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Message from
Engr. Husnain Ahmad
President
Pakistan Engineering Congress

Dear Members

Assalam-o-Alaikum!

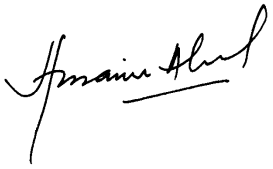
Hope and Pray that you will be in fine sprits and would continue to encourage us by participating in the activities of the congress. By the time, this issue will be in your hands, you would have gone through the articles on diverse subjects contained in Golden Jubilee edition (October – December 2009 period). Your views to up-grade, the quality of the Journal would be most welcome. Also keenly awaited will be your contribution of papers for publication to facilitate issuance of the Journal on time with improved contents.

It will be heartening and matter of interest that the congress library besides being equipped with necessary paraphernalia is undergoing up-gradation. It has been allotted ISBM Number 978-969-9460 by national library, Islamabad

All library collections have been classified on the "Dewy Decimal Classification" scheme enabling the user to easily indentify and retrieve the desired book. Process of automation and collection of the books is under-way. Your proposals for adding new books & journals would be most welcome. Present working hours of the library are from 12:00 PM to 9:00 PM. However, the library will now be open from 9:00 AM to 9:00 PM. It is now for the engineers including students of engineering disciplines to eke-out maximum benefit from the library.

With best regards,

Yours sincerely



(Engr. Husnain Ahmad)
President

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World Water-Day 2010
Commemorated by
Pakistan Engineering Congress
On
22nd March 2010 – A Report

The World Water Day was celebrated by Pakistan Engineering Congress on 22nd March 2010 at Mashhadi Hall, Congress Headquarter Building, Liberty Market, Gulberg-III, Lahore on the theme of:

"Communicating Water Quality Challenges and Opportunities"

The Chief Guest was Mr. Shakil Durrani, Chairman, WAPDA.

The proceedings of the day started with recitation from Holy Quran. Eng. Husnain Ahmad, President Pakistan Engineering Congress, while presenting his welcome address quoted numerous verses of the Holy Quran that emphasise the immense significance and the critical role of water in the socio-economic sphere of mankind & other living beings. He said that Environmental experts have visualized that unless the present levels of "Carbon emissions" are drastically reduced; there will be earth-shattering 2-Degree Celsius increase in global temperatures by 2025, a matter of serious concern.

i. Most parts of Amazon rain forest will stand dried / burnt throwing-out millions of tons of extra dioxide.

ii. Greenland's ice will melt away thereby raising the sea levels by as much as seven (7) meters submerging low lying coastal areas, uprooting millions of people with devastating economic fall-out, altogether disappearance of some of the islands.

iii. Accelerated Himalayan Glaciers melt. The Himalayas Glaciers (12000 to 15000) occupying 500,000 Sq. Km) are receding fast.

- A study involving 1387 selected glaciers reveals 16% reduction in area since 1962. (over a 48-year period).
- Another study including Pindari, Gangotri & Dokriani glaciers show the annual retreat by 5-49 meters.

He further elaborated that, the Himalayan Glaciers are the source of sweet water to Asia's seven (7) river systems including:

- Indus
- Yangtze
- Mekong
- Ganga
- Brahmaputra

However, a critical study of the data reveals that if stringent measures are not put in force to check the expected temperature increase visualized at 3 to 3.2 degree Celsius by 2100 (next 90 years).Himalayan glaciers would disappear by 2300. The crux of the matter is that the catastrophic consequences of global warming are manifestly imminent in the shape of:

