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ENERGY UPDATE

SPECIAL REPORT ON
19TH ANNUAL ENVIRONMENT EXCELLENCE AWARD 2022

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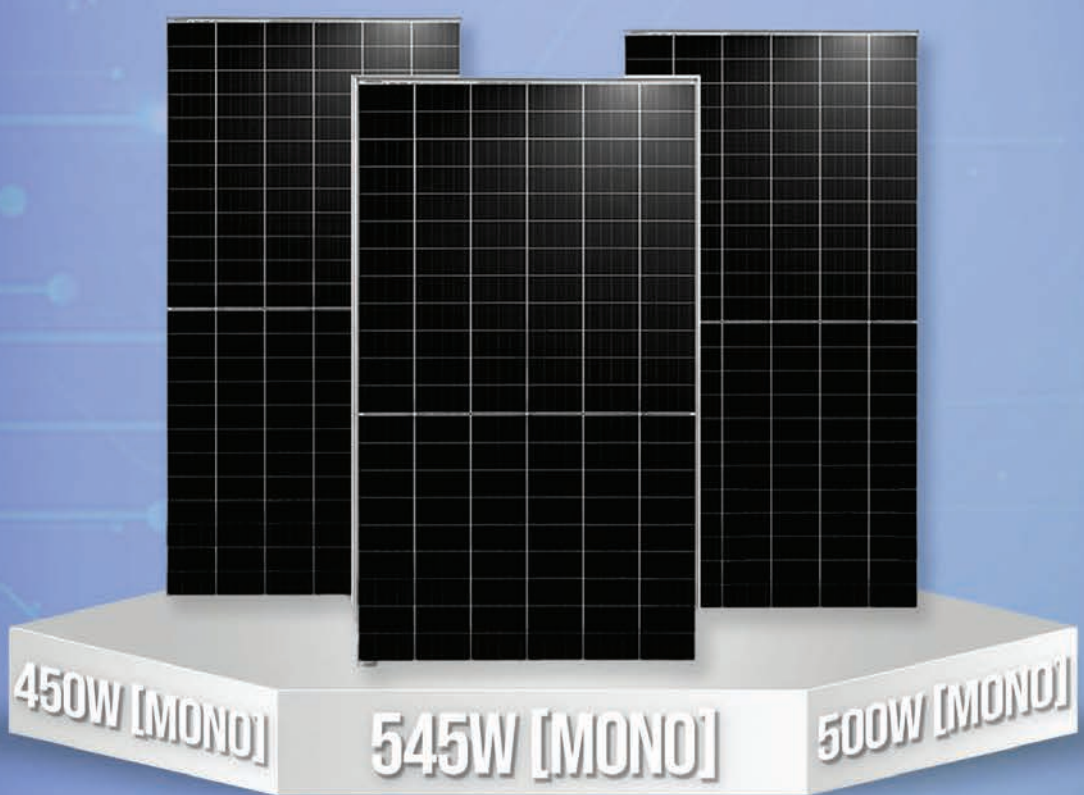

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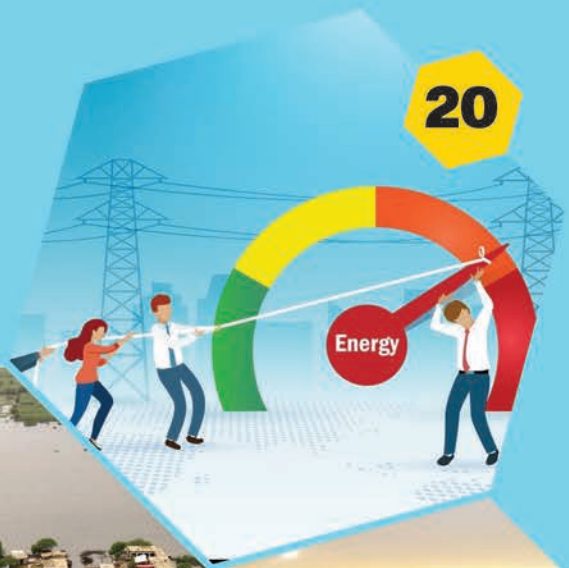

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FROM THE EDITOR'S DESK...

Economic growth on public cost

The federal government has been improving the country's economy on the cost of people by collecting extra money through skyrocketing taxes and oil prices, which is injustice and human rights violation. It has now become clear that the present coalition government is doing all this to please the IMF to get its loans. Previously, the PTI government, led by Imran Khan, did the same with masses to get international donar's loans.

All segments of the society, including the business community, have lashed out at the incumbent federal government for collecting money from people through hefty taxes and skyrocketing oil prices that have caused an alarming hike in the prices of all commodities, making the life of people miserable. Fact is that it is not the way to improve the economy as such forced actions are tantamount to plundering people with both hands.

Recently, former President Asif Ali Zardari and PML-N Vice President Maryam Nawaz also opposed recent oil price hike announcement of Federal Minister Miftah Ismail and termed it unjustified, while PTI leader Sheikh Rashid has also flayed Mr Miftah and labeled him as a 'spokesperson of IMF'. These reactions show that there is something wrong in jacking oil prices.

There are several factors that can spur the perfect amount of economic growth needed for the country. For example, economic growth is achieved by raising exports, reducing imports, cutting government expenses significantly, providing a lucrative investment atmosphere with facilities and security to foreign companies, reducing cost of doing business with lower ratio of taxes amid stable oil prices.

But unfortunately, in our country, such things are contradictory to those factors which are favourable for economic growth. Last week's report by the State Bank of Pakistan said that Pakistan's imports witnessed a sharp 67 percent increase on a year on year basis, reaching US$40.8 billion in HI-FY22. This factor is not helpful for economic growth of the country in present circumstances.

Similarly, energy imports rose to US$10.2 billion in the same period, reaching 114 percent higher from US$4.8 billion in the same period of the last year. Furthermore, inflammatory pressures continued to hit the country the whole year with no reduction in the sight. Economists have widely debated on how to achieve real economic growth and have also provided guidelines to Pakistani politicians to boost the economy in a real way acceptable to all. But our rulers are bent upon deviating from those guidelines.

The government claims rising trend in economic growth in view of its 'so-called' efforts, but fact is that this growth is on the cost of people's money taken through hefty taxes and skyrocketing oil price hike, as recent Sensitive Price Indicator's year on year trend pertaining to inflation has showed an increase in diesel price by 42.31%, petrol (94.53%), cooking oil 5 litres (72.96%), vegetable ghee 1kg (68.56%), and electricity for Q1 (63.03%).

Such price hikes have broken the backbone of Pakistani people who are now struggling for their survival as poor people are hardly managing two times' meal. Hence, the government needs to come forward with concrete measures to boost the economy in the real way of economic rules instead of affecting the public economy.

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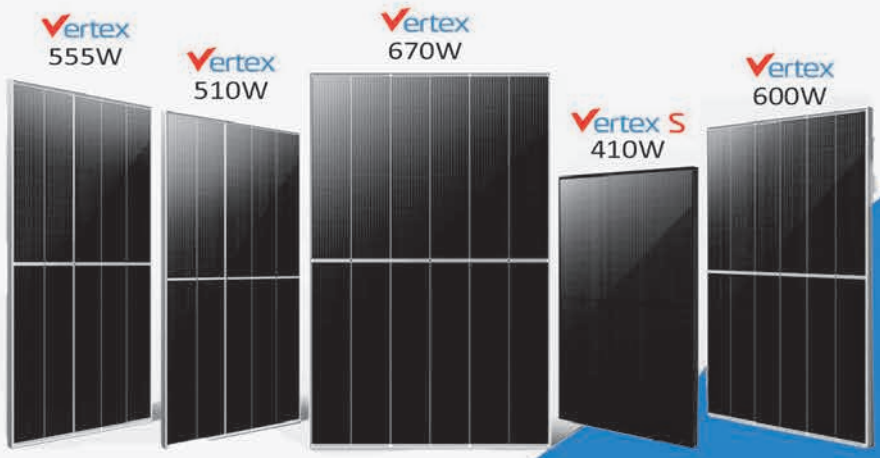

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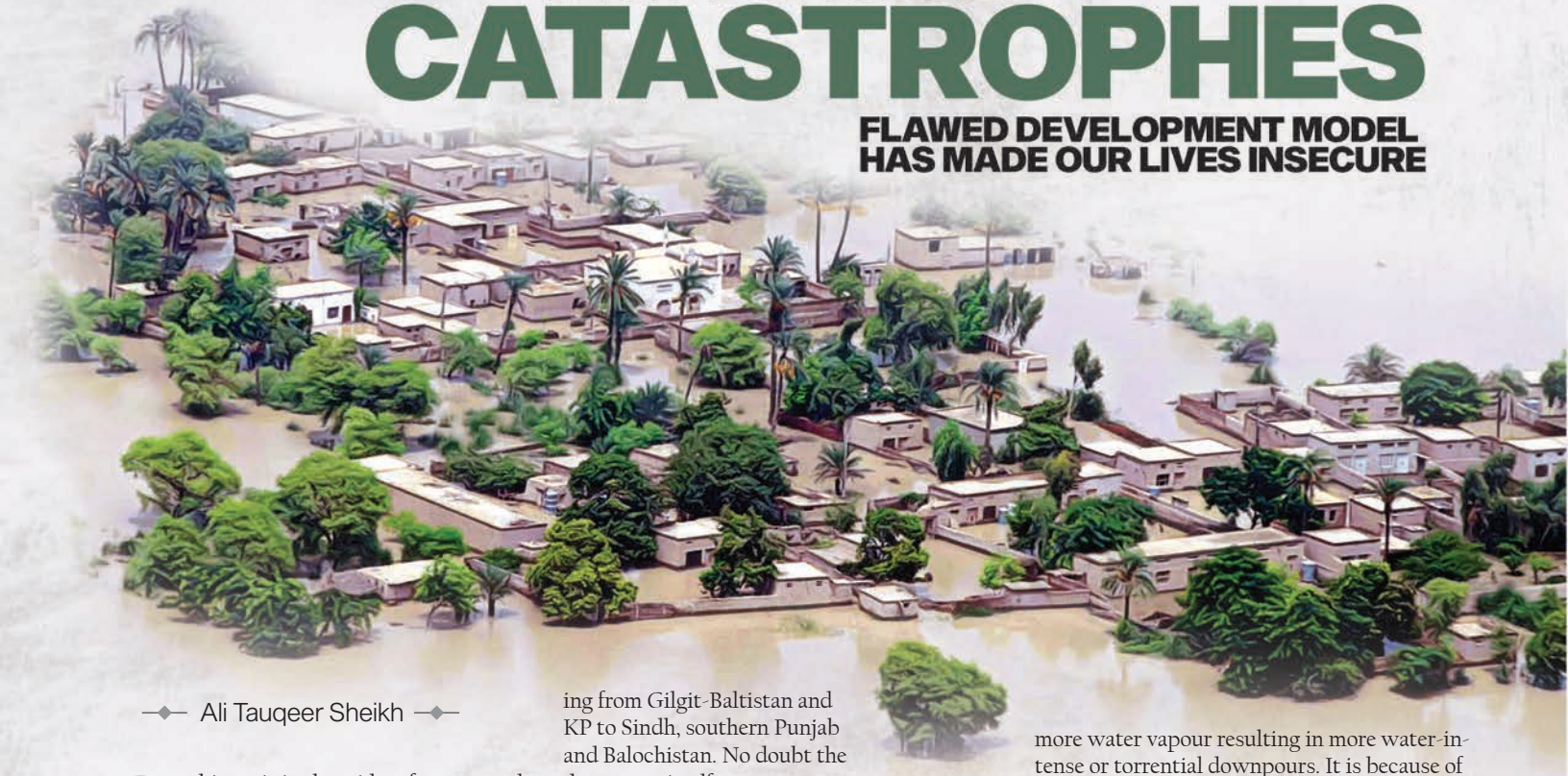


Ali Tauqeer Sheikh

Pakistan is in the midst of a man-made disaster. Our flawed development model has made our lives insecure in both the urban and rural areas. This pattern of development has robbed us of the monsoons — our season of romance, raindrops, walking in the rain, and singing songs. The monsoons have always been part of our folklore and poetry. They are the soul of our culture, heritage and history, and are connected with our lives, lifestyles and livelihoods. Historically, we have not dreaded the monsoons, but now we have begun to fear them.

From the earliest agrarian settlements in Mehrgarh to the Indus Valley civilisation and centuries later the Mughal period, we have coexisted with seasonal floods and prolonged droughts. But the development path chosen since then has resulted in a competitive, even zero-sum relationship with our natural environment — forests, waterways, waterbodies and ecosystems.

Gravity propels the water flow, but our development model is insisting on defying gravity. Our settlements, infrastructure, economy, livelihoods and livestock, all have become unnecessarily vulnerable and fragile primarily because we have been obstructing water's flow. Can this season of biblical rains and deadly floods provide us an opportunity to reflect and re-envision our development model?

The scale, scope and spread of the 2022 floods have surpassed the super floods of 2010. The monsoon rains have created unprecedented havoc in all regions of the country stretching from Gilgit-Baltistan and KP to Sindh, southern Punjab and Balochistan. No doubt the downpour itself was unprecedented in many areas, but the monsoon waters are furious primarily because we have choked their passages and encroached on banks and shoulders. The floodwaters are only reclaiming their right of way. Infrastructure and community assets, including the ones developed since the super floods eg the 11 small dams in Balochistan, are being washed away, damaged or destroyed.

Clearly, no lessons have been drawn or applied to disaster-proof subsequent infrastructural development. Neighbourhoods in villages, small towns, and larger cities have no rainwater or floodwater channels.

To top it all, the country has become a prisoner of the four deadly sins of development: i) top-down development planning and resource allocation, in the belief that it can reduce local vulnerabilities, ii) disparate development schemes, often randomly selected, thinking that it will add up to a sustainable growth rate, iii) archaic and poor standards for infrastructure development, presuming that it will withstand increasing resilience needs, and iv) the statist development model, a political system that has substantial centralised control over social and economic affairs, thinking of it as a substitute for local governance institutions or national resilience standards.

Climate-induced flooding is caused primarily by two key processes that also lead to changes in the monsoon patterns: first, warmer air will produce more rain. As global air temperatures increase, the clouds can hold more water vapour resulting in more water-intense or torrential downpours. It is because of this basic science that many climate models project that the South Asian monsoons will see heavier, frequent, and untimely rains.

Second, the seawater rise has increased coastal flooding but the higher levels of temperatures at sea give higher temperature points to the clouds and indeed greater ability to enter farther over land. The increasing frequency of flooding in Balochistan is sometimes attributed to these westerly weather influences, rather than the traditional eastern monsoon originating from the Bay of Bengal. This change in the weather cycle seems to have added to the frequency and severity of floods in the typically non-monsoon areas of Balochistan.

Not ready to accept it as a grand failure of public sector development planning, the federal and provincial governments were quick to blame climate change, instead of poor early warning systems, poorly functioning government departments, poor building designs, construction guidelines, material standards and of course, the unplanned growth of human settlements.

The governments' response to the loss of lives, livestock, houses, and standing crops was prompt and predictable: extend emergency supplies through disaster-management authorities, followed by cash grants through the Benazir Income Support Programme. Little attention has been given to calculating economic losses or the cost of climate-resilient reconstruction. Pakistan's previous effort to 'build back better', after the 2005 earthquake hasn't succeeded.

Recent floods: a worst disaster in Pakistan

Dr. Abid Qayyum Suleri

The recent floods in Pakistan are among the worst disasters that have hit Pakistan and its people since 2010. The floods have posed a series of challenges to the country, the brunt of which would have to be borne equally by Pakistan's citizens, administration, and political parties. The devastating impacts of floods are being widely discussed in mainstream media, so I would confine myself to the governance of disaster management.

First: the causes of the disaster. It is a natural calamity, a clear manifestation of a warming world. The hotter air (due to the rise in sea surface temperature) in the Indian Ocean (which is warming by an average of 1 C as opposed to the global warming average of 0.7 C) holds more moisture and is believed to cause this increased monsoon rainfall. The coastal areas of Pakistan, which used to have rains in the pre-monsoon tropical storm season, and Balochistan, which used to have showers in winter, received unprecedented monsoon rains this year.

In August 2022, incredibly intense rainfalls poured over the provinces of Sindh and Balochistan (784 per cent and 500 per cent more, respectively, than the usual August average). The hill torrents from the Sulaiman Mountains turned ferocious and devastated the northern part of Balochistan, southwestern Punjab, and southern Khyber Pakhtunkhwa. Heavy rains in upper KP led to flash floods in Chitral and Swat, whereas glacier melting wreaked havoc in Gilgit-Baltistan.

Indeed, a natural calamity of the above magnitude cannot be avoided. However, with the right policies and practices, one can try to stop turning these calamities into human disasters. Unfortunately, even after experiencing two major catastrophes in the last 17 years (the floods of 2010 and the earthquake of 2005), we have failed to institutionalize the 'right set of policies and practices' for disaster prevention and rescue, relief, and recovery in case a disaster hits. This lacuna has further intensified the negative impacts of natural calamities on us.

Violation of land use zoning in the riverine and torrent-hill flood-channel catchment regions can lead to major disasters. After the 2010 floods, it was decided that construction in the river catchment would be regularized through a 'River Act', but that could never be implemented. Consequently, like the floods of 2010, the current floods too damaged or washed away many buildings and tourism infrastructure constructed on the riverbed. Land use zoning is a technical matter at first sight, but it is deeply embedded in and linked to governance. Granting permission for construction on the riverbed is clearly a governance failure.

The hill torrent floods on the Suleman range affected southwestern Punjab in 2008, 2010, 2012, and 2013 too. After the large-scale damages from the 2010 floods followed by the 2011 & 2012-floods/rains, the Federal Flood Commission (FFC) started working on formulating a ten-year national flood protection plan (NFPP). The work was initiated in 2013, and a final draft plan for 2015-2025 was ready in 2015.

In 2017, the Council of Common Interests (CCI) approved the NFPP. The federal and provincial governments agreed to finance it on an equal sharing basis. The plan is worth Rs332.6 billion (Rs33 billion per year for ten years).

Wonder why there is such devastation in 2022 if we had an NFPP in place since 2015? The speed of hill torrent floods (six hours of the causative event) is way higher than the speed at which the plan is being unfolded. It took two years each for preparation of the plan (2015), its approval (by CCI), and the preparation/submission of an umbrella PC-1 to the Planning Commission for its financing (2019). Then came Covid-19 and the NFPP was yet to take off when current floods struck.

