued a Public Notice in the press, inviting objections" from the residents residing in the

neighbourhood on the proposed conversion" of our amenity plots. Although it is commendable that the government is trying to pretend to follow the law (after all, previous governments did not even pretend to do this and converted amenity plots at their own discretion in gross violation of law), the KDA Order Article 52-A Clause (3) actually reads: "The Commissioner shall .... invite objection from the general public....", and the Karachi Building & Town Planning Regulations Part II Schedule D Clause 3(b) also reads: "The Commissioner shall invite objections from the general public....". No where is "residents residing in the neighbourhood" mentioned, and thus the government's notice is illegal.

Shehri-CBE would like all concerned citizens to record and voice their objections to this illegal and improper conversion of amenity plots. □

### SAVE THESE PLOTS

LOCATION	Area	Zone	Location
Plot ST-1, Block No. 6 Scheme No. 36	8.36 acres	East	Gulshan-e-Jauhar KDA Depot
Plot ST-4/A & ST-4/B, Block V-A, Nazimabad	2.261 sq acres	Central	Bus Stand Paposh Nagar
Plot ST-1, Sector 5/H North Karachi, Township	2.4 sq. acres	Central	Bus Stand, Surjani
Plot ST-35 & ST-39 Sector 11-1, North Karachi,	5.91 acres	Central	North Karachi Depot
3rd & 4th floor, Annexe-B, Civic Centre, Gulshan-e-Iqbal.	12,751 sq ft.	East	Civic Centre (H Q)
KDA Scheme 2,	7 acres	West	Orangi Naia Depot
SITE Karachi	7.48 acres	West	Model Depot
Malir Halt	?	Malir	Malir Depot
Plot H-22, KDA Scheme 3, Township L1A, Landhi	2.95 acres	East	Landhi
Survey No.448 Deh Mehran, Malir	10 acres	Malir	Mehran Depot
Plot ST-39, B/35-E, Korangi	21.91 acres	East	Korangi Depot

## COMMENTS

### A reform package for KMC

The Karachi Metropolitan Corporation is riddled with financial, technical and administrative mismanagement, corruption and petty political intrigues. **Muhammad Nauman** proposes a comprehensive reform package, aimed at restructuring the most important civic institution of the city.

**K**arachi Metropolitan Corporation (KMC), is one of the oldest municipal institutions in the subcontinent charged with the responsibility of providing civic services. Through the Sindh Local Government (Amendment) Act, 1996, it was split into Karachi Metropolitan Corporation (KMC) and five District Municipal Corporations (DMCs). The functions have been redistributed between KMC and DMCs. The major functions to be performed include: planning, development and maintenance of roads, bridges, street lights and storm water drains, special development programmes, public health including sanitation and solid waste management, medical services, fire fighting service, land control, removal of encroachments and social welfare including libraries, museums and art galleries.

#### Gross Deficiencies

The KMC and DMCs have failed to perform their functions and there are general complaints of deficiencies, scarcity, delays and imbalance in the distribution of services.

Roads, street lights, and public buildings are not properly maintained. Garbage collection and disposal services are most unsatisfactory, projects are ill-planned, generally executed with delays

and substandard construction. The management of other services is also poor.

#### Underlying Problems:

Control of administrative, legal and financial levers is in the hands of government. Diffusion of political and administrative leadership has led to case by case external intervention by the government bureaucracy, pressure groups and politicians. There is



Scenes from our urban crisis

no city planning development policy and investment coordination. There exists a well organized system of corruption where provincial bureaucracy, civil administration, ruling political party, KMC officials and the contractors are the major beneficiaries. Poor coordination in decision making exists which is both, vertical (federal/provincial/local government) and horizontal (inter departmental and public-private). There is poor internal organization within KMC with large numbers of unskilled manpower and political appointees.