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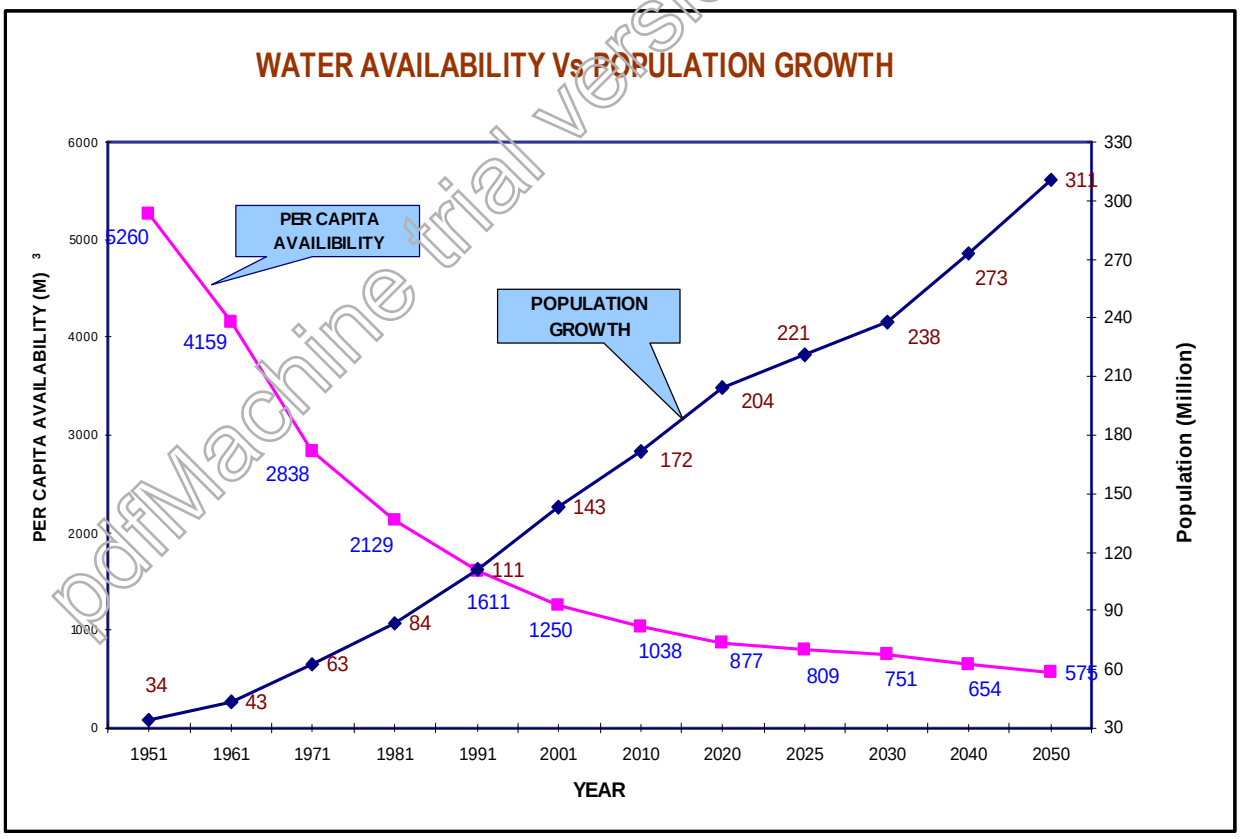
- Flooding
- Drastic reduction in river in-flows resulting in food shortages, Famines, Starvation
- Prolonged electricity outages & the consequent falling living standards.
- Agricultural yields would stand drastically reduced in global terms especially creating food shortages, starvation and throwing millions below poverty lines.

Quoting Dr. Zafar Adeel who is an eminent scholar and a member of United Nations Think Tank Team on water President PEC stated:

"The impact of climate change on water resources was quite central for a country like Pakistan. The general public as well as the political & policy leadership needs to be fully aware of the challenges, being imposed on Pakistan due to climate change".

He went on to say, Water is one of the most precious commodities for sustenance of life. Whilst abundant water is available around us, fresh water resources have depleted at an alarming rate. Changes in weather patterns are adding more challenges to our experts of water resources management. Pakistan is rapidly becoming a water deficient country.

It is ironical that whereas Pakistan ranks amongst lowest greenhouse gas emitters on the world (135th), but in terms of impacts / vulnerability it ranks in the top 20 category.