Interested in knowing more about the governance of disaster management at the micro level? Amidst one of the worst floods, the commissioner of DG Khan was removed last week. Whatever the reason behind his removal, changing the head of divisional administration (with institutional memory) right in the middle of a disaster shows our approach to disaster governance.

Returning to the current floods, the sheer size of the affected area, the enormous number of victims, and the short time within which aid is required all create insurmountable challenges. The needs for emergency aid are immense: gendered response, cooked/dry food, clean drinking water (or water purifying tablets), medicines (for skin diseases, cholera, diarrhea), sanitary pads and hygiene kits, feed and veterinary care for remaining livestock, shelter – the list goes on. Delivering aid needs infrastructure to reach the affected. But many roads are inundated or damaged, bridges washed away, power lines damaged, and there are many areas where the only access is through helicopters.

Amidst the above-mentioned constraints, multiple players are involved in delivering emergency aid; local self-help, civil society, national and provincial governments, rescue teams of armed forces, and international partners. Interestingly, the agencies mandated for disaster management seem to outnumber the relief players. FFC is responsible for the development and maintenance of flood protection and control systems.

The current disaster management institutional arrangement reminds me of the 2010 floods when the prime minister set up three different commissions in six days (of August 2010): a commission constituted for damage assessment and distribution of relief goods in Punjab; a 'clean commission' comprising honest and credible Pakistanis; and a supervisory committee on the NDMA, the National Oversight Disaster Management Council. All those overlapping institutions formed in 2010 did nothing for disaster management except to create confusion. The same may be the fate of the current overlapping bodies. ■

The writer heads the Sustainable Development Policy Institute.

RAINS & FLOODS
DEVASTATION BEYOND IMAGINATION

Dr Shafqat Munir Ahmad

The 2022 floods have caused devastation beyond imagination. The unprecedented rains killed and injured more than a thousand people and damaged infrastructure, agriculture, and businesses. This has had a huge impact on the Pakistani economy.

The large-scale destruction has reversed the development gains of recent decades, and the country now lags behind the SDGs targets. The current destruction is more severe than what the country witnessed in 2010. Extreme weather patterns, which are a result of climate change, are reason enough for the government to prioritize mitigating the impacts of climate change through building resilience of communities and infrastructures.

An enhanced role of communities, community-based organizations, national, and international humanitarian NGOs will strengthen disaster risk reduction, preparedness and climate action in terms of adaptation and mitigation at the community level. Pakistan alone cannot handle this high-category catastrophe and should make a $110 million flash appeal through the UN.

Other donors and domestic philanthropists are also requested to contribute. Once known for its resilience against floods, the nation is no longer resilient as Covid-19, unbridled economic woes, food and fuel inflation, and price hikes have marred much of its capacities.

Different heart-wrenching reports from flood-affect areas have highlighted the misery of the affected. Help couldn't reach these people when the rains were wreaking havoc in province after province. Politicians and social workers expressed their helplessness as the non-stop heavy rains had disrupted communication channels, exposing the resilience of communities and rendered them vulnerable to the ensuing natural hazards. Although the economic losses and damages are still being calculated, all we know is that over a thousand people including over 300 children and 190 women have reportedly been killed and over a thousand have been injured.

According to the National Disaster Management Authority (NDMA), over four million people in 116 out of 160 districts across the country have been impacted, and half of them are living in relief camps. A majority of flood victims need shelter, food and other essential items such as tents, utensils, mats and beds. Over 670,000 houses have been completely or partially destroyed. Over three thousand kilometres of roads and 145 bridges have been damaged.

The massive floods have washed away over two million acres of crops and killed over 794,000 cattle, causing the loss of livelihood and food. The people have lost their belongings – even food stocks – and savings as water swept away their homes and villages. The agriculture, agri-business and other sectors of the economy have been damaged, and this will cause further economic slowdown.

The losses and damages due to the floods caused by climate change need to be met from national and international resources, and the migration of displaced people should be taken seriously. This is a full-fledged humanitarian crisis compounded by the already existing crises such as Covid19, food and fuel inflation and unemployment. It is time to act as a nation, leaving political differences aside. Both the federal and provincial governments cannot respond to this catastrophe despite mobilizing all resources on their own; philanthropists, NGOs, INGOs, development partners and political parties, leaving their vested political interests aside, should join hands to steer the nation out of this grave humanitarian crisis.

The rehabilitation and rebuilding of affected areas is going to be a gigantic task which will require resources from outside donors. The amount required for reconstruction is going to be far greater than the

amount spent after the 2010 floods. While responding to the current floods should be top priority, the country equally needs to plan for future emergencies too as the country will keep facing the brunt of climate change in the future.

Pakistan must make a strong case to access the Climate Adaptation Fund and other climate financing to meet its losses and damages (a subject within climate deal) and the cost of ensuing climate migration, rebuilding, and resettlement of the displaced.

Pakistan needs to back up its mitigation and adaptation strategy by financial resources. It also needs to create a congenial atmosphere for international humanitarian actors (INGOs) which were disallowed to function in the country in November 2013.

Pakistan needs to realize that it cannot handle humanitarian response and rebuilding on its own; we need global humanitarian actors/players who are trained to implement 24-hour, 48-hour and 72-hour emergency response plans amid big catastrophes. The country has to take global and national humanitarian NGOs on board so that they can generate resources globally and spend them in Pakistan as the government's flash appeal may not always fetch sufficient sums. INGOs raise funds from global philanthropists and donors, and they can extend their support to the government, local community-based organizations and national NGOs for humanitarian response. They can also provide training to the communities to prepare them against future disasters.

The NDMA and the government should ensure that contingency plans and stocks are ready at the district levels with back-up supplies from provincial and national contingency stocks to meet 24-hour response standards to reach out to the affected and at-risk population. Had we learnt lessons from the 2010 floods response and rehabilitation and rebuilding, we would have built raised structures.

The country needs to align its disaster risk management policies in line with the global principles and in accordance with local needs. In the mid and long term, Pakistan has to make its development risk-sensitive by focusing on constructing raised buildings, roads and rail infrastructure so that they can withstand flash floods and provide safe shelters to the affected. It must prepare communities to cope with emergency situations through strengthening early warning systems and inclusive evacuation strategies. ■

The writer is an Islamabad-based policy specialist, research fellow in resilient development at the SDPI.

MONEY TRAP

How to break IMF cycle

We must also take steps to get our house in order

Shahrukh Wani

In Pakistan, we are so used to firefighting that most days that is all that we talk about. We don't have enough money for imports, so we run to the IMF asking for a loan. Not asking why we can't pay for what we buy and borrow from the world. Floods displace millions, so we pull together to rescue them (as we should). But, again, little on why we keep allowing construction on waterways. We can't control the rain, but we could unclog the drains.

Yesterday, the IMF resumed its loan to Pakistan. Combining the IMF loan with investment pledges from Riyadh, Doha, and Abu Dhabi and some money from the World Bank, we have likely prevented the immediate balance of payments crisis. Great. If we hadn't, things would have gotten much worse.

But we have just put the fire out. We have done nothing to solve the causes of the fire. Call it naya or purana, Pakistan right now doesn't work. It not only doesn't work for most Pakistanis, who either live in poverty or close to it, but it doesn't work because it can't sustain itself, so it needs almost consistent foreign help. 'Painful adjustment' means little when we have to go through it every three years.

Pakistan survives on the generosity of its allies and its ability to export people. We produce almost nothing that the world wants to buy. We prioritize cartels (sugar, real estate), over fair competition.

If we have a strategy, it is waiting for someone to invade Afghanistan so we can get money from them. Living on the kindness of strangers is a great line by Tennessee Williams, but a bad national strategy.

Such is our state that we are being left behind within our region. People in India and Bangladesh today live longer than Pakistanis, are more likely to be able to read and write, and have greater access to high-speed internet. They have become richer over the past few decades at a speed we can only envy. Pakistan is the sick man of South Asia, as my friend Uzair Younus says.

Today's Pakistan is also untenable against global shocks. Climate change is the big one. We need infrastructure and systems in place that can reduce the negative impacts of higher temperatures, floods, etc. We aren't prepared. Another immediate shock is the increase in global energy prices.

As we depend so heavily on imported oil and gas to keep the lights on, we need a way to pay for them. They're now much more expensive because Europeans, who don't want Russian gas, are out there buying all the gas they can get their hands on.

The realization that this must change has to set in -- and has to set in fast. Our usual practice of getting an IMF loan and ignoring our structural problems will lead us back to the IMF's door in a year or two. The cycle will continue. Again, and again.

To change this, Pakistan must do what it hasn't done before -- it must reform, meaningfully. It must change a system that subsidises firms that are barely able to export. It must deprioritize real estate as a national priority. It must give more power to local communities instead of trying to run a country of nearly a quarter-of-a-billion people through an anarchic bureaucracy.

Over the coming winter, ordinary Pakistanis will face skyrocketing inflation and low economic growth, and politics that is more about raw egoism than about the problems people face. All the while rebuilding communities devastated by floods.

We must also take steps to get our house in order. If we don't either the world will give up on us, or the people will burn down this system. Neither outcome will be pretty. But neither will be unfounded. ■

The writer is an economist at the Blavatnik School of Government, University of Oxford. He tweets @ ShahrukhWani

Environmental racism

Climate disasters don't care about colour of our skin

Syed Mohammad Ali

Climate-induced disasters, such as a drought or a flood, do not care about the colour of our skin. However, the world is structured in a way that people of colour are facing the brunt of environmental hazards they have done little to cause. This phenomenon is pervasive and evident enough to be described by a specific term, namely 'environmental racism'.

Of course, the idea that people of colour are more vulnerable to environmental hazards needs to be qualified. Some generalisations can be made about people in the global south being faced with similar hazards, such as deteriorating air quality or increasingly intense heatwaves. But not all people of the same skin colour experience these hazards with the same level of intensity.

People of colour who are well-off can afford to shield themselves from the worse effects of environmental racism by virtue of where they reside, what they do, and how many resources they have at their disposal to find alternative solutions when confronted by environmental problems. Richer people of colour not only live in air-conditioned homes, within safe locations, but their livelihoods are less dependent on interactions with the natural environment.

Well-off coloured people can also afford to buy bottled water if the water quality in their taps has deteriorated, and they can even purchase air purifiers and live in areas where the tree canopy is denser than it is in congested urban slums. Hence, when referring to environmental racism, it is important to reiterate that this form of racism specifically victimises poor people of colour.

Historically, colonial extractive policies caused massive damage to the lives and livelihoods of already marginalised people of colour. The prevailing environmental crisis is closely linked to the ignoble history of European colonial exploitation of labour and raw materials from coloured people of the global south.

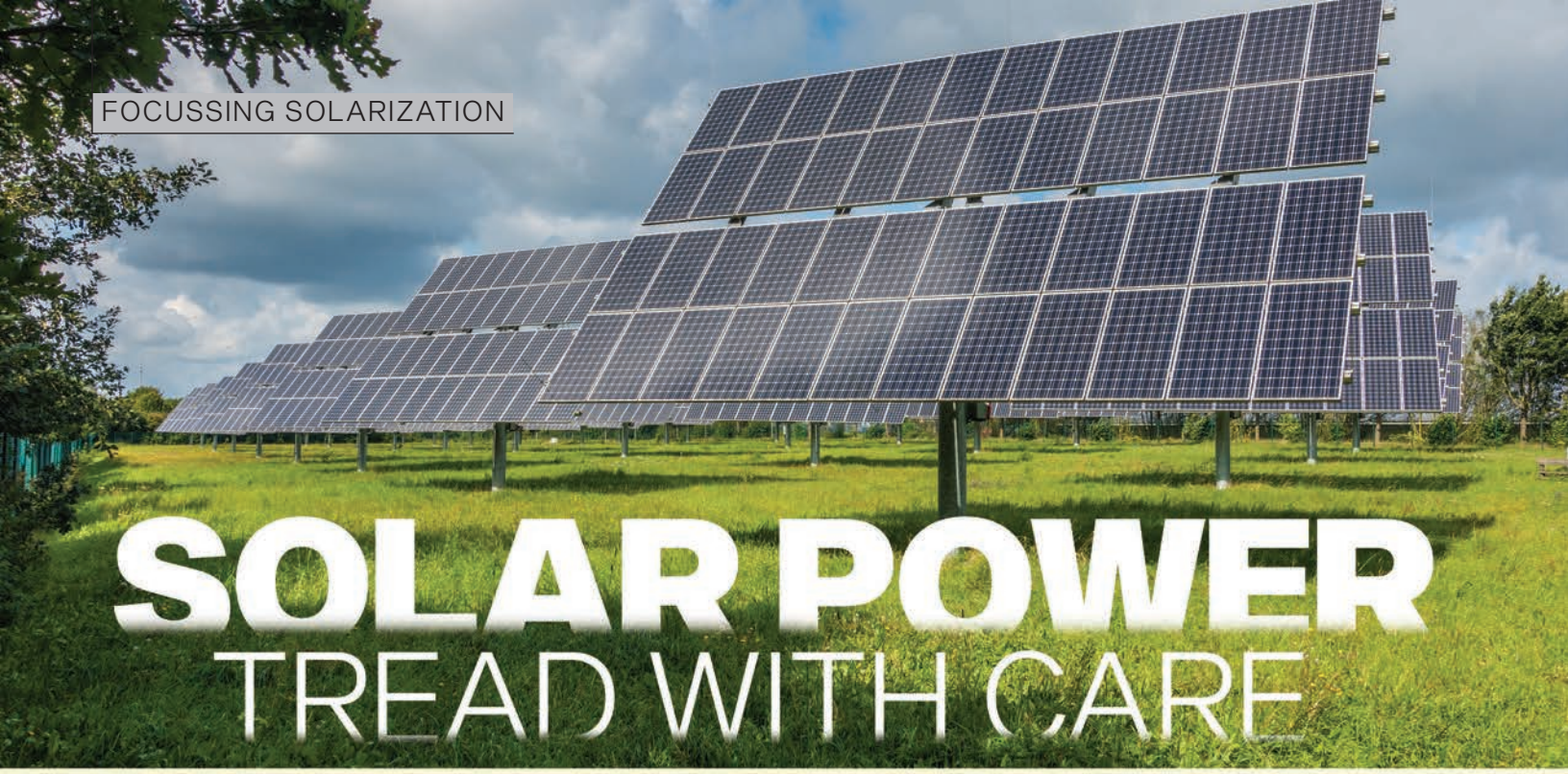
Besides colonial exploitation, unfair terms of trade and failed development policies have kept post-colonial countries trapped in a spiraling cycle of national debt, which leaves them with scant resources to meet the most basic needs of their people, what to speak of putting in place measures to contend with climate change.

It is important to also note that much of the environmental damage being done by the smaller economies in the global south is due to production of raw materials demanded by the global north. Poorer countries in the global south are desperate for foreign direct investment and are thus willing to have laxer environmental standards. Multinational corporations take advantage of this situation. Consider, for instance, the case of Shell's ruthless quest for oil in the Niger Delta which was in fact facilitated by the Nigerian government, despite the devastating pollution and destitution it caused to local communities.

Environmental harm in the global north is also concentrated in more marginalised and poorer areas which disproportionately impacts people of colour. Thus, people of colour around the world are disproportionately losing their lives and livelihoods due to climate induced disasters and stresses. Yet, the global community at large seems reluctant to acknowledge the links between systemic forms of racism and the phenomenon of climate change.

It is time for countries of the global south to at least create a common pressure group which can effectively raise their common concerns at subsequent climate change moots, or else, poor people of colour will continue to remain the hardest hit by increasingly severe environmental induced stresses. ■

The writer is an academic and researcher



SOLAR POWER
TREAD WITH CARE

Govt planning in haste to install 10,000 MW solar energy projects

Ali Khizar

The government is planning in haste to install 10,000 MW solar energy projects. There are no two ways about the point that the focus should be on indigenous and renewables. However, it is better to be done by the private sector. Not by the government. The footprint of the government in energy chain must reduce. The need is to look at the bigger picture and this should be done in a right way.

There are complications and costs involved with connecting big solar projects to the grid, and after incorporating those, big solar projects may not be financially viable. The need is to study the grid and make decisions accordingly. Rushing into such projects can have unintended consequences. The feeling market participants have is that the PM wants to exhibit the proverbial 'Shehbaz Speed' in it, and some think that there could be elements of favoring certain businessman close to the ruling family.

Without delving into the conspiracy theories, let us evaluate the pros and cons of having large scale solar projects in a short time. First and foremost point is that solar or wind can never fill the base-load requirements. Solar is only there for displacement during daytime when electricity is being produced. Second element is to evaluate the capacity of the grid system. Rule of thumb is that grids cannot absorb over 10 percent share of solar (although it varies from grid to grid), and simulations should be run to find the exact load any grid can take on solar.

And to increase the load of solar, major investment is required in upgrading the transmission system which could make the project financially unviable. According to a study, Pakistan grid system has a capacity to absorb around 5 percent load of solar.

Solar energy load varies during the day. The production can immediately stop or significantly reduce due to change in the sunlight. If the supply is higher than certain level, such sudden drops could lead the grid to trip. And this could cascade to risk the larger grids transmission system outage. With dropped frequency, other plants synchronized with the system can trip for saving themselves. This could make the overall system fragile and vulnerable. And to avoid this, spin base-load must be kept in pipeline, so it can replace the solar drop within seconds.

Then, solar cannot cater to the summer peak load which is usually from 7PM to 11PM. Solar can only produce in daytime. That is why, bigger size plants in solar are not recommended without massive investment in grids upgradation and even than the presence of spin base-load might be required. The doable options are to have small size solar plants across the country where the system has capacity. There is a potential of small plants cumulatively producing 3,000-4,000MW.

The government intends to do three types of plants. One is very small that is to be installed on the rooftop of government buildings. Super. Just do it. And have a policy for private sector to incentivize on private buildings, including schools, offices, commercial and residential buildings.

The second is to have slightly bigger (yet small) plants next to the feeders. That is good as well. These will be smaller in size and would not have any risk on the grid and can lower the production cost at feeder level. There are around 9,000 feeders in the country and over 2,000 grids. Having 1-2MW at downloaded grids level are good options.

Another option the government could think of having solar plants next to IPPs (independent power plants). Almost all IPPs have vacant land. Then the load of IPPs itself is 5-7 percent. Solar can manage that. Plus, IPPs can easily increase or decrease production, based on the solar supply, without risking the transmission system frequency drop.