#### Need for Major Reforms

The constraints mentioned will not allow any improvement in the system. Moreover, the present role of KMC/DMCs to plan, prepare tender documents, supervise and verify the work and its quality is a major source of corruption and inefficiency. These functions are to be separated by means of fundamental reforms. The objective of reforms should be to make KMC autonomous, reduce its direct functions and increase its role as an Oversight Body guiding and monitoring the urban processes.

#### Theme of Reform

The inefficiency and incompetency of public sector staff, poor organization and management together with slow procedures

and processes within the local bodies, warrant that the operation and maintenance of services which have industrial or economic characteristics, should either be delegated to the private operators or to the community wherever its organisations is strong.

The elected council of KMC shall appoint regulatory bodies for various services to regulate quality, price and reliability of service. Specific features of a contract such as service conditions, investment programme and maintenance of assets should also be included in the duties of these





regulatory bodies which should comprise of professionals and should also include professionals nominated by NGOs.

The role of KMC is to manage and protect communal interests of the population. It should provide the citizens with the services of planning, regulation and protection. The proposed regulatory bodies will regulate on behalf of KMC, and KMC will act as oversight institution for them. This arrangement will ensure efficient implementation of the policy and plans approved by the KMC without interference.

There should be a "Metropolitan Planning Body" to prepare & modify the City master plan and make short and medium term strategic plans for development. The body should also recommend change in land use. All proposals of the body be considered by the KMC for approval. The body should comprise of experts from the public sector and reputed independent professionals.

The KMC/DMCs will have to decide regarding the functions to be delegated to the private operator, the functions to be managed by the community and the functions to be retained by the corporation.

### *Legal and Administrative Frame-Work*

Sindh Local Government Ordinance needs to be suitably

amended to provide autonomy to KMC/DMCs and decentralisation of responsibilities and resources with increased freedom upto the level of the Councillor and to allow role of informal organizations (CBOs, NGOs) in KMC system.

Administrative and financial powers be granted to the elected council of KMC/DMCs for appointments and payments to the regulators and operators (private and community). Any discretionary powers of the government in this regard may be withdrawn. Provision of public hearings and provisions to constitute the metropolitan planning body and the regulatory bodies be added in the amended Act.

In order to maintain active public participation in the affairs of KMC/DMCs, electoral reforms are needed to guarantee continuity of local bodies elections. In case of their dissolution, elections must be held within sixty days. The tenure of local bodies be reduced to three years. The size of most of the constituencies in Karachi has more than doubled, they have to be further divided in order make them manageable.

Administrative reforms in the services of KMC/DMCs will be the logical result of the new role assigned to them. The organizations will require reduced number of employees with enhanced skills. Separate cadre delinked

from Sindh Cadre Unified Grade (SCUG) service will be required.

Councillors office to be made responsible for maintaining internal streets with in built capacity to perform necessary managerial and accounting functions. Technical back-up can always be provided by the respective DMC.

### *Public Participation*

In order to ensure public participation and public accountability, all proposals pertaining to planning, regulatory standards, terms and conditions of contracts and quality assurance must be put to public debate and public hearings before finalization. Representatives of NGOs be allowed to monitor the progress and quality of work.

### *Role of Citizens*

The citizens of Karachi have to play an active and major role in the Urban management process to make this City liveable. The issues concerning local government have to be debated in public. Accountability and transparency will not materialize and public hearings will never be conducted without building heavy pressure on the government. □

*(Muhammad Nauman, is Associate Professor, Electrical Engineering, NED Engineering University, Karachi and a former Technical Advisor to Administrator KMC/Chairman KW&SB.)*



Roadside encroachments are being removed from various parts of the city. Such initiatives have been taken in the past, and have always failed to get off the ground, for reasons hidden from nobody. It is hoped that the present drive succeeds, where others have failed.  
We keep our fingers crossed.



## ENERGY

### Redefining our Energy Policy

*Engr. Ain-ul-Abedin warns of the dangers of pursuing the present energy policy, calls for a revaluation of all power plant deals, and suggests exploring alternative sources of energy production, such as cogeneration.*

The process of accountability in high places has begun. The first signs are encouraging as VVIP culture is being ridiculed in the quarters that matter, totally corrupt officials are being removed and held, hopefully for true accountability. But one most damaging sector has yet not even been mentioned in the list of those which are to be properly investigated -- this covers those sponsors of private power plants who have gotten away with murder! If the evils of corruption and waste are to be seen together, than one should look at the Energy sector.