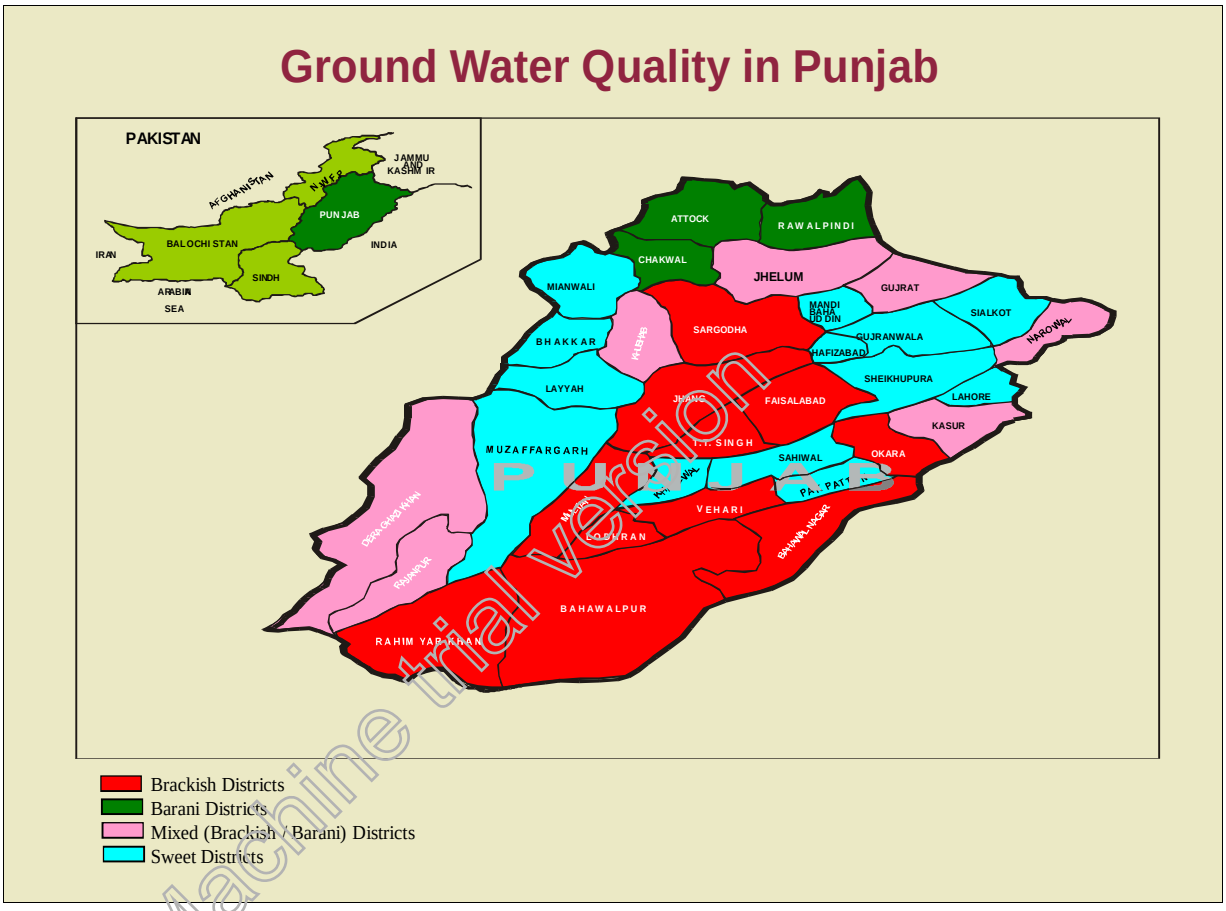
Excessive ground water exploitation (the number of tubewells is touching 1-million mark) by industry and agricultural sectors have forced untreated industrial and municipal waste water into our fresh water resources. Care free attitude towards water by everyday rising population need comprehensive measures and awareness about water re-use and re-circulation. Non-availability

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of dams is costing us in billions of rupees annually in terms of ground water pumpage for irrigation.

The drinking water quality in Punjab is a case in Point:

• Predominantly Water Scarce Barani Districts	3 Nos
• Predominantly Brackish Districts	11
• Sweet Water Districts	13
• Mixed (Brackish Barani) Districts	7
	4 Nos



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Here Engr. Husnain Ahmad proposed following steps to meet the water shortage:

- There is no substitute of big dams for conservation of water and these need to be completed timely.

- Presently drinking water availability is about 4.5 MAF. If MDG goals are to be met and drinking water made available to the urban / rural population, water supply would have to be augmented by additional 4 MAF.

- Small dams (no substitute for big dams irrespective of the numbers built) need to be constructed.

- Direct supply of water from the ground through tubewells is open to serious health hazards. It should be through “overhead” water tanks and supplied after chlorination to ensure assured supply of safe drinking water in adequate quantities and at a price that at least covers the cost.

- For conservation of water metered supply should be resorted to in all cases.

- Experts have suggested adoption of certain measures to avoid wasteful use of water; Hotel industry be encouraged to install ultra-low flow toilets; High efficiency washing machines be introduced, Planting of low water / drought resistant plants in lawns / gardens.