However, the problem is in the third type of plants. The plan is to have around 4,000-6,000MW close to load centers – 1,000-1,500 each around the 4 RLNG plants. This whole scheme is tricky. Apart from the investment required on the grid, this is against the spirit of latest IGCEP and not in sync with existing capacity and planned capacity which is to come in the next few years. As someone aptly put, solar deployment targets should not be fed into the IGCEP but rather should come out from it.

Anyhow, these RLNG plants could be partially replaced (due to coming lower in the merit order) once new coal and hydro plants come online. And on top the solar is now being planned in bulk. There is a limit to what a cash-strapped government could spend.

The focus on solar should be on further streamlining net metering. Inspection and certification processes should be smoothened. SBP (State Bank of Pakistan) should continue (which is stopped lately) the interest rate subsidy. Cost of installing net meters should be subsidized, and local production of meters should be encouraged. Net metering rates should be aligned to the rates Discos are charging. ■

Courtesy: Business Recorder

Balochistan's 100 dams project carries positive impacts:

Zafar Iqbal Wattoo
Director Rehman Habib Consultants

Halima Khan

There are various positive social, environmental, and cultural impacts on the local population of 100 dams project in Balochistan.

This was stated by Zafar Iqbal Wattoo, who is Director at Rehman Habib Consultants and is associated with 100 dams project in Balochistan, in an exclusive interview with Energy Update. In the interview, he talked at length about issues in water sector of Pakistan. Following are the important excerpts from his interview for our readers:

Energy Update: Is water abundantly available in Pakistan?

Zafar Iqbal Wattoo: Pakistan is considered a water-scarce country. Generally, water is available in the country according to our needs, but it is not available in the required quantity when it is needed the most. There is a gap in demand and supply of water creating water scarcity situation in the country. There are three types of water resources in the country - one is surface water, second is groundwater, and third is glaciers water. There is abundant availability of surface water in the country in the three months of monsoon i.e. July, August, and September.

EU: How water is consumed in Pakistan's farm sector?

Mr Wattoo: Pakistan is basically an agricultural country as up to 95 per cent of our water is consumed in the farm sector. The agricultural sector has its own cycle as there are different crops for summer and winter seasons with their water needs. These requirements don't match with abundant availability of water during monsoon. There is not much need for irrigation water during monsoon as crops generally get abundant water naturally through rains. Then after the rains, we have to extract the groundwater for our farming needs.

We don't have reservoirs in the country in sufficient numbers to store the surface water. The existing reservoirs lack the capacity to use water storage as a means to fill the demand and supply gap. That is the reason that every year in November and December, we get news that water storage in Tarbela Dam has reached the dead level.

Wheat is our major crop as its needs water mostly in winter, as you need to extract groundwater for the purpose. The groundwater is extracted at a higher rate but this essential resource is not recharged accordingly. Hence, the level of groundwater is going down gradually. Half of the water required for farming needs is arranged through surface water and canals while the rest half is managed through ground-

water extraction.

Pakistan's per capita water consumption has increased due to population rise. The water demand has increasing, but we don't have sufficient water storage. This doesn't mean that we don't have water. We do have water, but its management is being done in a very bad manner.

EU: How acute water issue in the country affects the Balochistan province?

Mr Wattoo: There is no equitable distribution of water in the country. Balochistan is a very barren and arid zone whose land mass is roughly equal to half of all area of Pakistan. Its surface water is not available while the level of groundwater is also very low in the province. Water is abundantly available in the north of the country where glaciers are present and also where there is a higher occurrence of rains. However, it is a small area compared to Balochistan. You need a bulk supply of water in the south of the country, but water is abundantly available in the north. Therefore, the question is how to supply this water to the area where you need it. It is a big challenge as you need an infrastructure of thousands of kilometers for the purpose that is impossible to build.

EU: What are the water issues in major urban centres of Pakistan?

Mr Wattoo: Tanker service is used in Karachi for water supply. There is a serious water crisis in the capital cities of the country. Water management for urban populations and urban uses shouldn't be a big issue. All the relevant implementing and civic agencies are present in the big cities. Funds are also sufficiently available in these cities. The real issue is the lack of planning as data isn't available for the purpose. The population census also doesn't take place timely, and if it is conducted, its results become controversial. Water management and planning should take place while taking into account the water cycle.

EU: What are the main issues in water management in the country?

Mr Wattoo: We need to develop water resources. A number of agencies are also involved in the process of water budgeting and balancing in our cities having a major chunk of our population. These institutions include the Wapda, water supply agencies, WASA, and provincial departments of irrigation, agriculture, envi ronment, wildlife, forest, parks, and horticulture. These agencies don't work in an integrated manner for water budgeting and water balancing. They are also not aware of the water situation in upstream as they mostly do localized planning. That is why the process of water balancing and the cycle gets disturbed.

EU: What is your view viewpoint regarding Pakistan's water policy?

Mr Wattoo: Earlier, we don't have a water policy as it is now available as the same policy should be converted into laws, rules and regulations for the water sector for implementing the policy to resolve the issues of the water sector of the country.

EU: How important is the water quality issue?

Mr Wattoo: The water quality issue is often ignored. The quality of water available to us is highly unsatisfactory. The water supply lines of the major cities are polluted. Water supplied through them is unfit for human consumption as per the quality standards set by the WHO. People who can afford have been using bottled water. But the quality of bottled water is questionable. This is a very sensitive issue. But we will come to the issue of water quality after rectifying our water cycle, balance, and budget.

EU: Tell us about 100 dams project being built in Balochistan

Mr Wattoo: The Balochistan government has been undertaking the project of 100 dams. Its funding has been coming from the federal government. There is minimal availability of water in Balochistan. There are very less groundwater resources while the snow melt is also minimal in the province. This makes water a very costly commodity in this province. Thus, every drop of water is important for Balochistan.

Earlier, the Wapda used to build dams in the country but the reservoirs built by it were of large storage capacity. Provincial governments were empowered following the 18th Constitutional Amendment that empowered the provinces. Accordingly, the provinces were given the power to build small dams within their respective territories.

The Irrigation Department of Balochistan conceived the project and also carried out its feasibility. The project is supposed to get completed in 20 years. It has been divided into five packages. The construction phase of the project started in 2009. The first package of 20 dams was completed in 2013. The second package was completed in 2017. The third package of 20 dams was completed in 2021. The work on the fourth package has been in progress. So far, 60 small dams have been completed in Balochistan.

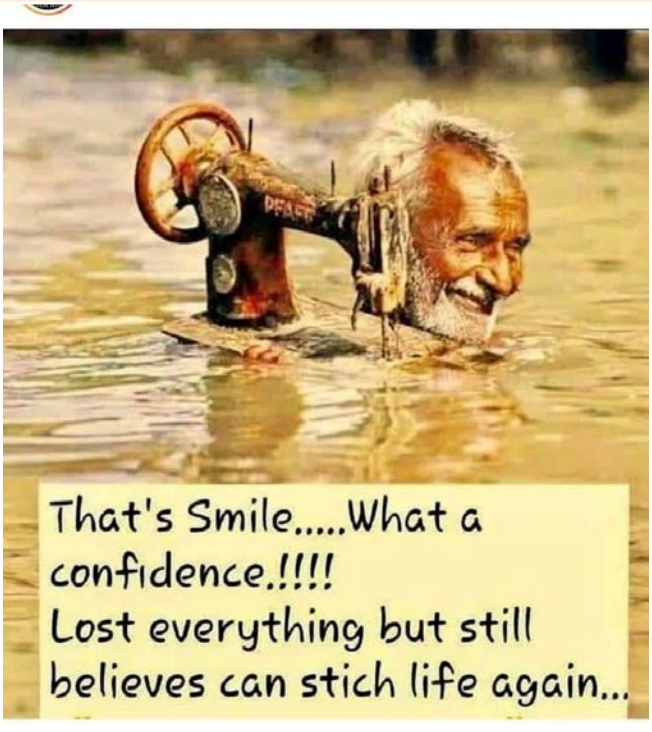
The project has been constructing an accumulative water storage capacity of 300,000 acres feet. These dams will store water of rains. The beauty of the project is that it is not just based on conventional engineering as it is more of a social type of project. The project covers all the districts of Balochistan that have the potential to build a water reservoir. This strategy was adopted so that no area of Balochistan should be deprived of this development. The dams have been built in all such districts having the potential to build water reservoirs as in certain districts more than one dam has been built.

EU: What are the various advantages of the 100 dams project?

Mr Wattoo: The implementation of the project means the process of development took place at a micro-level at 60 different sites selected to build dams. The economic activity takes place at a project site for a period of four to five years during the construction phase.

The people who live near the project's site get water for themselves and for their livestock. Then the same water from dams is used for farming purposes. The nomadic population of Balochistan also gets settled near a dam till water is available in it.

The dams also create opportunities of public recreation due to greenery. Fishing could also take place in the area. The project also creates jobs for the local population as training is also given to get skilled labour. Building a dam creates a sort of temporary economy in the surrounding area. So the project creates numerous positive social, environmental, and cultural impacts on the local population. The project is also cost-effective. ■



Rain, floods play havoc in Pakistan

In Sindh, over 1.5m houses damaged or destroyed, 88% of total nationwide; more than 1.2m hectares of agricultural land damaged

Special Report by Mansoor

Floods in Pakistan have played havoc, causing widespread loss of lives and property, mostly in Sindh province, where provincial as well as local administrations seemed to be unable to tackle the situation.

According to a report by the OCHA Humanitarian Advisory Team in Pakistan in collaboration with humanitarian partners by 9 September 2022, more than half a million more houses in Pakistan were reported damaged or destroyed in a week, with the National Disaster Management Authority (NDMA) reporting more than 1.17 million damaged houses and nearly 566,000 destroyed houses as of 8 September.

Sindh has been most affected by the heavy rains and flooding. Nearly 88 per cent of all damaged or destroyed houses – over 1.52 million houses – are in Sindh, and the province has also recorded the highest number of human casualties: 577 people killed and 8,321 people injured, out of a total of nearly 1,400 deaths and more than 12,700 injuries, including at least 496 children killed and nearly 4,000 children injured across Pakistan.

The NDMA reports that some 33 million people have been affected by the heavy rains and floods and has officially notified 81 districts as 'calamity hit' – 32 in Balochistan, 23 in Sindh, 17 in Khyber Pakhtunkhwa, six in Gilgit-Baltistan and three in Punjab. Some 664,000 people are reportedly living in relief camps – over 190,000 more than a week ago. Many more are reportedly living with host communities. UNHCR indicates that nearly 800,000 refugees live in districts notified as 'calamity hit' by the Government of Pakistan, including some 210,000 in Peshawar district in Khyber Pakhtunkhwa; 170,000 in Quetta, Balochistan; 77,700 in Nowshera, Khyber Pakhtunkhwa; and 71,500 in Karachi, Sindh. While continued rainfall and the submergence of some schools and learning centres inhibit full assessments, initial estimates indicate that 61 refugee village schools have been affected (26 in Khyber Pakhtunkhwa and 35 in Balochistan), disrupting education and learning for over 27,000 children.

Estimates indicate that over 1,460 health facilities have been affected by the heavy rains and floods, and the Health Sector reports that access to health facilities, healthcare workers, and essential medicines and medical supplies remain limited. Early disease surveillance indicates that tens of thousands of people are affected by diarrhoea, malaria, acute respiratory infections, skin and eye infections and typhoid. Initial reports have been received of increased dengue cases in refugee villages in Khyber Pakhtunkhwa, while an outbreak of acute watery diarrhoea (AWD) has reportedly affected 45 districts in Balochistan, Sindh, Punjab, Khyber Pakhtunkhwa and Islamabad Capital Territory.

FAO reports that over 1.2 million hectares of agricultural land in Sindh have been damaged, while in Balochistan 61 per cent of livestock keepers in assessed districts have already reported symptoms of transboundary animal diseases. Nearly 50 per cent of affected households in assessed districts of Balochistan earn their livelihoods by keeping livestock, with 36 per cent reporting losing at least one livestock asset, 46 per cent reporting damage to livestock shelters, and 29 per cent reporting loss of animal feed stock. NDMA reports indicate that around 500,000 livestock have been lost due to the rains and floods in Balochistan, representing 66 per cent of the nearly 755,000 livestock deaths reported nationwide. While daily rainfall has decreased since peaking two weeks ago, medium flood risk levels persist along the Indus River, between Sukkur and Kotri districts in Sindh and rising to high flood risk downstream of Kotri into the Arabian Sea.

On the Indus River in Khyber Pakhtunkhwa, the Tarbela Dam – the world's largest earth-filled dam – has been filled to its maximum conservation level of 1,550 feet (472 meters) for weeks, while the Chashma Barrage in Punjab province is only half a foot (0.15 meters) away from reaching its 649 feet (197 meters) maximum conservation level. Standing water continues to cover vast swaths of the country; satellite-detected water extents mapped by the United Nations Satellite Centre (UNOSAT) indicate preliminarily that at least 75,000 km2 of land in Pakistan analysed between 1 and 29 August appears to be affected by floodwaters, including some 48,530 km2 appearing to be croplands.

Supported by the UN and humanitarian partners, the Government of Pakistan is leading the humanitarian response for people in the affected areas. Of the PKR 70 billion (US$319 million) earmarked to assist flood-affected people, the Benazir Income Support Programme (BISP) has already paid out at least PKR 22.22 billion (US$101.24 million) to nearly 889,000 households as of 8 September.

Beyond financial support, the Government at the national and provincial level is supporting people in need with in-kind support, bolstered by Pakistan's Armed Forces, which fly helicopter sorties for search-and-rescue activities and to deliver aid to people in areas inaccessible by land. The Armed Forces have also been delivering food, water, tents, and medical services. To facilitate the import of goods needed for flood relief activities, on 30 August the Government exempted for 90 days all

customs duties on such goods certified by the NDMA or a Provincial Disaster Management Authority (PDMA), including for the humanitarian community. In Balochistan, the NDMA is leading joint damage assessment surveys in flood-affected areas, with 32 teams currently on ground in 31 districts of Balochistan and surveys already ongoing in 26 districts.

Local communities have been at the frontlines of the response in many of the affected areas, engaging in search-andrescue activities in the immediate aftermath of flooding and rain-induced landslides and building collapses, as well as providing food, shelter and other support. While precise numbers remain elusive at the national level, it is estimated that the majority of people displaced have been taken in by local host communities. This is borne out by the recent multisectoral rapid needs assessment (RNA) conducted in 10 flood-affected districts of Balochistan, which indicated that some 90 per cent of people displaced in the assessed areas were living with host families.

Madrasas (religious seminaries have been part of this response. Reports have been received of at least 50 madrasas that have been responding in Balochistan, Sindh, Punjab, Khyber Pakhtunkhwa and Gilgit-Baltistan, engaged in rescue efforts as well as other assistance. Aid provided by the madrasas reportedly include food assistance through food packs and cooked food; clean drinking water; housing and shelter; health and nutrition services, including for pregnant women; education support; protection and support for orphans and separated children; and support for livestock, including fodder.

Humanitarian partners are supporting the Government-led response, mobilizing to bring crucial aid and protection to people who need it. By 6 September, 26 international NGOs – members of the Pakistan Humanitarian Forum (PHF) – had directed some US$20.14 million towards flood relief activities, reaching more than 1 million people with aid. This comprises over 221,000 food rations; shelter assistance for over 29,500 people; NFIs for over 18,800 people; water, sanitation and hygiene (WASH) support for over 192,000 people; cash assistance for around 47,500 people; education support for over 10,300 people; and health interventions for over 525,000 people. PHF members responding to the floods are present in 32 affected districts across Balochistan, Sindh, Khyber Pakhtunkhwa, Punjab and Gilgit-Baltistan. Around 40 national NGOs – members of the National Humanitarian Network (NHN) – have reached more than 215,000 people. Active in 72 flood-affected districts, these national NGOs have evacuated over 4,400 people and provided more than 126,000 food rations, over 25,600 shelters, 6,786 cash grants, health services for over 12,500 people, and WASH services for 25,600 people.

Since the launch of the Floods Response Plan for Pakistan in a flash appeal on 30 August, which called for US$160.3 million to assist and protect 5.2 million people in need for 6 months, the UN has been scaling up its response to deliver aid under the challenging circumstances. The plan complements the wider Government response activities such as the individual cash assistance provided through the BISP, and focuses on supporting the most vulnerable communities with social and communal assistance.

The UN Central Emergency Response Fund (CERF) has contributed US$10 million towards the appeal through its Rapid Response Window, and the UN global fund for education in emergencies and protracted crises – Education Cannot Wait (ECW) – has committed a further US$2 million through its First Emergency Response (FER) Window. An allocation of US$10 million has also been released from WHO's Contingency Fund for Emergencies (CFE) to provide health assistance to flood-affected people and to prevent the spread of infectious diseases. Pledges of financial and in-kind humanitarian aid for people in Pakistan have been received from numerous countries, with many already delivering on their commitments and pledges.

As part of the wider UN response, UNHCR has provided 1.67 million emergency relief items to the PDMAs in Sindh, Khyber Pakhtunkhwa and Balochistan for distribution to people in need, and is planning to provide core relief items to 50,000 households and dignity kits to 300,000 women and girls of reproductive age. Sixty-five tons of lifesaving relief items have been brought in by UNICEF, including Interagency Emergency Health Kits (IEHK), midwifery kits, medicines, oral rehydration salts (ORS) and nutrition supplies, and are being delivered to people in need through a distribution plan jointly developed by the Ministry of National Health Services Regulation and Coordination (MNHSR&C) and UNICEF.

Government-led multisectoral rapid needs assessments (RNA) are currently being rolled out in Sindh, Khyber Pakhtunkhwa and Punjab, supported by national and international NGOs and the UN. Data collection in Sindh began on 9 September, following the completion of enumerator trainings in Hyderabad and Sukkur on 8 September.

In Khyber Pakhtunkhwa, a training-of-trainers was concluded in Peshawar for 18 trainers from NGOs and UN agencies, who will be further deployed to four different locations in the province to conduct enumerator trainings. The assessment in Punjab will also be initiated in the forthcoming days. A similar assessment was completed in 10 districts of Balochistan in August.

Education

.The Education Sector lead agency has mobilised over US$250,000 of prepositioned supplies for distribution in Balochistan and Sindh to enable the urgent resumption of education, including tents, School-in-a-Box (SIB) kits, recreational kits, blackboards, schoolbags, tarpaulins and facemasks. Sector members have supported nearly 7,000 children (46 per cent girls, 54 per cent boys) through Temporary Learning Centres (TLCs) established and operated in flood-affected districts. Nearly 5,200 children have also been supported through dewatering, cleaning and disinfection of schools, aimed at facilitating the resumption of educational and learning activities in safe and healthy learning environments. To accelerate the Education in Emergencies (EiE) response, the Education Sector Working Group is working to enhance the capacity of its members, including government entities, to conduct EiE planning and implementation across the country.