The authors of 1994 Energy Policy ensured windfall profits for the "lucky" sponsors (and they surely lined up outside the doors of those who mattered) and the result is that we are now likely to get extremely expensive, and the most polluting power plants in the whole world. The myth of buying power from these (political) "power" plants at US cents 6.5 equivalent vanished a long time back, and it is now estimated to cost equivalent of US cents 8 per unit. No where in the world are private power plants allowed to sell bulk power anywhere near this tariff. In India, with the change of government, Dhabhol project was re-negotiated, with the final tariff now closer to US cents 5, and we want to give the same people 60% higher tariff! For the already economically burdened people, this very high energy cost will literally prove to be the last straw on the camel's back.

The real reason for this very high tariff allowed under the "Energy Policy" is the payment for capital costs. US \$19 per month or US \$228 per annum for every KW capacity on this account, has justified the high announced costs of the Project.

Barge-mounted power plant can serve as an alternative. 80 MW (megwatt) barge units could easily be installed at Bin Qasim port, anchored and connected for around US \$500 per KW but we must beat everybody (even No. 2 is not good enough) on the corrupt list and so a similar plant will be installed for us at US \$1000 per KW (kilo watt)! All such projects should be re-negotiated for correct capital cost payments, so that final selling tariff does not exceed US cents 5 per

unit. There are a number of world-reputed organisations who could do this if they are assured of an environment of honesty and technical competence.

#### SUGGESTIONS FOR IMPROVING THE ENERGY POLICY

Those who now control the ship, can set precedence to proceed towards safer waters by:

1. Cancelling/re-negotiating expensive and polluting private power plants.
2. Conserving our own Sui gas by ensuring most efficient utilisation in Cogeneration power plants (Some industries/commercial buildings have been allowed to operate very inefficient power plants on gas engine which only uses 1/3rd energy and wastes the remaining 2/3rds. This should not be allowed at all).
3. Encouraging Cogeneration as a policy, to both conserve energy and meet the power short-fall.
4. Urgently stop **GAS KUNDA SYSTEM**, which has just started in the last 2-3 years, by allowing higher gas pressures wherever there is a requirement. Since kundas provide enormous earnings all round, it is better to officially allow higher pressures and charge accordingly, rather than allow kundas and officially receive payments for only a small part of actual gas consumption. □

- Engr. Ain-ul-Abedin

Secondly, serious pollution threats from most of these power plants, specially due to sulphur dioxide emissions and oily-water discharge are being completely ignored. Many newspaper articles, letters to the editor and seminars, specially during last 3-4 years,



have pointed out the seriousness of the problem primarily due to combination of Pakistan State Oil (PSO) grade worst quality furnace oil and wrong technologies being used in most thermal power plants.

Neither our own Natural Environmental Quality Standards (NEQS) are being followed nor the updated World Bank Guidelines are being met. Some power plants do not even have high chimneys and are polluting both the air and the water. It is totally wrong to accept just any terms for the private power plants. Expensive and polluting power plants will hurt us like a double-edged weapon. First, our production costs will be higher and the wide-spread pollution will degrade our environment and produce a sick work-force.

**Expensive and polluting power plants will hurt us like a double-edged weapon. First, our production costs will be higher and the wide-spread pollution will degrade our environment and produce a sick work-force.**

What we need is economical, efficient and clean power generation. One quick way to get it, is by using low-BTU (British Thermal Unit) gas. There is another **MOST EFFICIENT** way by utilising all the thousands of industries, where gas is used to meet thermal loads for steam or hot water. This combined heat and power system (or Cogeneration) could produce thousands of MW of power, using existing source of Sui gas supply, thereby saving enormous foreign exchange in fuel imports and reducing pollution levels considerably. □

*(Engr. Ain-ul-Abidin is Principal,  
Ain-ul-Abidin Associates).*

## Environmental Protection Act Okayed

**O**n January 20th, 1997 The Federal Cabinet (caretaker) approved Pakistan Environmental Protection Act, 1997 which seeks to protect environment and promote sustainable development through a partnership approach. The Minister for Environment, Local Government and Rural Development Senator Shafqat Mehmood presented the draft Act before the Cabinet.