- Underground water levels have gone down alarmingly due to over-pumping of water by tubewells as well as the set-back to the recharging of underground aquifer. The installation of tubewells need to be regulated.

The Chief Guest Mr. Shakil Durrani highlighted that Water has a pivotal position in all development activities for its enormous importance in food security, livelihood, environment, economics, power generation and in fact life itself. However, the quality of water whether for use in agriculture, municipalities, drinking, household and in industry acts like a quality multiplier. So it is not only the quantity but the utility which determines the levels a society or a country reaches. This can be appreciated from the fact that out of total available water on the earth, only about 3 percent is directly usable. And of the fresh water, 69 percent is locked up in ice caps and glaciers primarily in Antarctica and Greenlands, 30 percent is stored in ground water reservoirs and only a tiny quantity is available in fresh water lakes, rivers and streams.

He further stated that in the years ahead we need to concentrate upon certain priorities for balanced growth and equity; Development of additional reservoirs; a) Increasing irrigation water efficiency through modern irrigation modes like drip and sprinkler system; b) Ensuring provision of clean drinking water; c) Treatment of saline water for use in agriculture and fishery and d) recycling of urban and industrial waste water for different uses. These priorities could be achieved efficiently if only we cost our irrigation and drinking water economically. Currently, for instance only about 25% of O&M charges for irrigation water are actually recovered as Abiana. This recovery does not include the capital costs of the storages and channels. No wonder we are so profligate. For providing drinking water to the disadvantaged sections, an element of intervention by the State in the form of subsidies would be required for some time. For the rest of the population and especially for the large farmer it is important that the real cost of water is recovered from them. The water channels pollution is frequently associated with the disposal of untreated effluents from municipal, industrial and agricultural wastes. The natural streams are always considered as an easy way to dispose off many kinds of effluents. The psychology behind this practice is that the wastes are washed away and are not visible at dumping sites. Besides this, indiscriminate pumping of groundwater is causing over mining which is enhancing salt water intrusion and polluting the groundwater.

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Here Mr. Shakil Durrani proposed following steps to meet the water shortage:

- Impacts of low quality water for agriculture must be assessed particularly at the farm level as well as the regional level.

- Traditional surface irrigation methods should be altered / replaced by properly designed and managed micro sprinkler & trickle/drip irrigation systems.

- Disposal of industrial & sewerage effluents should be brought under strict legal frame work.

- We have no more time for sterile discussions and debates; now is the time to act. For managing water scarcity, adoption of high efficiency irrigation system in both public and private sectors is recommended.

Ten–papers were presented by water resources experts and are under print in book form. The event was attended by over 150 engineers & scientists and was widely covered by electronic & print media.

Glimpses of the Event



Engr. Husnain Ahmed, President, Pakistan Engineering Congress presenting Welcome address



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Chief Guest Mr. Shakil Durrani Chairman WAPDA Speaks at the event

Glimpses of the Event



From left Engr. Husnain Ahmad President Pakistan Engineering Congress, Mr. Shakil Durrani Chairman Wapda, Engr. Ch. Ghulam Hussain Vice-President / Secretary of Pakistan Engineering Congress

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Engr. Husnain Ahmad Presenting shield to the Chief Guest Mr. Shakil Durrani Chairman WAPDA

Glimpses of the Event



A view of the audience

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A view of the audience

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12	Volume 25	No. 1	1979	January-March
13	Volume 25	No. 2	1979	April-June
14	Volume 27	No. 3	1982	July-September
15	Volume 27	No. 4	1982	October-December
16	Volume 29	No. 2	1984	April-June
17	Volume 29	No. 3	1984	July-September
18	Volume 31	No. 1	1986	January-March
19	Volume 31	No. 2	1987	April-June
20	Volume 32	No. 1, 2, 3, 4	1987-1988	–
21	Volume 34	All Numbers	1990	–
22	Volume 40	No. 2	1995	April-June

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NATIONAL DEVELOPMENT CONSULTANTS (PVT) LTD. (NDC) AWARDED CONSULTANCY SERVICES FOR A WORLD BANK FUNDED FLOOD PROTECTION PROJECT IN YEMEN

Managing Partner, National Development Consultants (Pvt) Ltd. Engr. Ch. Ghulam Hussain, accompanied by the Associate of the Firm Engr. Syed Mansoob Ali Zaidi signed Consulting Services Contract with Project Director, Taiz Municipal Development and Flood Protection Project for preparation of Detailed Design and Bidding Documents for Priority Flood Protection Investments and Integrated Storm Water Management Plan for City of IBB in Republic of Yemen at Sann'a on September 28, 2009.