Food security and agriculture

Food Security and Agriculture sector lead agencies have provided relief food assistance and livelihoods support for nearly 410,000 people in Balochistan, Khyber Pakhtunkhwa and Sindh, with food assistance for up to 117,000 people in Sindh ■

Tackling Pakistan's energy crisis

Proactive approach to current energy turmoil is the way forward: Report

Zahra Niazi

An unprecedented energy crisis has gripped Pakistan. A supply crunch and an increase in energy prices have put persistent pressure on the economy, hurting the people.

For the sake of Pakistan's long-term economic development and the economic security of the country's 220.9 million citizens, policymakers need to now realize that only a proactive approach to the current energy crisis is the way forward. This triggers an important question about which path the state should pursue.

Cities are the dominant consumers of energy and are, thus, positioned to play a significant role in reducing energy demand. Research has revealed that appropriate urban planning and transport policies can reduce energy consumption in cities by 25 per cent by 2050, which is especially true for rapidly urbanizing Africa, Asia and the Middle East. This calls for compact urban form and transport planning for cities in developing countries, which is certainly also applicable to Pakistan.

A compact urban structure can take several forms - all of which centre upon achieving transport energy savings by encouraging public transportation usage or reducing the need for private car use. A 'concentrated decentralization model' emphasizes a shift away from monocentric to polycentric structures connected by transport corridors. While a monocentric urban structure involves concentration of a majority of the activity around a single urban pole, a polycentric design involves an urban form comprising several sub-centres incorporating all the necessary facilities and amenities.

Another almost similar model advocates for developing high-rise and high-density buildings and self-contained new settlements, providing easy access to services, adequate public space and widespread mass transit use. Similarly, a 'transit-oriented development' model emphasizes developing mixed-use and dense communities close to transit stations or transport interchanges.

With slight variance, these urban design models advocate for integrating transport and land-use planning, providing efficient public transport systems, prioritizing dense settlements, and creating mixed-use spatial units including buildings, blocks or neighbourhoods that incorporate a variety of facilities, such as residential, commercial, recreational, etc.

On a positive note, development of mixed-use and gated communities is a growing trend in Pakistan. Many new high-rise apartment projects have emerged, which accommodate greater population densities and offer a mix of facilities such as gyms, swimming pools, or shops. This is particularly true for major cities such as Lahore, Islamabad, Rawalpindi and Karachi.

However, a drive around these cities reveals that ideal mixed-use and dense spatial units exist but remain limited. Many communities incorporating mix-use functions are unplanned or poorly planned and do not provide safe and convenient pedestrian connections between community facilities, which are also mostly scattered. Additionally, the spatial distribution of those facilities remains highly skewed.

At the city level, most cities have been designed so that residential, commercial, educational, recreational, industrial, and administrative units remain separate and distant. Also, land-use planning does not appear to be integrated with transport planning, which itself remains far from perfect.

It is time for policymakers to prioritize urban planning, specifically development of compact urban forms. While this may not serve as a cure-all panacea for Pakistan's energy crisis, its potential impact on mitigating future crises cannot be disregarded either. It is also important to highlight that the models provide broad generalizations, and no one model can apply to all cities. In fact, many contextual variations need to be considered.

However, it is worth highlighting that compact development has not been absolved from criticism with regard to its potential drawbacks including, but not limited to, the linkage of high-rise and high-density buildings with an increase in urban heat island effect or air pollution, neighbourhood density with congestion, less liveability, overloaded sanitation systems, or health challenges, among others.

While these arguments are valid, the undesirable effects can largely be avoided. For instance, walls of high-rise and dense buildings can be converted into green vertical walls to provide a cooling effect. Liveability in dense spatial units can be enhanced by ensuring an equal spatial distribution of open spaces, engaging the residents in community events such as festivals or sports events, and the like.

The pursuit of compact urban development coupled with creative strategies to avoid its potential drawbacks is perhaps a necessity that needs to be earnestly recognized in Pakistan if we are to harness the potential of urban planning in guaranteeing long-term energy management. ■

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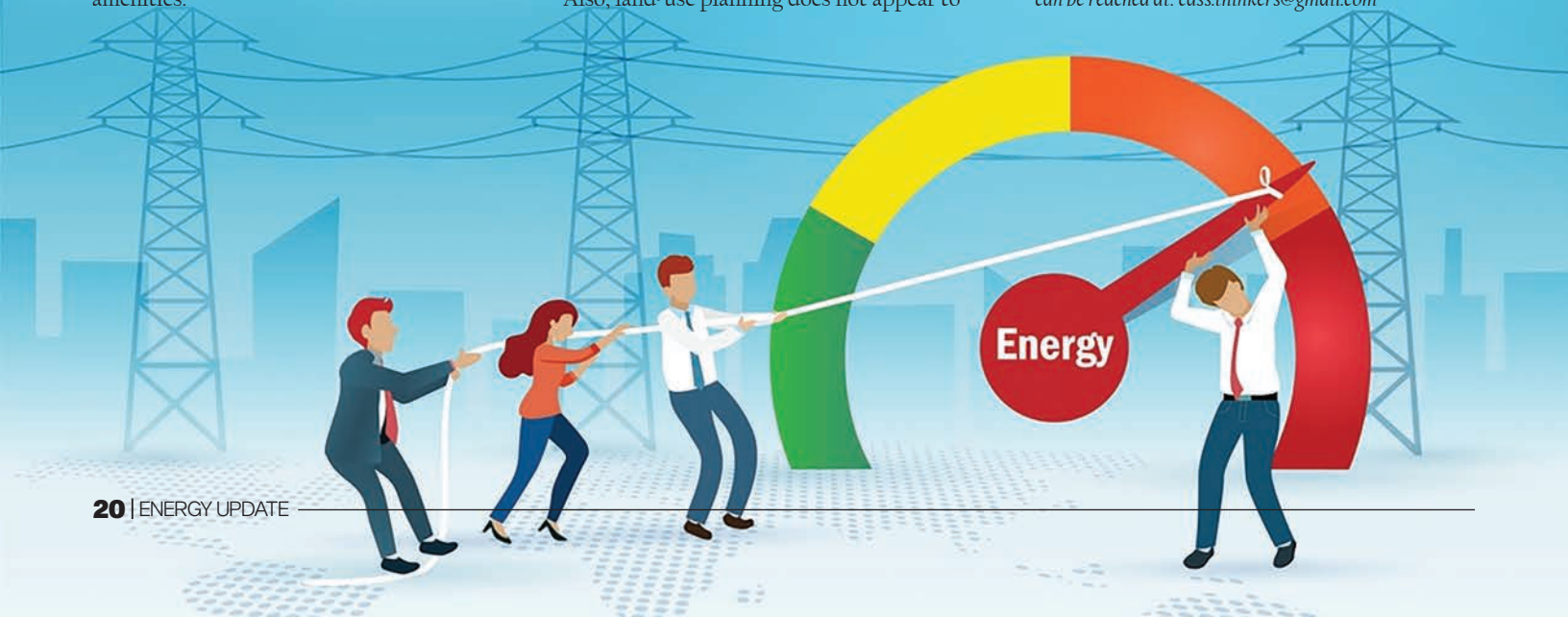


Begging for international assistance?

Naeem Sadiq

While nature unleashes its fury, it is a disaster supported by continued neglect of people and environment, of inability to make reservoirs and dams to store water and of extracting and diverting all resources and perks for a small group of callous ruling elite. Pakistan faced with unprecedented floods , now appeals (read begs) international donors for assistance. An assistance that will only be pilfered by the same elite that is the major collaborator of this catastrophe.

Why does Pakistan go begging for international assistance, while it has done nothing to curtail the luxuries, benefits, extravagance and decadence of its own governance, its own elite and its own politicians and bureaucrats.

Why could Pakistan not sell all its government vehicles, perpetually misused by officials, families and friends and use this money for flood victims. Just the 25,000 official vehicles owned by the Sindh Government alone could fetch Rs.50 billion. Sell another 25,000 television sets decorating the government offices and wasting the office time of already incompetent bureaucrats. Now repeat this for all four provinces. Giving up just these two redundant luxuries could bring in some 200 billion Rupees , that could take care of not just immediate assistance but also to some extent future rehabilitation.

Why have the Pakistani embassies in foreign countries not appealed to overseas Pakistanis or organised relief funds on their own? Why are Pakistani leaders like NA Speaker Raja Pervez Ashraf continuing to make despicable ceremonial foreign visits with large entourages, wasting Pakistan's precious foreign exchange? Why the one third of Pakistani police involved only in providing security to its worthless VIPs, not been diverted for performing relief duties?

Raise your voice. Government must stop ceremonial, aerial and demonstrative inspection visits to affected areas, cut down all its luxuries and extravagance, tell the entire government machinery to come out of its offices, and begin practical on-ground support of the drowning, disappearing and the dying. ■

The Bentley that defines the Pakistan of today

Naeem Sadiq

Pakistan is poor and miserable because its government, ministers and bureaucrats consist of and operate a gang of decoits, thieves and plunderers.

It was the British Secret agents who had to inform the government of Pakistan that a Bentley stolen from London was in fact parked at House 15-B, South 10th Street, DHA, Karachi.

The car was registered, using fake documents and under the table payments with complete connivance of the Excise and taxation department of the Sindh Government. Ironically the E&T department records show the Bentley was registered on the name of an unknown individual - Aleksandar Borison Parashkevov and was cleared by the CPLC. The government of Sindh was thus deprived of registration duty of Rs.307 Million, as shown in the FIR. The Bentley has also not paid any road tax for the last 2 years.

Had it not been for British agents, the stolen Bentley would not have been discovered. The Sindh Excise and Taxation Department is a plunderers' den that collects millions of Rupees every day, through such fraudulent means, while the booty is shared by the highest political and bureaucratic officials of the province. This draconian corruption, incompetence and mismanagement of the Sindh Excise and Taxation department, highlighted by numerous citizens for last 2 decades, has not made an iota of difference.

Perhaps a greater voice is needed to dismantle this entrenched gang. Could this event happen without the involvement of intelligence agencies, police and the Custom Department?

How to wheel power wheeling charges along

There are efforts from the power sector stakeholders to start moving towards deregulation of this sector. However, there are a number of issues that have to be resolved in order to make the plan feasible for all the players. Exclusivity of all power distribution companies (Discos), including K-Electric), is to end by July 2023.

Thereafter, other players would have the option to sell in the market. The puzzle to be solved is how to make it equitably viable for all. There are three different models that can operate. One is in areas such as Bahria Town and DHA City in Karachi where there is partial or no transmission and distribution system by Discos. In such areas, the area management is currently using a mix of K-Electric (KE) network and captive (self) generation.

Once the exclusivity of Discos ends, new entrants can supply. It is good to have competition to kick in because of a variety of reasons, including stranded costs or cross-subsidy elements. And in such areas where the supply is exclusively captive in the absence of any Disco, electricity bills of consumers are usually high due to inefficient plants and use of expensive fuels. There is an example in Islamabad where DHA City obtained a distribution licence and later surrendered it as the system was too complicated for them to handle.

According to the second model, in the areas of Discos' current operations, any third player could come in and compete in distribution business. Here the provisioning of transmission is to remain with the Discos or the government entities. For that, the wheeling charges are to be paid to Discos by new entrants for use of their distribution network infrastructure for distribution businesses. The impact of these costs is more visible here.

The third model is the CTBCM (competitive trading bilateral contracts market) model. In this case, there would be multiple sellers. Consumers can opt for short-term or long-term buying. Both capacity and energy can be purchased in the open market. But it appears to be a far-fetched idea. Till the time current PPAs (power purchasing agreements) are in place, this is not happening. Currently, no bank would finance any power plant without surety of buyers.

The beginning towards third-party participation in power distribution after ending of the exclusivity of the existing Discos would most likely be under the second model. And the dispute between the government and the regulator, National Electric Power Regulatory Authority (Nepra), is over wheeling charges.

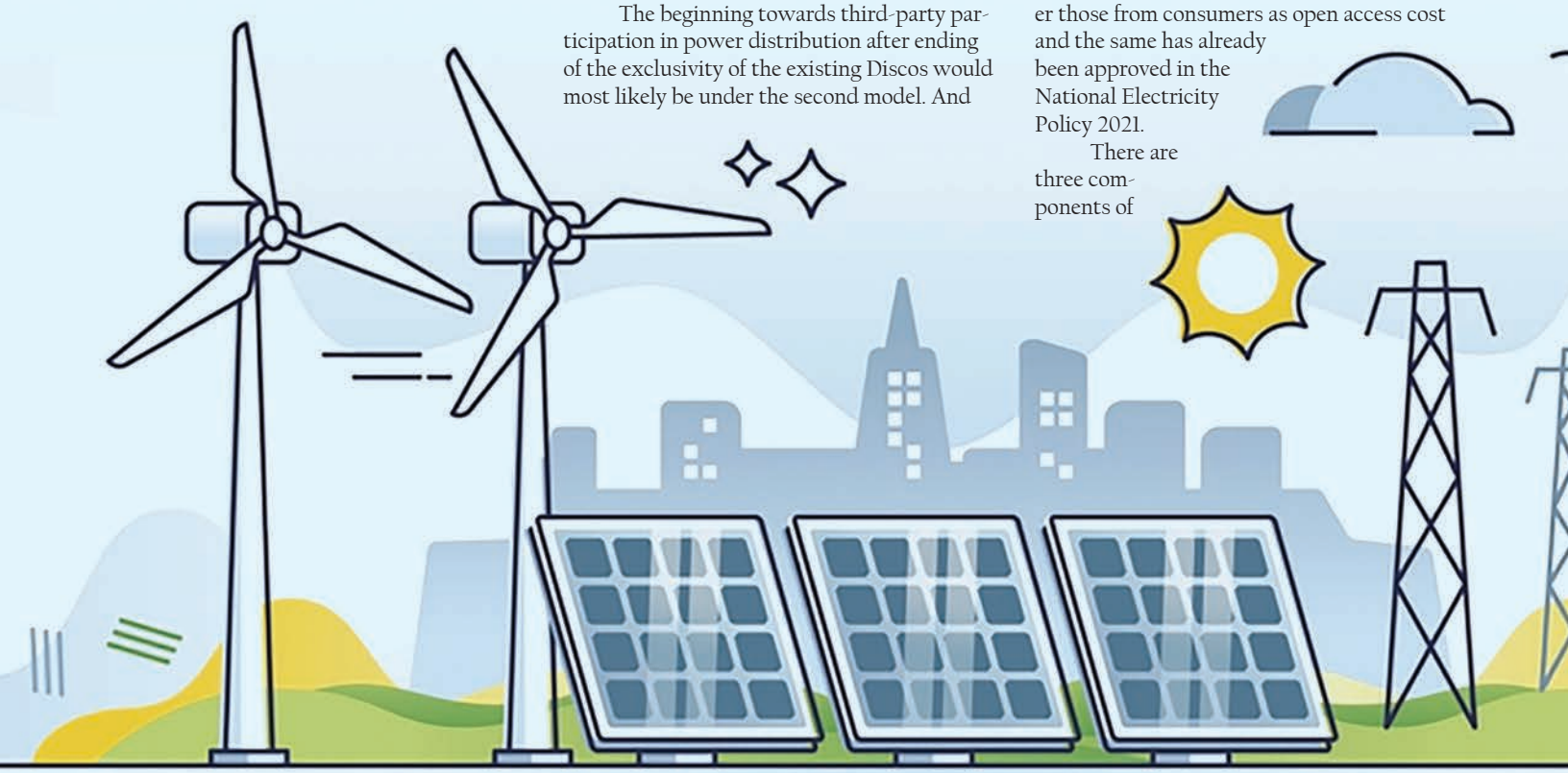
According to an exclusive report recently carried by this newspaper, the government is unhappy with "unfair" determination by Nepra on wheeling charges. The government's argument does carry some meaningful weight, so to speak, as Discos may become financially unviable if wheeling charges are kept too low.

But at the same time Nepra plausibly argues why good consumers should pay for the inefficiencies of the Discos. A mid-way solution is therefore warranted to push Discos to improve operational and financial efficiencies while cushioning them against the new challenges to their survival.

Globally, standard cost is either taken up by governments or passed on to regulated consumers or recovered from consumers moving to open access. Asking network operators like Discos, including KE, to absorb this cost has no precedence across the globe.

In Pakistan, since the government is fiscally strapped and regulated tariff is already unaffordable, the optimum solution is to recover those from consumers as open access cost and the same has already been approved in the National Electricity Policy 2021.

There are three components of



wheeling. One is charge of distribution assets. That is to recover the investment in wires and other infrastructure required for transmission and to cover the cost of maintenance of non-food consumables. That part is allowed by Nepra and is estimated at Rs 1.5-2/Kwh.

The second component is of stranded costs, which is the cost associated with the assets Discos have installed and erected in transmission system for providing certain load in an area. For example, if a Disco is supplying 500MW of power to an industrial area, it has invested in the grid infrastructure to provide the sanctioned load.

Now with wheeling opening, any new player can come up with solar or wind power plants and supply 100-150MW load. Consumer would take it, as the variable cost of new plant would be low and overall energy cost will reduce. However, for the Disco, it would be disadvantageous.

Why? The answer is it has invested for 500MW, and that cost is inbuilt in tariff to recover but the supply would be around 350-400MW and the remaining stranded cost would not be recovered. And consumers would want full sanctioned load as renewable supply is variable, with days of little or no supply. There is no recovery of differential load.

Even if the Disco reduces the sanctioned load to 350MW in that area, the cost is already incurred, and the existing assets would become redundant. Plus, it must maintain the assets. That makes the case of revising wheeling charges upwards somehow justifiable. But here Discos, including KE, should not brag about the investments that are ages-old and where the investment costs are already recovered.

The third component of the cost is cross-subsidy. The tariff is determined on the average cost basis. AT&C (Aggregate Technical and Commercial) losses are distributed amongst good and bad consumers alike as determined timely payments for electricity billed.

When new players come in, they would have a natural inclination to supply to good consumers and leave behind the bad ones for existing Discos. For example, in case of KE, industrial areas and residential localities such as DHAs and Clifton are likely to be picked by new players, leaving troubled areas behind in KE's basket.

That would increase the distribution losses and lower the recovery. Recently, the Power Minster has asked KE to modernise its system and conduct revenue-based load-shedding from transformer (PMT) level instead of feeder level.