The increasing public awareness on environmental issues and involvement of environmental concerns in every walk of life actuated the need for replacing the 1983 Ordinance by a new environmental law. It gives powers to the Federal and provincial EPAs to issue Environment Protection Order where it is deemed necessary to control pollution within specified time. The act enables EPAs to levy pollution charge on violators of NEQS.

*(Dawn, Jan. 21, 1997)*

## Co-generation: technology of the future

**C**ogeneration (the combined production of heat and power) is likely to become widespread. Many factories may generate their own power with biomass, using the waste heat for industrial processes as well as heating and cooling. Such systems are in wide use in some parts of the world already, and can raise total plant efficiency from 50-70 percent to as high as 90 percent. Excess power can be transferred to the electric grid and used by other consumers. In Germany, new micro-cogeneration systems are now being introduced that allow restaurants, apartment buildings, and other facilities to produce power for themselves.

*(Courtesy: Saving the Planet, World Watch Institute)*



## URBAN ISSUES

### Transportation system of Karachi: Issues and concerns

*Dr. Zubair Ahmed highlights the various defects in the transportation system of Karachi, puts forward solutions, and advocates the adoption of an integrated approach, involving all sections of the society.*

An effective road network system is an important element in the socio-economic development of cities and towns. Assessment of demands on the existing roads, combined with strategies for improvement of the existing infrastructure and development of new ones can help in determining the needs of a road network. The major objectives include the provision of an adequate service level for traffic, achievement of a high level of safety for users, preservation of road and environment conditions at or above a desired level, maximization of socio-economic benefits and minimization of agency and user costs.

#### Planning Defects

A close look at the major transportation planning efforts would indicate that most of them have been developed in virtual isolation of each other and not as part of an integrated network. The Clifton Flyover Project, Lilly Road Bridge and NIPA Flyover are few examples which can be cited.

Another major deficiency in our planning efforts has been the practice of evaluating projects solely on the basis of economics. The 'before and after analysis' has concentrated on direct costs and benefits based on the principles of

engineering economy, and fails to reflect the needs of nonusers and the environment. If these concerns were clarified through citizen's participation or public hearings, then most projects would not taken such a long period for implementation. Also, a substantial and effective community agreement could have been



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achieved on a feasible, desirable and equitable course of action.

#### Design Defects

This activity involves alternate facility configurations, taking into account physical, traffic and environmental parameters. Most of the existing roads in Karachi have been designed on the basis of traffic volumes and loads of yester-years and have deteriorated with time. Except for major arterials such as Shaheed-e-Millat Road, which are being redesigned according to present volumes and specific loading criteria, most of the roads in the metropolis are still being designed by 19th century methods, without any proper

analysis. This results in rapid deterioration and involves frequent maintenance of the roads. The high monetary costs of maintenance, combined with budgetary constraints make it impossible for repairing all the damaged roads within a specific period.

A striking feature of facility design practised in this city is to design them for either a specific movement or for a short term horizon. This leads to bottlenecks at merging or weaving sections and increased congestion over an extended period of time. In some cases, collected data does not match ground realities.

Thus, the facility is either underdesigned, conservatively designed or has a flawed design.

#### Construction Defects

Construction involves the management of budget, time, people, equipment and materials to transform designs into physical realities. Seen in this context, the construction standards of most of our roads leave much to be desired. Corrupt practices, lack of technical knowhow, faulty construction techniques and absence of any quality control programmes have led to premature failure of roads. One often sees water standing on the pavement because proper cross slopes have not been pro-