It is a World Bank funded Project awarded to National Development Consultants (NDC) through the International competitive process.



Seated in the picture are Engr. Ch. Ghulam Hussain and Engr. Syed Mansoob Ali Zaidi



From Left : Engr. Ch. Ghulam Hussain and Engr. Ibrahim Atham Project Director Taiz Municipal Corporation

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Background of the Project Area

Greater IBB is one of the main cities of Yemen, located in the interior highlands at altitudes ranging between 1,800m and 2,200m (8000 ft) above sea level, on the foothills of Badaan Mountain. Ibb city's population is about 240,000 inhabitants. Overall, agriculture, commercial and public sector activities are the principal sources of employment in the city and play a key role at the governorate level.

Greater IBB city (and governorate), the green governorate as often called, has an important touristic potential due to the Old Medina, an area with attractive traditional architecture and breathtaking landscapes, and its historic monuments including Jeblas historic city located at about 5 KM to the north west of the city, as well as the agricultural areas within and on the outskirts of the city. The city's climate is moderate all the year round (cold in winters and moderate in summers).





Overview of the City of IBB

IBB city suffers from severe storm water drainage problems due to its geographic location. The city has developed along the wadis and foothills of the surrounding mountain range. The rapid expansion of the city during the last two decades without due consideration to urban planning has permitted building construction on wadis thus destroying the natural drainage courses. This condition results in substantial flooding of residential areas and roads during the annual rainy season. There is continued pressure on expansion of the city due to the high urban population growth ranging from 5% to 7% per year over the next 15 years. This means that the city would continue to encroach on wadi channels and unstable the slopes of the surrounding mountains rapidly increasing its vulnerability to floods and landslides. However, local city officials face serious difficulties due to the lack of a master plan for development and lack of policy and regulations to manage the city's rapid sprawl, and for providing and maintaining infrastructure services for the rapidly growing population. The absence of flood control structures and flash floods occurring periodically, wreak widespread havoc on much of the inner city's roads and populated areas causing severe damage to public services and private properties.



Views of Drain in the City of IBB

Now, the Government of Yemen under the leadership of Ministry of Public Works and Highways with the assistance of Consultants has undertaken the Study which the World Bank has funded. The overall objectives of the Study is to prepare an integrated Storm Water Management for the Greater IBB city.

FOREWORD

By

Engr. Ch. Ghulam Hussain*

That the innate propensity imbued in the human beings tends them to formulate groups or say organizations of like minded people to-get-together frequently with a view to discussing common issues being faced by them, can neither be gainsaid nor over-emphasized. Such organizations are varied and encompass almost all walks of life such as, ethnical, ethical, social, economic, engineering and its diverse disciplines. All such organizations explore ways and means to achieve their objectives at their usual meetings.

It was with the urge of such an impulsion that a century age 90 engineers belonging to Irrigation, Buildings and Roads and Railways met on 3rd February 1912 at Lahore to establish Pakistan Engineering Congress as it is known today. Given the set-up of formations of these departments under the British rule then, 74 engineers of these 90 were British and 16 Indians including haplessly one Muslim.

The objectives of the Engineering Congress were then set-out to (i) promote profession of science and engineering ; (ii) promote well being of Departments by affording an opportunity of meeting annually to discuss subjects of professional or departmental interest and for social intercourse.

For quite some decades Technical Papers were presented and discussed at the Annual moots which continued to be published in the Proceedings. 27 volumes of Proceedings published till the creation of Pakistan contain a number of valuable papers on technical projects / matters by renowned legendary engineers which are often used as references. Unfortunately the activities of Engineering Congress remained dormant for about 5 years till 1949, due to political turmoil and rehabilitation of millions of refugees. Membership of the organization which had dropped to 231 in 1951 was duly boosted and in 1954 it was decided to start Engineering News Journal as well and arrange Seminars and Symposia on burning issues besetting the national economy with a view to accelerating the objective of promoting science and engineering.