The company should improve its losses in bad areas so that cross-subsidy element could be reduced. The bottom line is that the government is right in saying that the wheeling charges proposed by Nepra are too low and should be revised. Nepra is proposing Rs 1.5-2/Kwh while Discos are demanding around Rs 8/Kwh — an in-between figure should not be difficult to be agreed upon to set the ball rolling. ■

Courtesy Business Recorder

STRATEGY REQUIRED

Policy needed to balance resources, climatic change

Pakistan has been hit hard by climatic catastrophes

Mahrukh Khan

Pakistan is located in one of the most unpredictable climate change-affected zones in the world. According to the IPCC, it is the eighth most susceptible nation to climate change. Despite producing less than 1% of the world's GHG emissions, the country has been hit hard by climatic catastrophes over the last two decades.

The recent heatwaves in the country have heightened public awareness of the growing threat posed by climate change. International recognition of Pakistan's efforts to become a low-carbon society is a good sign, but there are still gaps in Pakistan's National Climate Change Policy (NCCP) and National Forest Policy (NFP). Understanding national constraints and priorities is essential before deciding on climate change policy. Additionally international commitments must also be given sufficient priority. Since the emphasis is entirely on mitigating and adapting to climate change, it is critical that the economy be linked to resource management as a policy format.

It was in 2012 that Pakistan drafted NCPP. This multi-sector strategy provides both adaptation and mitigation measures. NFP 2015 intends to increase and safeguard the country's national forests while also maximising their long-term usefulness.

Pakistan's efforts to combat climate change have been acknowledged across the world. The Billion Tree Tsunami project is widely regarded as a major triumph for Pakistan. Thanks to its rapid reforestation efforts, Pakistan is now the CoP21's sixth forest tiger. However, the million-dollar question is: is Pakistan's national context taken into account while formulating such policies? The response is quite ambiguous.

Mass afforestation operations, aimed at increasing forest cover, meet several difficulties since the accessible area that falls within the designated/legal category of forest is not completely delineated. Land use change, communal land, deforestation in protected areas and land grabs from protected forests are some of the key concerns for maintaining forest cover in the Guzara Forest Reserve in Pakistan.

Pakistan's efforts in the battle against climate change have been appreciated the world over. This has helped us project a more pleasing equation of ourselves. However, are we aware of the homegrown constraints when it comes to climate change?

We do have policies aimed at helping the poor. But the reality is that these policies do not reach the lower strata of society. Instead, the poor are solely employed as cheap labour, and no measures are adopted to help them better their lot. Pakistan is a developing country, and hunger and poverty are major issues for our people. Our efforts to combat climate change have improved, but policies that protect natural resources at the expense of human well-being are not in an adaptable mode.

Prompt incentives are needed to educate the people to prevent changes in land use and the sale of privately held forest areas. Pakistan needs to strike a strategic balance between its immense natural resources keeping in view climate change considerations. ■

Courtesy Express Tribune

Consumers don't use home automation despite many benefits

Haris Shahid
Director Orange Electric

Mustafa Tahir

Consumers in a third world country, like Pakistan, owing to financial constraints, don't use home automation despite that the latest option in the future will enable them to save a lot on their electricity bills.

This was stated by Haris Shahid, Director at Orange Electric, in an exclusive interview with the Energy Update. He talked about the past, present, and future of Orange Electric, the leading electrical products company in Pakistan. Following are the important excerpts from his interview for our readers:

Energy Update: Tell our readers about Orange Electric.

Mr Haris Shahid: Orange Electric is an international company. It is present in 50 countries around the world. We are producing all kinds of electrical products including switches, sockets, circuit breakers, lights, Internet, CCTV camera, telecommunication wires, home automation products, and electrical accessories. Orange Electric has a very wide product portfolio. We have been present in Pakistan since 2006.

Earlier, Orange Electric under a joint venture arrangement had been producing for an Australian company Clipsal from 1983 to 2004. In 2004, Clipsal was bought by a German company Schneider. After this acquisition, Orange Electric came into existence. Our headquarters are based in Colombo and Singapore.

EU: Tell us about your home automation services.

Mr Shahid: Home automation is a very common practice in Europe and in other western countries. Automation comes with glass touch panels and touch screen panels that could also be operated via a smartphone application. You could use this system from anywhere in the world. The main benefit is that you could save 20 per cent to 25 per cent electricity for a reduction in your monthly energy bill. The system comes with the option of weather sensors and energy-saving settings. Several energy experts in Europe did their case studies on this system proving that it enables consumers to save 20 to 25 per cent of their monthly electricity consumption. Home automation also provides a lot of convenience to consumers.

EU: Why people are not generally using the home automation systems in Pakistan?

Mr Shahid: We are a third-world and developing country so the phenomenal price difference between conventional electrical systems and home automation is the main reason that people generally don't go for this option. Every consumer has the desire to install automation products in their home and business but the higher price of the system makes this option

unfeasible. Several of our prospective clients do approach us for getting quotations for such systems, but at the end of the day, they go for the option of conventional switches because of the massive price difference. A regular plastic switch costs around Rs800 while the price of a glass switch is around Rs7,000 to Rs8,000. So the price, in this case, is 10 times higher. So the consumers don't go for this latest technology option as they opt for conventional switches. They don't foresee how much they are going to save on their electricity bills by using the latest technology as their immediate concern is the initial fixed cost of the system.

EU: What are the good practices of your company to protect the environment?

Mr Shahid: Orange Electric has established its own copper recycling plant in Colombo. This unit is very good for the cause of environmental protection. Then we do our best to maximally utilize recyclable technology in producing LED bulbs to minimize our carbon footprint. It is indeed a great achievement that we are using the option of recycling for producing copper for our own use.

Then we have a range of LED products that are called Eco LED bulbs because they are manufactured using the latest green technology. We do all such practices with the hope that our operations have a positive impact on the environment. Our factory in Colombo is in the midst of forest land. We have completely solarized our factory as it is now more like a solar park. It is no more dependent on conventional sources of energy.

EU: In which countries the products of your company are mostly produced?

Mr Shahid: The range of glass switches for the home automation systems comes from Belgium. The rest of 80 per cent of the products are coming from Colombo. Internet, telecommunication, and CCTV camera wires come from Taiwan.

EU: Do you have any plan of setting up any unit for local production of electrical products in Pakistan?

Mr Shahid: We are in the process of establishing a factory in Raiwind near Lahore for assembling LED lights and power cables. Earlier, the government introduced a very good policy for LED bulbs by withdrawing the duty on them. It is necessary to switch from the normal bulb to the LED bulb for energy conversation. LED bulbs consume less electricity. The duty on it once again has been increased to 70 per cent to 80 per cent. So it is no more a feasible option. We have brought new assembly machines for our plant from Germany. The factory will be built in the next two months for local production of LED bulbs and power cables.

EU: Tell us about your share in the Pakistani market.

Mr Shahid: We are among the top three Pakistani companies that produce electrical switches and sockets. Other companies offer six months or at the most a one-year warranty on their electrical products whereas we are the only Pakistani electrical products company, which gives a lifetime guarantee. Free replacement offer is a big attraction for our consumers.

EU: How the operations of your company are going to benefit the national economy?

Mr Shahid: Employment opportunities will be generated by the factory we are setting up. Local people will mostly get these jobs. People in the semi-rural area in the surroundings of the factory will be mostly employed by us. We will take care of our labour and staff by offering them the best salary packages including bonuses. This is the way we are going to benefit the national economy.

EU: What is your opinion about the government's policies for electrical companies like Orange Electric?

Mr Shahid: The main issue is that the government's policies for our sector lack stability and consistency as they are very unpredictable. The government shouldn't introduce such policies, which last only for a few months. Owing to such policies, up to 80 per cent of shipments of several businesses have been stuck at the port for the past couple of months. These shipments have been withheld at the port despite they don't consist of items whose import has been banned by the government. The shipments comprise products whose import is allowed. The concerned importers have no option other than keeping paying demurrage for these shipments at the port. ■

Pakistan - A Sinking Ship?

Usama Awais

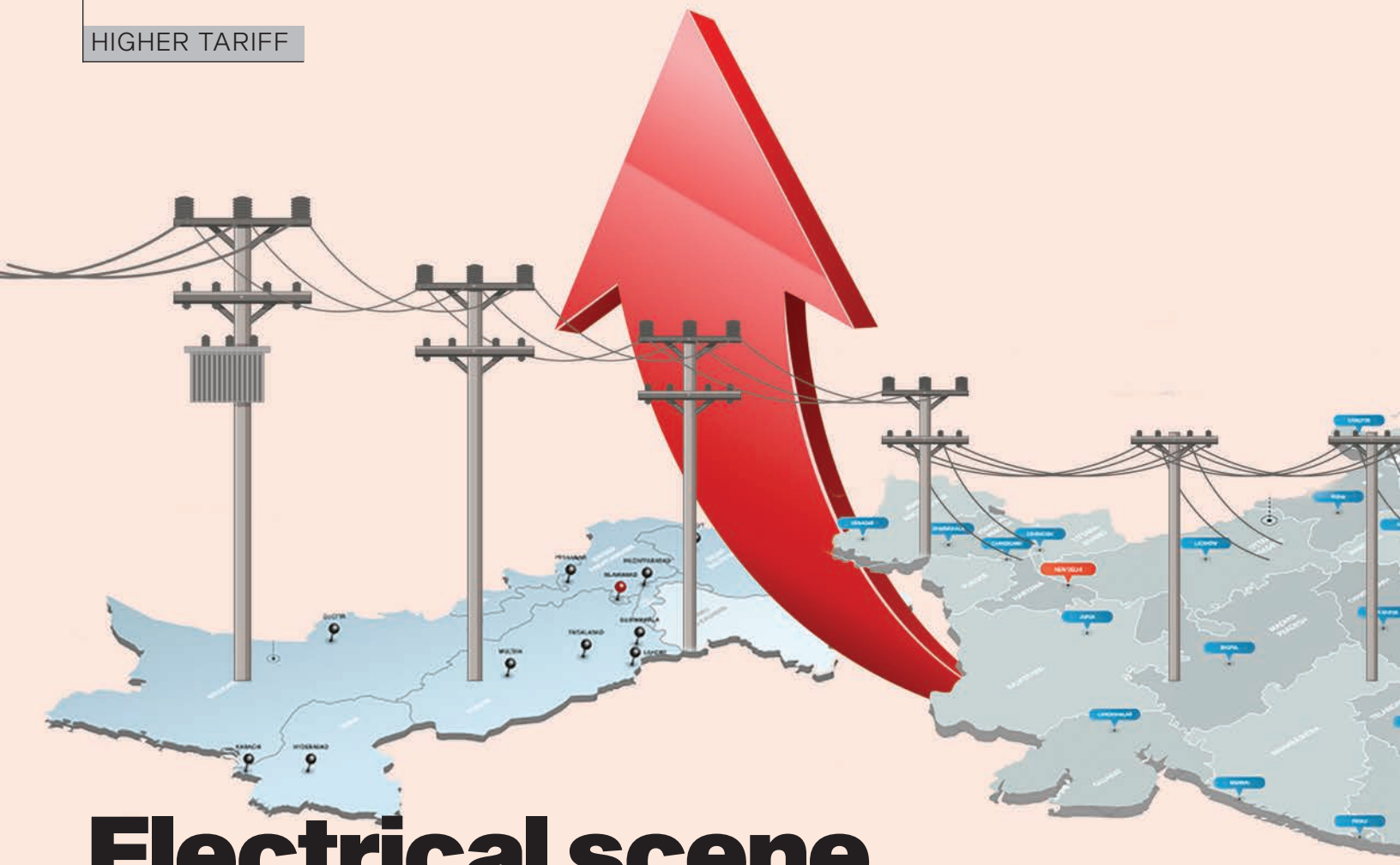
From the recent flooding and one-third of the country currently under water, it is evident how severe the impacts of climate change are for Pakistan along with the huge economic cost. It is making the headlines across the country that Pakistan is one of the least contributors to the global GHG emissions (< 1% of the total share) but at the same time is one of the most affected countries to climate change (ranked 8th on German Watch's Global Climate Risk Index 2021), however, while mentioning that, we sometimes overlook the underlying factors leaving us in such a devastating state that includes weak institutional structures, lack of policy instruments and policy implementation towards climate change and energy, weak early warning systems, lack of technical and financial capacities of relevant departments and dissociation of public and private sector and academia in devising climate change adaptation and mitigation strategies at a local level etc.

To address the persistent climate change induced disasters in Pakistan, a timely and holistic shift towards sustainable development is a must and just energy transition is one of its cornerstones. Apart from that, we should equally focus on the energy efficiency of our systems and the adaptation measures to address climate change in Pakistan.

Considering the Nationally Determined Contributions (NDCs) of Pakistan under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC), Pakistan has an ambitious (often assumed as unrealistic) target of 30% of its energy produced by Renewable Energy (RE) sources by 2030 where only 4 percent of Pakistan's total installed power generation capacity comes from renewables (wind, solar and bagasse), according to National Electric Power Regulatory Authority's (NEPRA) yearly report in 2020.

Moving towards the energy transition, the government is currently heavily focused on the expansion of solar PV and Pakistan has an enormous potential for solar based energy production, however, it being the agricultural country should simultaneously work on exploring the untapped potential of biogas energy that could further accelerate its achievements on SDGs 11 (Sustainable Cities and Communities in terms of Solid Waste Management).

Lastly, this energy transition wouldn't be accelerated without continuous private sector engagements and of academia along with providing an enabling environment for RE installations with consistent policies as often in Pakistan, the lack of enforcement of policies dents the acceleration towards cost effective, energy efficient and sustainable solutions in many cross-cutting sectors. The same stands true in addressing the recent calamities in Pakistan including severe floods and heatwaves. It would be advantageous to have financial assistance from international donors/development partners and claim compensation under UNFCCC's "Loss and Damage" to respond to such disasters, however, this won't be a long-lasting solution without addressing the deep-rooted governance challenges toward climate resilience in Pakistan. ■



Electrical scene in South Asia

Pakistan's maximum power tariff 40% higher than India

Syed Akhtar Ali

Many people in Pakistan are wondering as to what is the situation in the region in terms of energy supplies and prices. We will try to provide a rough comparative sketch of the energy scene in South Asia involving Pakistan, India and Bangladesh. India is comparatively rich in terms of energy resources – coal, hydro and solar. These three resources based electricity is the cheapest in India where coal produces 204,080 megawatts, hydro 46,850MW and renewables 11,065MW, totalling 399,496MW.

It has been mostly self-sufficient in these resources. However, lately there are local coal supply issues as compared to demand and it has to import coal from abroad. Imported coal is being mixed with local coal with a cost penalty of 30% in the cost of generation.

India imports gas in the form of liquefied natural gas (LNG), which is expensive these days, however, there is hardly any electricity generation based on gas.

By 2014, in Indian rural areas, load-shedding used to be of 10-12 hours. Average power shortage was 17-20%.These days there is power surplus with an installed capacity of 400 gigawatts (with a renewable share of 158GW) against demand for 210 GW.

There shouldn't be any load-shedding in India due to both enough supply and having local fuel. However, in April, peak demand in India was 207.1GW and the supply was short by 10GW, which means about 5% load-shedding or 1.25 hours of average load-shedding per day.

Average AT&C losses in India are 22%. There is a large variation in this among states – least loss states are Delhi, Kerala and Punjab, where losses are around 10%. Bihar has 30% losses, UP 33% and occupied Kashmir 50%.

Bangladesh and Pakistan seem to have an identical syndrome – high installed capacity and low fuel availability due to higher prices. It had to approach the IMF as well due to the current account deficit created by heavy and expensive energy imports.

Although averages may be deceptive, the Indian average tariff for large customers is Pakistani Rs23.38 per kWh and for small consumers the average is Pakistani Rs10.70 per kWh.

Median/ typical maximum tariff for residential consumers in India is Pak Rs25 per kWh, which is in Mumbai, Andhra Pradesh and West Bangal.

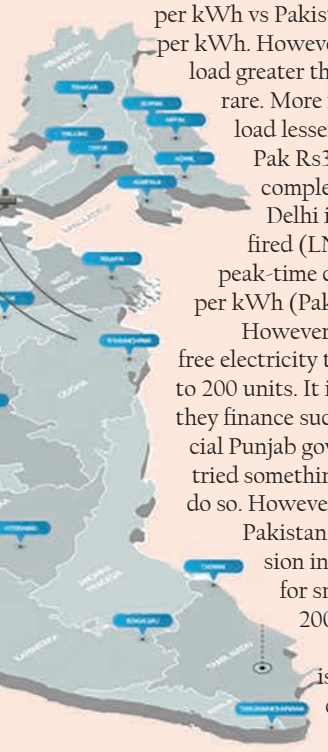
Compared with the corresponding Pakistani tariff of Rs32.77 per kWh, Pakistan's tariff is 31% higher than that of India. The lowest maximum tariff in India is in Delhi and UP at Pak Rs17-18.68 per kWh. Thus, there is a rather wide range between the maximum and minimum – Pak Rs17.10-34.75 in the large consumer slab and Pak Rs5-16 in the small consumer slab.

Similarly, the minimum tariff in UP, West Bengal and Bihar is in the range of

Pak Rs14.44-16.05 per kWh. In Mumbai, the minimum tariff is Pak Rs8.37-11.89 per kWh. The lowest minimum tariff in India is in Andhra Pradesh and Haryana at Pak Rs5-5.25 per kWh.

Residential electric tariff of Maharashtra and Pakistan are identical – Maharashtra's highest tariff for (700 units plus) is Rs34.75 per kWh vs Pakistan's Rs32.77 per kWh.

Similarly, the minimum tariff (200 units and lower) for Maharashtra is Pak Rs12.39 per kWh vs Pakistan's tariff of Pak Rs13.41 per kWh. However, this slab is for the load greater than 5kW, which is rare. More relevant rate is for the load lesser than 5kW, which is Pak Rs3.45 per kWh. India's complexity is mind boggling. Delhi is supplied from gas-fired (LNG) power plants whose peak-time charges are Indian Rs20 per kWh (Pak Rs52.62).