Whereas numerous Seminars / Symposia have regularly been convened since then on various acute problems and recommendations of the Panels of engineers forwarded to the Governments for their consideration the volumes of technical papers presented and discussed there have also been made available to members and national libraries. The quarterly News Journal is also being issued regularly. Technical papers on Irrigation, Drainage, Dams, Highways, Public Health Engineering, Electrical, Mechanical, Railways and other Engineering disciplines have continuously been published in the Engineering News Journal.

It is heartening to observe that it is celebrating its Golden Jubilee this year which has been a source of adding another feather in the cap of the achievements of the Pakistan Engineering Congress in promoting the cause of the engineering profession.

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*Secretary, Pakistan Engineering Congress & Managing Partner, National Development Consultants (Pvt.) Ltd.

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While some very useful papers contributed by Volunteers are being made part of its issues, numerous illuminating technical achievements published in international magazines are also made its part courtesy these magazines which keep our readers abreast of modern energy of non fossil fuel oils research oriented achievements such as Corn Oil fuel, Solar and wind energy etc. Besides it contains absorbing discourses of guest Speakers and snapshots of its projections at lectures on various topics delivered at the Engineering Congress Hall.

It also covers the visits of Congress delegates to the on-going Engineering Projects with elaborate details about their lay-out Plan, Design and Construction parameters and the economic benefits that are aimed at to accrue on their completion.

It regularly introduces new members and displays obituary news of those members who left our worldly association in the intervening period. It also displays newly elected office bearers, after conclusion of the Sessions, introduces the President elect and publishes end of the Session its Balance Sheets. In short it provides all the necessary information that the members would like to have.

The Management of the Congress as well as the Editorial Board deserve appreciations, on this laudable Diamond Jubilee issue.

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THE WORLD'S LONGEST SEA BRIDGE

By

Tania Branigan

China has begun construction of the world's longest sea bridge – barely 18 months after opening the current record-holders. The Y-shaped link between Hong Kong, Macau and China will be around 50 Km long, 35 Km of which will span the sea, said the state news agency Xinhua.

Due to be completed by 2015, the 73 bn yuan cost of the bridge will be shared by the authorities in the three territories. The structure also includes a 5.5 Km underwater runnel with artificial islands to join it to bridges on each side. According to the engineering group Arup – which has helped with the design – it is the first major marine bridge-and-tunnel project in China. But the engineering firm described the structure as 38 Km in length ; the reason for the disparity was unclear.

Work is expected to begin with land reclamation to create an artificial island of around 216 hectares off Zhuhai. This will become the customs point for those making the crossing.

But much of the structure will be prefabricated offsite, so, for example, the concrete deck sections can be produced at the same time as the foundations are laid. The tunnel will be made of precast sections – each 100 meters long.

"It is designed with a service life of 120 years. It can withstand the impact of a strong wind with a speed of 51 meters a second, or equal to a maximum Beaufort scale 16 (184 to 201 Kmph)," said Zhu Yongling, an official in charge of the project construction. "It can also resist the impact of a magnitude-8 earthquake and a 300,000-tonne vessel".

Six lanes of traffic will pass across the bridge at a maximum speed of 100 Kmph, cutting driving time from Hong Kong to Zhuhai from four hours to one.

The bridge was first proposed in 1983 as a way of fostering economic ties between China, Hong Kong and Macau. But it will be particularly welcome as the Pearl River Delta – for many years the hub of China's manufacturing – is buffeted by economic problems. The area's attempt to move up the value chain, combined with the rise of the Yuan and the global economic crisis, has seen exports plummeting.

The bridge is one component in a plan issued in January by China's top economic planning body, the National Development and Reform Commission, which aims to fuse the area and the two special administrative regions, Hong Kong and Macau, into one of the world's most vibrant economic centers by 2020. In particular, the government hopes it will help to develop the western side of Guangdong province.

Hong Kong has said the bridge should generate $ HK 45 bn in economic benefits within the first two decades of use.

(The Guardian, London)

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Latest Addresses & Contact Numbers Are Required

In order to update the record of the members of the congress we need the latest addresses and contact numbers in respect of the following members.

Sr. No.	Name	Membership Number
1	Aslam Saleem Khan	401
2	Saleem Akhtar Qasmi	414
3	Muzaffar Iqbal Mian	523
4	Shamshad Hussain Butt	722
5	Abdul Basit Sheikh	739
6	Abdul Manan	752
7	Munawar Ahmad	960
8	Tariq Mahmood Khan	961
9	Asad Iqbal	981
10	Ghulam Rasool Sandhu	986
11	Atta Muhammad Qureshi	1146
12	Muhammad Sarwar	1155
13	Muhammad Ashraf	1197
14	Waqar Ahmad	1204
15	Asghar A. Butt	1217
16	Muhammad Hussain Chaudhry	1218
17	Miraj ud Din Nagi	1230
18	Ch. Muhammad Siddiq	1231
19	Zahid Hussain	1234
20	Muhammad Kaleem	1235
21	Zafar ul Hassan	1238
22	Syed Masood ul Hassan Kazmi	1239
23	Ghulam Rasool Jatala	1243
24	Mian Muhammad Amin	1248
25	Syed Sajjad Haider Bukhari	1250
26	Yasir Ahmad Gauhar	1252
27	Hafiz ud Din	1253
28	Zulfiqar Ahmad Mir	1256
29	Ch. Ijaz Ahmad	1264
30	Muzaffar Ahmad	1268
31	Aslam Ali Sabzwari	1269
32	Umar Hayyat Bhatti	1282
33	Muhammad Nawaz	1287
34	Muhammad Ashraf	1403
35	Sharif Rahat Kureshi	1405
36	Abdur Rehman Siddiqui	1406
37	Pervaiz Akhtar	1407
38	Muhammad Naeem Javed	1408

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Sr. No.	Name	Membership Number
39	Naeem Sadiq Janjua	1412
40	Rashid Ahmad Baig	1436
41	Shabir Ahmad	1460
42	Jabbar Ul Haq	1506
43	Ch. Zafar Ali	1512
44	Humayun Akhtar	1513
45	Saleem Raza Chaudhry	1518
46	Muhammad Bakhsh Bhatti	1520
47	Noor Muhammad Zia	1526
48	Junaid Ahmad	1527
49	Muhammad Farooq	1530
50	Rana Abrar Ahmad Khan	1586
51	Hanif Ahmad Chaudhry	1721
52	Sultan Ahmad Saeed	1722
53	Ch. Rashid Ahmad	1727
54	Nisar Ahmad Zahid	1765
55	M. Hanif Khalid Bhatti	1772
56	Obaid ur Rehman	1792
57	Ch. Manzoor Hussain	1851
58	Muhammad Aslam Khan Niazi	1853
59	Tanveer Ahmad Malik	1893
60	Sohail Raza	1900
61	Muhammad Riaz	1932
62	Zafar Iqbal Bhatti	1975
63	Muhammad Rashid Mughal	2013
64	Muhammad Farooq Adil	2031
65	Riaz Ahmad Khan	2083
66	Zaheer Ahmad Dogar	2134
67	Saif Ullah Khalid	2135
68	Ghulam Amir Qammar	2155
69	Anwar ul Haq Toor	2161
70	Innayat Ullah Waraich	2196
71	Zafar Iqbal Gurmani	2221
72	Ijaz Ahmad	2426
73	Amir Wazir	2455
74	Muhammad Riaz	2777
75	Qaisar Abbas	3081
76	Shams uz Zaman Bahio	3164
77	Abdul Nasir Khan	3348
78	Khalid Saleem	3357
79	Muhammad Kashif Jamil	3657
80	Dr. Muhammad Siddique	3677

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Sr. No.	Name	Membership Number
81	Muhammad Mohsin Ismail	3685
82	Imtiaz Hussain	3686
83	Muhammad Babar Ikram	3707
84	Ammara Nusrat	3713
85	Muhammad Javed	3114
86	Rahil Abid Minhas	3200
87	Ghulam Yaseen	3788
88	Muhammad Hafeez Anwar	3796
89	Hafiz Sohail Hassan Aslam	3800
90	Parkash	3803
91	Shan Ahmad	3830
92	Muhammad Anwar	1686
93	Abdul Sattar Malik	1782
94	Muhammad Saleem Sheikh	2763
95	Ejaz Hameed	2833
96	Syed Aziz ul Hassan Rizvi	3153
97	Jaffer Hussain	3155
98	Zaheer Ijaz	3890
99	Sherin Zaman	3920
100	Abdur Razzik Khattak	3921
101	Zarin Gul	3946
102	Zia ul Hassan Khan	3952
103	Danish Rafique	3954
104	Muhammad Riaz Zahid	3958

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