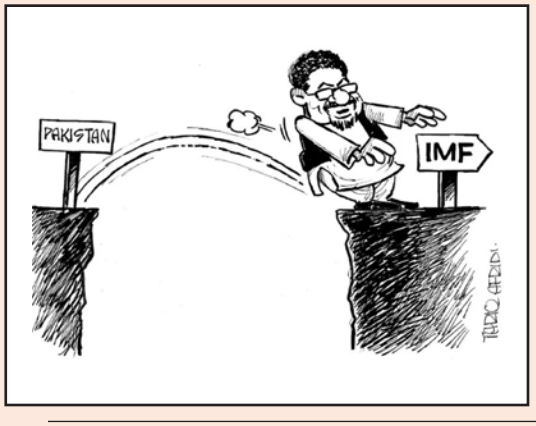


However, they are able to supply free electricity to small consumers up to 200 units. It is anybody's guess how they finance such subsidy. The provincial Punjab government in Pakistan tried something similar but could not do so. However, the government of Pakistan has announced a remission in fuel adjustment charges for small consumers up to 200 units.

Concluding, India is the least cost country due to mostly local coal-based electricity and hydro. There is subsidy and accumulated DISCOM losses, which has enabled India to keep a low tariff. India has practically not much of a problem with electrical tariff as compared to Pakistan and Bangladesh.

Pakistan's circular debt is a form of unpaid subsidy and may continue to be there on books, in one form or the other, for a long time to come.

Floods have further complicated the problems. Induction of cheaper renewables and local Thar coal and higher capacity utilisation appear to be the near-term solutions towards alleviation of high tariff difficulty. Pakistan's electricity tariff problems are getting increasingly intractable, now with the floods in particular and the political instability. ■



POWER PROFITEERING

Rising electricity tariffs: a fact-sheet

Pakistan selling one of world's most expensive electricity to consumers

Farhat Ali

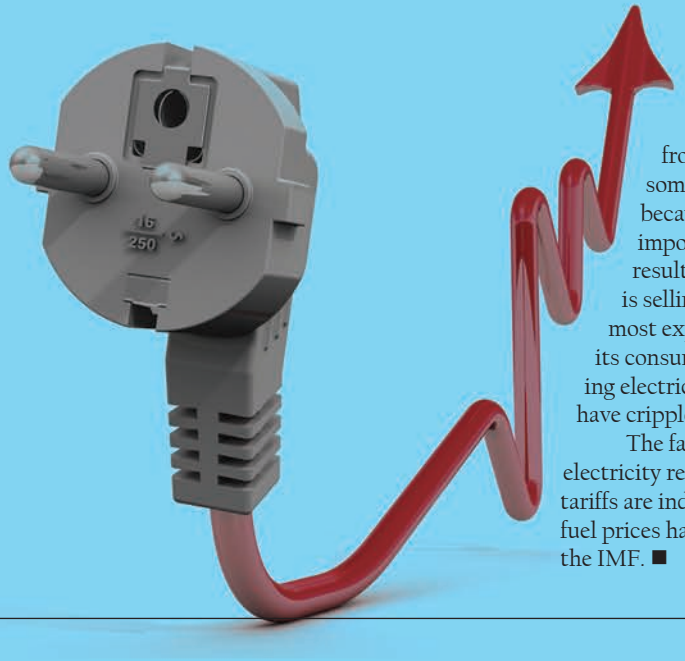
The International Monetary Fund (IMF) conditionalities imposed with the grant of their loan is invariably cited by the incumbent government as the reason for an unending increase in prices of petroleum products and electricity tariffs in the country. This is only true to the extent that the IMF dictates that the prices of the two be charged on real cost basis and passed on to consumers as per actual. It forbids subsidies which generate or add to circular debt as subsidies severely distort and compromise the country's fiscal strength.

The IMF condition has merit and makes a greater business sense. Most of the stable and growing countries successfully follow this model. The truth and the main reason, which no government in Pakistan makes transparent, is the nation's addiction to subsidies - which is largely driven by vote politics, corruption and incompetence in the entire supply chain of oil and utilities. From the lowest to the highest cadre engaged in the system, all are part and beneficiary of it. The IMF refuses to condone this fault line in our system and rightly so.

In these unusual and difficult times, the rising global oil and gas prices have affected many economies, including Pakistan's, around the globe. Hikes in energy prices have contributed to Pakistan's woes. Many growing economies have taken pre-emptive measures to minimize the impact of rising prices to insulate their industry and businesses from hike shocks. The electricity tariffs in India average out to US $ 0.075 per unit for households and US $ 0.103 per unit for businesses for the FY 2021-2022, which will continue for the FY 2022-2023 as well. The world average is US $ 0.103 for households and US $ 0.129 for businesses.

India since long has been working on a strategy to shift from fossil fuels to renewable energy. It built massive dams on various rivers, including the Indus, and expanded its indigenous wind power and solar industry to make it affordable. It earlier sourced its oil largely from Iran at discounted rates and following the Ukraine crisis it is also sourcing oil from Russia at a bigger discount. India bypassed the embargo imposed by the West on Iran and Russia and without attracting any consequences.

Pakistan did not do what India did to support its people and industry in providing them with affordable electricity. Pakistan's half-hearted strategy for shift to renewable energy did not gain ground. Only in recent years did it embark on mega hydro projects and is struggling with their timely completion, notably, projects under the CPEC (China Pakistan Economic Corridor). Pakistan's wind and solar power induction into the grid was frustrated by vested interests and crass official incompetence.



Pakistan continues to procure oil from the Middle East at market rates; and it never attempted to source readily available cheaper oil from Iran and now to some extent from Russia because of the embargoes imposed by the US. The result is apparent. Pakistan is selling one of the world's most expensive electricity to its consumers. The ever-increasing electricity tariffs in Pakistan have crippled country's industry.

The fault lines in Pakistan's electricity regime and the resulting tariffs are indigenous. The rise in fuel prices has not been dictated by the IMF. ■

FUEL PRICE CHALLENGE

Govt needs to concentrate on collecting fuel taxes

Sarfaraz A Khan

The petroleum industry in Pakistan has the potential to grow substantially but the long-standing issues of excessive regulation and government-controlled fuel prices have held this industry back, which I explored in my previous column.

Prices of fuels like petrol and diesel must be fully deregulated. Instead of determining prices, the government should concentrate on collecting taxes from fuel sales to meet its revenue targets.

In a market where prices are determined by supply and demand, there won't be any perplexing and unexplained deviations in price formulation that may eventually hurt the consumers, as we've seen recently.

In its latest price revision, the Oil and Gas Regulatory Authority (Ogra) unexpectedly increased the petrol price, and the delayed impact of exchange rate might be one of the key factors.

When setting prices of petrol, diesel (HSD and LDO), and kerosene for the first fortnight of August (August 1-15), it would have been normal for Ogra to incorporate the effect of average exchange rate in the second fortnight of July (July 16-31).

Instead, for some unexplained reason, it appears that Ogra included the average of all the required days, except the last two working days when the exchange rate was rather high.

Those two days, however, didn't just disappear in thin air. When setting prices for the second fortnight of August (August 16-31), the government may have lumped those two days of July together with the first fortnight of August to get the average exchange rate.

Those additional two days may have played a role in pushing prices higher, thereby dashing consumer expectations. Time and again, we have seen how government's interference in the mechanisms of fuel market ends up creating more problems than solutions. Sometimes, it can backfire spectacularly, as we've seen with the price differential claims (PDC).

PDC, which was added by the PTI government in the pricing formula in its final days and initially continued by the PML-N government, was essentially a subsidy meant to artificially keep fuel prices low. But a blanket subsidy of hundreds of billions of rupees wasn't something Pakistan could afford. Not surprisingly, it ended up hurting the nation's financial health.

In this context, the authorities would be well advised to step back and let the "invisible hand" of the market do its work. In a free-market situation, oil companies should compete fiercely with each other, guided by their self-interest of maximising profits.

But in doing so, to quote Adam Smith, often called the 'Father of Economics', the oil companies will promote the "interest[s]" of "society more effectually" than they intended to.

Opponents of deregulation, however, fear that this could push fuel prices higher, particularly in remote regions or rural areas that have a few petrol pumps. Although this concern is justified, the adverse effects of deregulation will likely be transitory and short-term in nature.

Suppose there is just one petrol pump in a hypothetical village. In a deregulated market, the owner of that pump, seeing no threat from a competitor, could start charging an exorbitant price for fuel. But they can't do this for long.

Over the long term, in a free-market system in which the government encourages competition, a new petrol pump will prop up to take advantage of high profit margins. This increase in competition will bring prices down while the regulator will make sure no collusion occurs between the rival pumps.

Rather than just the remote villages, a nationwide rise in competition will likely be seen in the petroleum sector. The deregulation of fuel prices will lure investors to this industry and we might witness a rise in the number of petrol pumps and increase in oil refining capacity to feed these new retail locations.

As a consequence, in the above-mentioned example, even if no one establishes a new petrol pump in the remote village, additional retail outlets will still open on the highways and cities located nearby, thus giving more options to the villagers.

Gains won't be limited to the petroleum products' retail and oil refining industries. Petroleum infrastructure and transportation (midstream) industry will also benefit. In a deregulated market, the inland freight equalisation margin (IFEM), which is a component of fuel prices and is used to keep POL prices uniform throughout the country, will also get scrapped. ■

Courtesy Express Tribune

PAINTING:
"The arrival of the electric bill."
Oil on canvas.

Climate change and food security paradigms

Food productivity at risk due to agriculture land use for non-cultivation

Dr Shuja Ahmed Mahesar

Climate change is endangering the existence of humanity on earth through its devastating effects including drought, desertification and excessive floods. It is affecting global food security by decreasing agricultural productivity.

Consequently, world's food system remains incapable of meeting the needs of growing population. Currently more than 821 million people have been identified as undernourished due to chronic food scarcity. According to Food and Agriculture Organization (FAO), more than 1,850 million people have no access to quality food. Unavailability of food has caused micronutrient deficiency among one billion people.

Most people in poor countries are unable to get nutritionally balanced diet which causes several deficiencies and weakens immunity against diseases. Further, food inflation is soaring, and the US dollar is getting stronger than currencies of most developing countries by pushing them to a dangerous situation of bankruptcy causing widespread unemployment, poverty and hunger.

In our country, agriculture offers bleak picture of food security and Pakistan's climate sensitive regions are becoming incapable of achieving productivity targets and their vulnerability is being increased by deforestation, dwindling freshwater supplies, groundwater depletion and ecosystem damaged by extreme weather events including heatwaves and heavy floods. Moreover, an ominous trend of using agriculture land for non-cultivation purpose puts future food productivity at risk.

These complex issues associated with climate change have contributed to growing hunger in our country. Thus, ensuring that people have access to healthy food is an enormous challenge at national, regional and global level. According to World Food Program (WFP), there is growing food insecurity in the world — 41 million people are on the verge of famine. Pakistan ranks 92nd among 116 nations worldwide on the Global Hunger Index (GHI) 2021.

Food situation in Pakistan is going from bad to worse because of climatic apocalypse. Pakistan ranks among the top ten countries most vulnerable to climate stress, according to Global Climate Risk Index 2021.

Pakistan claims to have the most extensive irrigation system in the world catering to a command area of 35 million acres. Several water engineering projects were undertaken during the colonial and post-colonial times to establish the world's largest gravity-driven irrigation network on the Indus. Nevertheless, Pakistan faces many challenges — such as numerous policy and operational problems, irrigation subsidies, cost recovery and inequitable water distribution — due to the absence of good water governance policy. Consequently, planning about how water should be wisely used is missing.

Pakistan is one of the most populous countries in the world. Feeding Pakistan's growing population is a formidable challenge. According to WFP, 43% of Pakistanis are food insecure, 18% of whom are facing acute food shortage. In Pakistan, agriculture is a major contributor to food needs and rural employment. However, its performance remains dependent on climatic conditions. Variation in climate affects the agricultural productivity which results in increasing food insecurity and affects Pakistan's export sector.

Thus, bringing change in crop patterns by adopting climate-friendly crops, soil refreshing techniques and heat-tolerant seeds is indispensable for handling climate effects. Farmers should be encouraged through establishment of good market facilities and financial incentives for switching over to non-traditional way of cultivation, crop diversification and climate-smart farming.

The ruling parties fettered by political compulsions are reluctant to devote their attention to land reforms, irrigation development, transfer of green technologies from developed countries, formulation of farmer-friendly agricultural policies, and leading the change in pursuit of green political ideals to deal with irreversible change in climate.

Government can tackle worsening effects of climate change by protecting atmosphere through slashing carbon emissions under decarbonisation campaigns, including abandoning use of fossil fuels in industry and transport and power generation. Considering the importance of clean environment for producing nutritionally balanced food crops; plantation drives and adoption of modern techniques of recycling and waste management should be encouraged to deal with the issue of environmental pollution.

The government must preempt the flooding and start 3-R activities of rescue, relief and rehabilitation for flood victims. It must put a ban on export of wheat and maintain strong checks on smuggling of food to neighbouring countries to save its population from hunger and avoid harrowing situation that may bring the country close to crisis beyond its control. ■

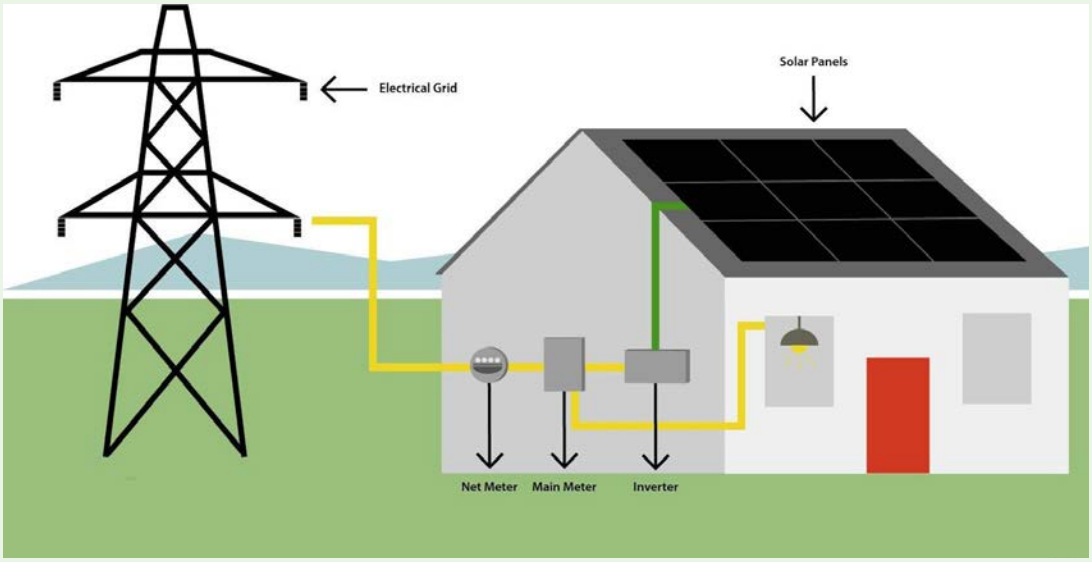
Courtesy Express Tribune

Solar installed houses to pay more to Wapda; Nepra amending rules

Pakistan's renewable energy mix is at risk of falling apart as the country's top electricity regulator plans on charging fees for supplying electricity to WAPDA via net metering.

The National Electric Power Regulatory Authority (NEPRA) is looking to amend the Distributed Generation and Net Metering Regulations, 2015, to reduce the payment for distributor generators of net metering by nearly 30 percent.

Users supplying power to WAPDA via net metering would likely suffer a 20 percent loss, while some consumers may now be required to pay the bill.



The following are the salient features of the proposed amendments to solar energy:

- Single-stage, two-envelope bidding
- Straight-Line tariff
- 70 percent dollar indexation of tariff
- Benchmark tariff by NEPRA
- Guaranteed purchase of power
- Land and interconnection to be provided by the government
- Exemption on all import-related duties and taxes
- The existing Energy Purchase Agreement (EPA) and Implementation Agreement (IA) will be used
- COD within 12 months of EPA signing
- Term: 25 years on a BOOT basis
- 15 percent income tax
- Payment guaranteed on 60th day after invoice through Bank Debit

According to details, NEPRA has already requested public feedback on the proposed features until end-September, after which the law is expected to be finalized. The regulator's move has discouraged both existing and prospective net metering applicants instead of incentivizing renewable energy into expensive imported fuel-based thermal generation systems.

Several dozen consumers have already complained to NEPRA to express their displeasure with the proposed amendment to its rules, which they describe as a disincentive to the use of solar energy in the country.

The Pakistan Solar Association has also expressed its reservations over the notice issued by NEPRA last month, according to which the electricity supply companies will now buy the electricity supplied from the homes of solar consumers at a lower price.

Notably, a notification was issued by NEPRA on August 24 which was also published in newspapers. The notification essentially states that NEPRA is amending the Renewable Energy Rules i.e. Distributed Generation and Net Metering Regulation, 2015 under which solar consumers will now be charged the national average price of electricity instead of the national average price of energy per unit. The authority has sought public feedback on it within 30 days, after which NEPRA will finalize the drafting the law.

Waqas Musa, a member of the executive committee of Pakistan Solar Association revealed that with the new amendment, consumers who generate electricity from solar panels will face difficulties because the price of electricity generated by them will be reduced by 10 to 20 percent.

Flood delays Mohmand Dam by one year

Mohmand Dam's cost overrun is estimated to increase by Rs20-25 billion

In the wake of devastating floods, the Mohmand Dam's completion, which is under construction in KPK, has been delayed by one more year. Its cost overrun is estimated to increase by Rs20-25 billion. This is because the coffer dam constructed for diversion tunnel had breached when the Swat River faced high flows after unprecedented heavy rains, senior officials at WAPDA and Ministry of Water Resources said. With the breach of cofferdam, the under-construction diversion tunnel also sustained huge damage. According to the PC-I, they said, the Mohmand Dam was to be completed and commissioned in December, 2025 at the cost of Rs311 billion. But because of the flood that also hit the coffer dam and diversion tunnel, the cost of the project is estimated to increase by Rs20-25 billion following the cost escalation to be incurred on purchase of material and required items during the period of one more year. The construction work on the dam began on September 20, 2019. Once the Mohmand Dam gets completed, it will not only help mitigate floods' adverse impacts but will also help irrigate 16,737 acres in KPK. Apart from it, the dam will also generate cheaper electricity of 800 MW.

Energy challenges

Turning around energy sector

Dr Tariq Khan

A 25-member body of experts suggested government through an open letter on energy sector problems and a set of comprehensive solutions. The experts belong to the energy sector comprising of practitioners and academia. The paper reported that the experts covered six prominent areas such as: Overhauling governance and building institutional capacity; Energy conservation; Harnessing indigenous resources; Electrification of energy use; Energy efficiency and removal of price anomalies; and Deregulation and privatisation.

These are crucial areas. More importantly, the suggestions are pointing in the right direction. Pakistan can't overcome its energy crises in the long run unless it implements the measures suggested.

The experts have rightly pointed out that the energy sector is holding back Pakistan's economy and is a cause of imbalances in the current account and foreign trade. They have rightly pointed out that we landed in a mess due to misguided policies in the past.

To be fair to policymakers of the past and present, the critique launched by experts though ideally correct, has ignored some fundamental realities. The management systems in a country do not work in isolation. These cannot be separated from the overall economic and political milieu.

Let us dissect all the suggestions the experts give and see the underlying economic and political factors shaping the energy system in Pakistan. The suggestions given by experts would automatically come into practice once the underlying economic and political constrains are removed. Without addressing the economic and political constraints, we can't move significantly ahead in reforming the energy system.

The number one (1) area of governance and institutional capacity pointed out by experts is no doubt crucial for reforming the energy system. However, bringing efficiency and professionalism to regulatory and energy managing organisations has a financial and political cost.

The political government is mostly in a precarious condition under attack by opposition and courts and can't afford to open other fronts. Unless there is a deep urge for reforms in the system, including in opposing forces and a powerful government, the constraining economic and political factors will always trump reforms.

The second proposal (2) about energy conservation is sound and highly effective in the short run due to the unbearable energy import bill in dollars. We have seen that formula presented by Finance Minister Mifta Ismail has worked in curbing imports and has brought down import bills.

In the long run, energy conservation is always at the cost of hindering growth. Conservation's economic and political price is not desirable in the long run, though in short run it is advisable.

The third proposal (3) about using indigenous resources is highly consequential. If fully acted upon, it will not only solve balance of payment issues. Still, it would provide a reliable, stable stream of energy compared to fluctuating prices and the supply of international markets. Indigenous resources would positively impact our economy in the medium term. We would have to integrate with clean and green global energy sources in the long term. A focus on creating indigenous resources will solve nearly all our energy-related problems.

However, this has an initial financial cost and huge investments are required by the public and private sectors with uncertain rates of return. It will also ensure a struggle against the fossil fuel system that has vested interests and is ingrained in our social habits. Striving for clean energy is an effort worth pursuing as the health, wealth, and prosperity of our coming generations rest on switching to secure green clean, indigenous local energy sources.

The fourth proposal (4) of electrification of energy is in line with green and clean energy sources initiatives. However, the cost and economy of electrification will determine the adaptability of the electrification of energy. The social habits and entrenched vested interests will also be a hurdle to fully adopting the electrification of energy.

The last two proposals, (5) price anomalies and (6) deregulation and privatisation, are connected to the regulatory framework and developing a free energy market. Energy markets are mostly regional instead of nation-specific. The ultimate solution to energy problems is a free, open, and private energy market with minimal necessary regulation. All developed countries adopt this model.

We as a nation prefer to control markets. Our experience of open markets is cartelization, hoarding, and unjust profits, so we want the government to interfere. The result is crony and restrained capitalism that is not letting us flourish. We must open up to free market forces slowly but constantly as that is the ultimate guarantor of efficiency and professionalism.

We must overcome many financial and political hurdles to privatize and deregulate. More importantly, we need an economically integrated region to get benefitted from economies of scale in energy ventures and extensive energy trade. ■

Courtesy Business Recorder

From L to R Shakil Munir President Islamabad Chamber of Commerce and Industries, Aqil Jafri Director AEDB, Mian Fahad Country Sr. Country Manager Growatt and Hasham Aziz Marketing Manager Growatt addressing at the seminar

ShenZhen Growatt New Energy

Mustafa Tahir

ShenZhen Growatt New Energy organize one day seminar on Solutions meet future demands (Leading PV Solutions for Energy Storage and C & I). A big show, event was attended by leading solar distributors, EPC, businesses community and other major stakeholders. Mr. Shakil A. Munir - President Islamabad Chamber of Commerce was the chief guest of the event whilst Mr. Aqeel Hussain Jafri - Director Policy Alternative Energy Development Board (AEDB) and Mr. Nisar A. Latif - Chairman Renewable Energy association of Pakistan (REAP) were the guest of honor. Mr. Jimmy Xia - Senior Director, Mr. Mian Fahad - Senior Country Manager and Mr. Hassam Aziz - Manager Marketing, briefed the audience about the company visions & plan for this market, specialised products, local operations and after sales support.

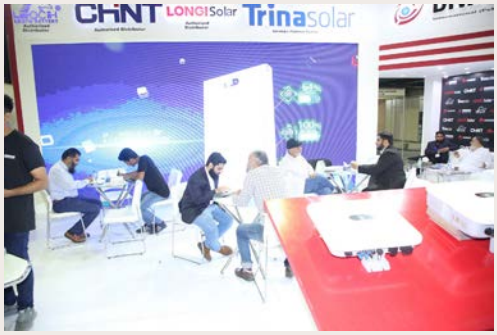
18th ITIF Asia & Solar Asia 2022

The 18th ITIF Asia & Solar Asia 2022 the Biggest Machinery Show incorporating Electric Vehicle Asia, Auto Transport & logistic Asia, Power and Alternative Energy Asia, Oil & Gas Asia, Machine Tools & Hardware Asia, Fluid Pump Asia, Engineering Asia ,Construction Machinery Asia & Mines Minerals Metal Asia, to commence from 20th March 2019 at Karachi expo centre. The exhibition inaugurated by Honorable Mr. Nisar Ahmed Khuro, Senator along with Dr. Khursheed Nizam President Ecommerce Gateway & Vice President Ecommerce Gateway Mr. Farhan Anis.

ITIF Asia & Solar Asia International Exhibition is one such platform for local and international companies to discuss collaborations, joint ventures, investments and other possible avenues. The objective of 18th ITIF Asia 2022 is to develop the Trade industry by introducing world class products, services, machineries and state of the art technology. The event which is happening for the 18th consecutive year expected to have More than 125 + International Pavilion /Exhibitors from China, Belgium, USA, Italy, UAE and Germany are participating In This Mega Trade Fair.

Zonergy Solar Development Pakistan has closed a deal of 1 MW solar panel with Mr. Tariq Hilal Chairman of Dream World Resort, Hotel & Golf Club Karachi in ITIF Asia 2022 Exhibition organized by E-Commerce Gateway.

International participations from the following categories are participating in the said exhibition as they are actively seeking for local Agents / Distributors, Importers, Wholesaler, Retailer, Manufacture, Trader and agencies for the joint ventures: Truck, Prime Movers, Concrete Mixer, Over Head Crane, Mining Equipment, Packing Machine, Block Making Machinery, Construction Hoist, Drilling Machinery, Excavator & Loader, Gantry Crane, Power Generation, Diesel / Petrol Generators, Solar Panel / Controls, Battery / Inverter / UPS , Hydro Electric Motors, Hydro Turbine, Flour Milling Machine, Energy Electric Vehicle, Air Compressor, Pipes &Tubes, Pump Valves & Fittings, Car / Motorcycle, Hardware & Cutting Tools, CNC / Lathe Machines, Welding Machines , Pump Station Equipment's, Fuel Dispenser, Auto Spare Parts and Electric Cables. This 3-days event will commence from 24-26 August, 2022 with an expected visitor turnout of over 65,000. This trade fair is organized by Ecommerce Gateway Pakistan; the UFI (Paris) Approved Event Organizer of Pakistan.



SDPI's Annual State of Renewables Conference

At conference on renewable energy secretary energy Abu Bakar Ahmed, Head of SDPI Dr. Abdi Q. Suleri, CEO Engro Energy Yusuf Siddiqi, Director KE Naz Khan, Research Fellow Dr. Hina Aslam, Editor Energy Update M. Naeem Qureshi, Hussain Talib, Halima Khan, Engr. M. A. Jabbar and others are seen in the picture

Climate change mitigation, adaptation annually require Rs7-14bn: expert

Report by Energy Update

Dr Shamshad Akhtar, former Finance Minister, criticized insufficient financial cooperation extended by leading greenhouse gas emitters to climate change vulnerable countries and said climate change mitigation and adaptation annually require Rs7-14 billion which is well beyond Pakistan's financial constraints.

She was speaking at the first "Annual State of Renewables Conference 2022", recently organized by Sustainable Development Policy Institute (SDPI) in collaboration with Unilever, Energy Update and German coperation in Karachi. She stressed the need to decarbonize energy generation and reform policies to address high import dependence. Dr Abid Qaiyum Suleri, Executive Director, SDPI, called public and private sector and civil society organizations to collaborate for concerted actions for climate change mitigation. He stressed on pacing up transition to renewable energy in Pakistan to address energy crisis and expensive import-based energy generation. He further said that devastating floods due to unprecedent monsoon in Pakistan are manifestation of climate change, and renewable energy mix could play crucial role in emission reduction to mitigate these disastrous impacts.

Abu Bakar Madni , Secretary, Energy Department, Government of Sindh briefed the audience about various initiatives being taken

like solarization of public buildings, including schools, hospitals and 225 basic health clinics, project to provide 200,000 solar home systems in 10 low energy access districts, and capacity building activities for domestic production of technology. He also said that waste to energy project was under deliberation for Karachi which would be later expanded to rest of Sindh.

Dr Sebastian Paust, Counsellor Head of Development Cooperation Embassy of the Federal Republic of Germany informed the participants that Germany's journey to climate change mitigation and energy transformation started in 1990s based on just transition. He informed that to support Pakistan's renewable energy transition, Germany had provided 350 million euros for 16 projects and 30 million euros for technical cooperation in areas of energy transition, efficiency and electric vehicles.

Dr Ute Collier, Deputy Director, Knowledge, Policy, and Finance Centre, International Renewable Energy Agenda (IRENA), said that a half of emission reduction targets in Paris Agreement could be achieved through

energy conservation and scaling up renewable energy. She pointed out that in Pakistan, a half of the population lacked access to clean cooking energy while a quarter had no access to electricity.

Shah Jahan Mirza, CEO, Alternate Energy Development Board (AEDB), informed that by 2030, AEDB aimed to increase renewable energy share to 60% with 90% of it being indigenous to reduce pressure on foreign exchange reserves. He further said that AEDB was in process of launching a large solar power project with capacity of 2400MW with the government providing three sites to private power companies.

Naz Khan, Chief Strategic Officer, K-Electric, said 50% increase in electricity price due to fuel mix was dominated by thermal energy and import intensive generation which was much higher than much of the world. She said 257GW renewable energy was added globally in 2021 and US$55 billion was projected for 2022 as saving due to this addition, and Pakistan could increase its foreign exchange reserves status by exploiting this. Ms Naz informed that K- Electric plans to add 1200MW in next 7-8 years from renewable energy though equity with private sector and invest its own finances which will save Forex US$8-10 billion.

Yusuf Siddiqui, CEO, Engro Energy Pvt Ltd, informed that Engro Energy plans to add 500MW renewable energy through Jhampir power project by 2024 which will be scaled upto 1GW. He advocated liberalization of power sector and said that private power companies should be allowed to work outside the government's ambit, take responsibility of risks and sell directly to consumers. He informed that it was a successful and cost-effective international model and could potentially bridge investment and power demand.

Dr Hina Aslam Research Fellow, SDPI, informed that 0.07% solar potential was enough to meet Pakistan's energy demand. She informed that Sindh and Balochistan could produce 340GW wind power. She said that like rest of the world, Pakistan experienced 3.25% increase in renewable energy in 2021 and net FDI in power sector in 2021 was US$911.7 million.

Engr Abdul Jabbar Memon,CE Qaim Group. and Member, BOG, SDPI, in his closing remarks stressed the need of efficiency by phasing out inefficient power plants. He suggested clubbing and revamping NEPRA and OGRA to make smoother transition to renewable energy.

Zonergy Chief presents cheque to PM

Prime Minister Shehbaz Sharif has said that Pakistan's future hinged upon the utilization of renewable energy resources as those alternative resources of energy could help generate inexpensive power. During a meeting with a delegation of Zonergy Corporation, a Chinese company, the prime minister said the production of low priced-power would also remove the burden of price hike on the general public. He said that a major chunk of Pakistan's import bill was being spent on the import of costly fuel for power generation, hence, it was imperative to move towards the utilization of inexpensive energy which would also help in saving precious foreign reserves. On the occasion, the Zonergy Corporation delegation presented a donation cheque for the PM Flood Relief Fund. The delegation was led by its Chief Executive Richard J. Guo. Minister for Board of Investment Chaudhry Salik Hussain, Minister for Planning Ahsan Iqbal, Minister for Energy Engineer Khurram Dastagir, Minister for Law Azam Nazeer Tarrar, PM's Special Assistants Dr Jehanzaib Khan, Zafaruddin Mahmood and Fahad Hussain were also present. The prime minister while appreciating Chinese support on the internal and external fronts, said that China was the best friend.

An endless deterioration of infrastructure

Muhammad Hunain Ameen

The last memory of a smooth driving experience on Karachi's roads may be about quite some time ago. While it may appear that this monsoon season may have triggered the undoing, the infrastructure was not ruined overnight. This monsoon season has only brought the dilapidation to light. "It has only gone on to establish what most Karachiites had already known from their experience," notes Arif Memon, an occupational driver who has developed knee pain recently. "I ascribe this pain to driving on these roads but I'm too weak and poor for my misery to be noticed," he adds.

Not a single stretch of a street across Karachi allows a smooth drive. Memon wasn't being rhetorical when he described the daily suffering on the roads. He does not drive a coach or lorry either; he drives a family hatchback.

Dr Mus'ab Afaq is an orthopaedic doctor at the Jinnah Postgraduate Medical College. Dr Afaq tells The News on Sunday about the adverse effects on the human body of driving on these roads. "You can develop tendonitis – an irritation or inflammation in tissues that connect muscles with bones – due to repetitive motion of your legs having to pump the gas or hit the brakes."

The issue is not only limited to the physical health of the masses; in fact, it far exceeds that and dents lives, livelihoods and daily businesses.

Shehryar Jafri is one of its victims. Production at his factory has been affected. "It takes me two hours to reach my factory now. This is thrice the time it used to take me before these rains." Situated in the North Karachi Industrial Area, his factory produces socks that are both exported and supplied in the local market.

"When I visit Lahore for a field trip and roam in their industrial spaces – the Quaid-i-Azam and Sundar Industrial Estates – I can't help but notice just how well planned and well-built those are compared to the best planned areas of Karachi, let alone our dilapidated industrial areas of Korangi, SITE and North Karachi."

Jafri says this has translated into delays in production and in raw materials reaching them. "Our clients either complain of delays on our part or request deferment of despatch due to decrepit roads."

"Both outcomes dent our business. So, this is not limited to roads being just 'bad' in the sense of being a minor irritation, it goes on to worsen our economy directly," he says. "It's not like the government doesn't see this."

And it is not just industrialists that suffer on this count; traders and local markets too are hurt.

"In the last 50 years, no calamity has hit our businesses harder than the rains in the last three months," says Ateeq Mir, who represents the All Karachi Traders' Alliance. He says the daily Rs 3.5 billion trade across the markets in Karachi has been reduced to just 30 percent of the value after these rains.

"It has been the same since the beginning of monsoon," he says. "People fear coming out to markets anticipating danger, including the threat of electrocution, being washed up, damage to one's car; even to one's health."

He adds that warehouses are also being regularly flooded. The damage thus includes not just loss of business but also destruction of goods by rainwater.

"Unless we're declared calamity-hit and are given tax relaxations and loans, we cannot sustain the businesses." Earlier, when the city was flooded following rains, only a few people would tweet about how they had landed at the Karachi airport and swiftly cruised through Shahrea-i-Faisal, where they would claim the water had subsided shortly after the downpour. Such people would usually travel to posh areas and in negating the misery of the larger populace would mock those whose houses, establishments and roads would remain inundated for days at end. The city administrator would then take to social media to boast about the development work having borne fruit.

However, this monsoon has laid bare the reality across the city. Architects, engineers and policy experts have echoed concerns regarding the same. This has goaded the authorities into action. The administrator is finally admitting that: "Complete drainage is only possible with engineering solutions," alluding to just how faulty the city's infrastructure is.

This time around, says the city administrator Murtaza Wahab, the provincial government and the KMC will spare Rs 3.5 billion for the "reconstruction of roads". Architect Arif Hasan points to a grim reality. "The carpeting of roads is not the solution." The architect ridicules the practice of repeated carpeting of roads. "What's really needed is not more layers of asphalt but the compaction of what lies under those." He tells TNS that a well-coordinated and engineered overhaul of the infrastructure is the need of the hour. Drains, sewers and other underground networks need

The writer is a journalist covering human rights and social issues. He can be reached on Twitter at @mhunainameen

Rising from recession

Reza Baqir

An economic recession is generally bad news. However, the anticipated recession in the United States may do more good — rather than bad — to emerging markets such as ours that are heavily dependent on commodity imports and external financing.

Markets have become increasingly concerned in recent weeks about a recession in the US. A key cause is the sharp tightening of monetary policy by the US central bank, the Federal Reserve, since March this year. Many have commented that after having been slow to react to rising inflation that proved to be less transitory than originally considered by the Federal Reserve, it is now slamming hard on economic brakes to reduce inflation.

Indeed, the hawkish speech by Jay Powell, the chair of the Federal Reserve, this Friday at the Jackson Hole conference, the premier annual US event for central bankers and economic policy-makers, has led many to believe that the Federal Reserve will keep at it until it feels comfortable that inflationary threats are beginning to recede. This raises the likelihood for a US recession.

Will a US recession further sour the economic sentiment in Pakistan that has already suffered in recent weeks from a host of challenges? There are reasons to worry it might. To begin with, a recession in one of the world's largest economies is likely to cause a global economic slowdown. Softening global demand means falling sales for our exporters and falling incomes in export-oriented sectors. Another key concern is the outlook for remittances. As economies slow globally, overseas Pakistanis may face employment challenges and squeezed incomes and hence may have less to send home. And finally, with bleak global conditions there may be little appetite for global investors to put down capital in a risky country like Pakistan.

There may, however, be more reasons to think of a silver lining in these gathering dark clouds. A key consequence of a US recession and a global economic slowdown is likely to be falling oil and other commodity prices. These high commodity prices have hammered the balance of payments of commodity importers such as Pakistan. Despite some recent softening, the US Federal Reserve's global price index of all commodities remains at its highest levels since it began compiling this index in 2003.

The savings would be particularly significant in our energy import bill, which accounts for approximately one-third of our total imports. A 50 per cent fall in oil prices, as has been the average peak-to-trough fall in oil prices in the four US recessions since 1990, would shave off approximately $10 billion from our annual import bill. More broadly, Pakistan's economic prospects are more closely tied to international oil prices than any other single indicator. Aside from savings in our foreign exchange bill it would also reduce domestic energy prices and inflation and soften the burden of rising prices particularly on the lower- and middle-income classes.

Another key potential benefit for Pakistan from a US recession would be the outlook for US interest rates. Each of the four previous US recessions since 1990 has been preceded by a sharp increase in the Federal Reserve's policy interest rate. Subsequently, in each of these cases, signs of an emerging recession have led to a significant fall in US interest rates.

Will the positive impact on our economy from falling oil prices and re-access to international capital markets more than offset the potential negative impact on exports and remittances? There are reasons to be optimistic. Pakistan is a relatively closed economy with exports barely exceeding 10pc of GDP.

There are, therefore, good reasons to think that our balance-of-payments may get a net boost following a US recession. Given that historically our economic crises have been driven by balance-of-payments considerations, a US economic recession will, ironically, help to bring an end to our current economic challenges. Perhaps the most important reason to focus on the silver lining amongst the current dark economic clouds is that all US recessions are followed by a sharp recovery. We should be positioning ourselves for that recovery.

While there are good reasons to be optimistic about economic sentiment in a few months, the key challenge for us is to hold the economic fort in the interim as global and local economic sentiment may worsen before it improves. This may sound easier than it is. In the past we have dropped the ball many times just as we were getting close to the finish line. The current political acrimony and related uncertainty can throw a wrench in this outlook this time around as well. Let's hope it does not. ■

The writer is former governor of the State Bank of Pakistan

Courtesy Dawn

Saving national wealth

Shifting to local coal could save over $800m annually

Shahram Haq

Industry experts believe the government's decision to convert three power plants from imported fuel to local coal could result in savings of $175 per tonne which would translate to over $800 million in savings annually from each plant

"The government's decision to bet on local fuel will not only reduce the country's import bill, on which fuel imports bear the biggest burden, it will also bring down electricity tariff rates," predicts an analyst.

On June 15, 2022, Federal Minister for Power Khurram Dastgir Khan said the government had decided to shift from imported coal to Thar coal in order to generate 3,960MW electricity from three coal fired power plants; namely, Sahiwal coal power plant, China Hub coal power plant and Port Qasim coal power plant.

The government has already appointed consultants to work out a feasibility plan in lieu of converting the plants. According to research under taken by the Lahore Chamber of Commerce and Industry (LCCI), Pakistan is ranked seventh in the world with total estimated coal reserves of 185 billion tonnes. In return, the Thar coalfield has 175 billion tonnes of assessed coal reserves, which is the 16th largest coal reserve in the world and can generate 30,000 MW of electricity for the next 100 years.

"The 660MW (2x330MW) power plant that is utilising Thar Coal is a good example of producing cheaper electricity using an available indigenous resource. This is enough to guide our policy makers to start utilising local coal resources as well," said experts.

Sindh Engro Coal Mining Company (SECMC) is engaged in coal mining from Block-II and is currently extracting 3.8 million tons of lignite annually. SECMC's capacity of extraction is projected to increase to 7.6 million tonnes by the end of this year while a further increase to 12.2 million tonnes is expected by the end of 2023.

The inauguration of the 330 MW Hubco power plant, by Sindh Chief Minister Syed Murad Ali Shah, enhanced the district's electricity generation capacity to 990MW via Thar Coal which has been added to the national grid after becoming operational. ■

Courtesy Express Tribune

9,000MW solar energy to be added to national grid

Zafar Bhutta

The government plans to add 9,000 megawatts of solar energy to the national grid, as an alternative energy source to the costly electricity being generated using imported fuel, under an initiative that includes waiving of all import duties along with tax incentives.

Earlier this month, the government announced plans to launch solar power projects of around 14,000 megawatts this year. Keeping in view the recent hike in electricity prices following the rise in fuel cost, the government is kicking off 9,000MW projects under 'Solar Energy Initiatives' on priority. Sources claim that the government will ensure the substitution of imported fossil fuels through investment in and generation of 6,000MW of solar energy.

It will also initiate a project of 2,000MW of solar PV generation on 11kv feeders and an additional 1,000MW to solarise public sector buildings. In a bid to initiate solar PV generation on kv feeders, the government has selected various sites in south Punjab.

To ensure successful execution of the projects, the government will introduce a straight-line tariff through single-stage, two-envelope bid process and 70% indexation of tariff on a quarterly basis. In addition to this, friendly countries will be offered attractive tariffs that will be less than the last solar PV project tariff and benchmark tariffs for projects on a government-to-government basis.

Under the new solar energy initiatives, the government will purchase all power generated on a 25-year BOOT (Build, Own, Operate and Transfer) basis and will also give 12 months for Energy Purchase Agreements (EPA) signing under Commercial Operation Date (COD).

Land for the solar projects will be provided by the government as well as a guarantee power off-take. Investors will be exempt from all import related duties and taxes; income tax on profits and gains will also be exempt for the first 10 years from COD. According to sources, foreign exchange for the project shall be arranged from abroad with the government providing payment guarantee on the 60th day after invoice through bank debit.

The government is also set to announce policy incentives for solar PV generation on 11kv feeders which will provide incentives for 4MW solar generation to be installed at 11kv feeders through a single-stage, two-envelope bid process. Under these solar policy initiatives, bidding will be carried out by power distribution companies (DISCOs) for each feeder. ■

Courtesy Express Tribune

Captive power: enough blackmail!

The cost of electricity is increasing to exuberant levels. It is increasingly becoming unaffordable for household and unviable for businesses. The reasons for recent increase are revisions in base tariffs and higher fuel cost. Moreover, the imported fuel bill is putting the external account under pressure. At this juncture, all the efforts should be deployed to have the most efficient use of energy resources – especially the indigenous sources.

One of the main problems in the energy sector is inefficient allocation of energy sources through pricing and policy anomalies. Over the last decade, when the power loadshedding was high, industries moved towards captive power production – on furnace oil, diesel, and gas. Later, when new capacities are added on imported fuel, no heed was paid to moving the captive plants back to the system. Had that happened, the fuel cost today could have been much lower – especially for inhabitants of Karachi.

According to some calculations, fuel cost adjustment (FCA) for K-electric consumers could have been lowered by Rs8/kwh in June had the KE gotten 130 mmcfd of domestic gas at the price at which is being provided to domestic connections. The inefficient allocation is hurting the consumers. And the country's precious hydrocarbon resources are being used inefficiently.

In the recent months, cost of local gas for power production is around one-fourth of the imported RLNG. The cost is a pass-through item, and eventually the consumer has to pay. The cost of production per unit on RLNG was Rs28.3/kwh in July 22 versus Rs10/unit for domestic gas. And higher domestic gas has been consumed by non-power consumers.

The efficiency of IPPs is generally higher than captive power plants. Newer plants – whether in the NTDC system or KE, have over 50 percent efficiency while for captive it is around 30 percent. Successive governments (incumbents as well as the last PTI's) attempted to shift industries using captive to grid electricity. But failed. The industrialist lobby for their interest and win.

In some cases, industrial captive consumers have co-gen facilities where the efficiencies are better. For them, it is fine to rely on captive. But for others it is a wastage of precious resource. When the government tries to find out who is efficient and who is not, industrial players (especially in Sindh) go to courts and obtain stay order. And the government lacks the will to force its writ. The question is who are the industries that are on captive plants and why the government is supporting them. Are there any vested interests?

Whatever the case, now the water has reached nose level, and there is no room for the government to let the status quo continue. There must be a strict policy of using the energy resource for the most efficient purposes. The impact may not be huge for the NTDC system as the system gas is running short in the SNGPL network. However, given better supply situation in the SSGC system, the benefit could be higher for KE consumers.

According to news reports, 200 mmcfd gas is supplied to captive consumers in the SSGC network at around one-fourth rate of current LNG rates. KE is demanding 130 mmcfd, and that could lower the cost of production and in turn lower the effective tariffs being charged to the consumers.

KE's new RLNG plant is of 59 percent efficiency. Half of newly installed capacity is already online and rest is coming online soon too. Then its existing gas plants have efficiencies of 43-49 percent. It is completely rationale to divert domestic gas to KE for better use. And let the industry to buy energy from KE. Moreover, gas under domestic use – for pace heating and geysers, should be discouraged through pricing and nudged towards electric solutions.

The question is whether KE would have enough capacity to cater to the additional consumers. The answer is yes. All it needs is grid connectivity. Some industrial players already have it. Others should do it too. Fixing the pricing is the key. Moreover, supply of domestic gas is falling and its provisioning to industries would be limited this winter. Already, around 300 industrial units have requested KE for new connections. Government should inform through policy instruments and administrative measures for the rest tofollow. The time for dilly dallyis over. Hard and right decisions should be taken promptly.

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ECONOMICS OF FOOD WASTAGE

Over 50pc harvested fish is wasted at high seas; 35pc fruits and vegetables are also destroyed at different levels

Mansoor Ahmad

Pakistan faces food shortages which are less than the food that is wasted during harvesting, transportation, processing, storage, and consumption. Nation pays a heavy price for lack of efforts to eliminate this waste in shape of hunger and costly imports.

Food wastage is a global problem. Most of the developed economies produce more food than they consume. Wastages in developed economies are minimum at harvest and post-harvest level and at processing, transportation, and storage. But the wastage at consumption level is very high in developed economies. In developing economies, the wastages are high at pre- and post-harvest levels, during transportation, processing, and storage.

Some food experts estimate that one-third of the world's food is lost or wasted each year. Other studies suggest the true figure is even higher. In dollar terms, closing the gap on food loss and waste is estimated at $700 billion. Reducing this gap could address global hunger problems to a large extent.

Most of the poor nations do not produce enough food and depend on imports. But Pakistan has a strong agricultural base and produces enough food for its population, still a large portion of its population suffers from hunger and malnutrition. The reasons for this exclusion include high food wastages and flawed food distribution because of hoarding and manipulation by middlemen in the agriculture sector. However, if food wastages that range from 30-40 percent are controlled the hoarders would become ineffective.

About 13 percent of apples are lost at production level, 6 percent could be lost at storage, handling, and transportation stages. Another 1 percent is lost in processing and packaging, while 6 percent is lost at distribution and retail stages. And a staggering 8 percent are wasted from farm to table.

Government alone cannot control the food wastage. The state needs cooperation of NGOs, individuals, and consumers to reduce wastage of food. The prevailing global issues like Covid-19, climate change, internal unrest in Pakistan, and income inequality have made the task of controlling food wastages difficult.

We waste more than 50 percent of the fish harvested at high seas through non-refrigerated trawlers. More than 35 percent of fruits and vegetables are wasted at different stages from harvest to consumption.

We also waste over 25 percent of the milk we produce due to absence of cold chains in remote regions. The wastage of grains is also substantial as most crops are harvested manually. There are few mechanical harvesters in the country.

A lack of coordination among players across the value chain, particularly between raw material producers and processors, contributes significantly to inefficiency, loss, and waste. Disposing food is cheap and easy. Generally, regulatory and tax policies do not penalise companies and consumers for the waste they create. ■

Economic turbulence

Mansoor Ahmad

The global scenario is akin to seeing boats struggling in a turbulent sea, where countries can be seen facing historic inflation, commodity crisis, food shortages, and unbearable transportation costs. In Pakistan also, economy is like a floating boat surrounded from all sides by enemies in a rough sea. The country must defeat the storm as well as its enemies to survive. Businesses are also not far behind as they continue accumulating wealth in boom and recession, but always looking for concessions from the state. The majority of them don't bother to pay their due taxes in the country, but remain ready to go for strikes if a govt tries to bring them into the tax net. Pakistani police are a different breed that sides with the one that could grease its palms be it the victim or the criminal. The long delays in dispensation of justice are also not serving the cause of Pakistan and its prosperity. Pakistan did not develop high yielding seeds like India and China. Both the countries are self-sufficient in food, and we heavily rely on imports. Giving agriculture due support including resources could not only solve our food problems but also scarcity of cash crops like cotton. The politicians need to be on the same page on the economy. This way the state may bring businesses and people into the tax net, forcing them to pay their actual taxes on time. Selling of smuggled goods should also be discouraged by all means. The smugglers should not be provided a grace period to sell their stocks. The govt can give them a chance to deposit government levies forthwith, and if they don't, confiscation and immediate auction on deemed duty paid price is the right choice. Those that matter in Pakistan including politicians, judiciary, and establishment must realise that the country cannot continue with current practices even for any longer as the boat is drowning slowly with every passing day; further delay would sink it. ■

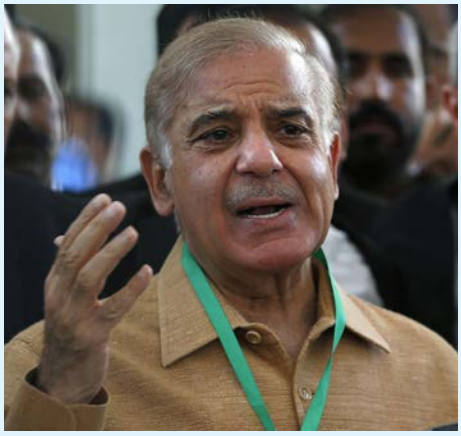
Pakistan's future hinges on solar, wind power: PM

Prime Minister Muhammad Shehbaz Sharif has stressed the need to immediately shift the country's power generation capacity to solar and wind power production systems as the costly power generation was continuously depleting the national exchequer.

During a briefing at the Mohmand Dam site, The prime minister, referring to the timely completion of the hydel power projects, opined that those projects and tapping of other natural resources like solar and wind "are our future and we need to immediately shift to that direction, otherwise the economy will continue bleeding annually".

He said the dam's construction was carried out by the Chinese and Pakistani people, and it would generate 800MWs of inexpensive power, besides helping in water reservation and providing protection against flash flooding. The prime minister also appreciated China as the best friend of Pakistan, and said they had complete confidence in its support.

Earlier, Wapda Chairman gave a briefing over the project. Mohmand Dam is being constructed on the Swat River in Mohmand District of Khyber Pakhtunkhwa, which will be completed in 2026. On completion, the dam



will store about 1.2 million acre feet (MAF) of water and help mitigate floods in Peshawar, Charsadda and Nowshera.

Besides supplementing 160,000 acres of existing land, about 18,237 acres of new land will also be irrigated. The Mohmand Dam Power House will generate 800 megawatts (MW) of hydel electricity, contributing 2.86 billion units of low-cost and environment-friendly hydel electricity annually to the national grid. Annual benefits of the project have been estimated at Rs51.6 billion.

Pakistan Oilfields finds hydrocarbons in KP

Pakistan Oilfields Ltd (POL) has informed its shareholders that MOL Pakistan, which operates the Tal Block in Kohat district of Khyber Pakhtunkhwa, has encountered hydrocarbons following Drill Stem Tests (DSTs) conducted in the Tolanj West-2 well to measure the potential of Samanasuk, Shinawari and Lockhart formations.

In a regulatory filing, the oil and gas explorer that's part of the consortium extracting energy from Tal Block said the testing results conveyed a potential of 2.25 million standard cubic feet of gas per day (mmscfd) in the Samanasuk and Shinawari formations and a potential of 8.3mmscfd in the Lockhart formation.

The companies said these formations weren't hydrocarbon-bearing in the previous well drilled in the Tolanj West field. "Production from the well is expected to start from December 2022," it said.

A DST is a procedure for isolating and testing the surrounding geological formations through the drill system.

The test is a measurement of pressure behaviour at the drill stem and is a way to obtain important fluid sampling information and establish the probability of commercial production.

OGDC sends aid to flood affectees

The Oil and Gas Development Company Limited (OGDCL) has sent 180 relief food packages to the flood affectees of Ghotki and Sanghar districts of Sindh, according to the company statement.

In the wake of massive rain and flash floods, OGDCL continued its flood relief activities under its corporate social responsibility. The recent floods and torrential rains had wreaked devastation in different parts of the country.

Responding to the calamity, OGDCL immediately mobilised its resources in the flood affected areas to provide all possible relief and facilitation. Regional and field authorities of OGDCL distributed flood relief items among the affectees.

Gas reserves discovered in KP

Oil and gas exploration firms announced the discovery of gas reserves at 2.25 million standard cubic feet per day (mmscfd) at Tolanj's West-2 development, located in Kohat, Khyber Pakhtunkhwa (KP).

In a notification to the Pakistan Stock Exchange (PSX), Oil and Gas Development Company Limited (OGDCL) said the discovery had de-risked an exploration play in the deeper reservoirs over Tolanj West D&PL and in TAL Block, leading to new upside opportunities.

"This discovery will also help and contribute towards improving the energy security of the country from indigenous resources and add to the hydrocarbon reserves base of MOL, its joint venture partners and the country," it added.

The Tal joint venture comprised of MOL Pakistan (operator), OGDCL, Pakistan Petroleum Limited (PPL), Pakistan Oilfields Limited (POL) and Government Holdings Private Limited (GHPL)

Tahir Abbas, Head of Research at Arif Habib Limited told the Express Tribune that the discovery was relatively small when compared to the country's demand.

"This (2.25 mmscfd) is a very small discovery considering the growing shortfall of oil and gas reserves in the country," he said.

Explaining that a more aggressive approach was required by exploration firms he said, "The excessive dues, persistent delays in announcing a new oil and gas exploration policy, and an exit of foreign exploration firms have impacted the drive for discoveries over the years." Receivables due to OGDCL and PPL from the government have mounted to Rs650-700 billion. The new petroleum policy of 2021, that may incentivise exploration firms to accelerate their discovery rate, is still awaited he said.

Timely completion of projects is foremost priority: WAPDA chief

Pakistan Water and Power Development Authority (WAPDA) Chairman Lt Gen Sajjad Ghani (retd) has said that his foremost priority was to complete under-construction WAPDA projects as per their schedules, in addition to initiating new projects to cope with increasing requirements of water and electricity in the country.

This was the crux of the chairman's interaction during a week-long briefing sessions about under construction WAPDA projects including Diamer Basha Dam and Dasu Hydropower Project.

Underlining the significance of ongoing projects, the chairman said that completion of as many as 10 WAPDA projects were linked to economic stability and social uplift of Pakistan, as those projects would add 11.7 million acre feet (MAF) of gross water storage and 11300 megawatt (MW) of low-cost, clean and green hydel electricity to the National Grid.

These projects are scheduled to be completed from 2022 to 2029 in a phased manner, hence, their on-time completion is a huge challenge; but there lies an opportunity in these challenges as well.

We can avail the opportunity to lift WAPDA's stature at national as well as international level, he maintains.

Urging the projects' management, the chairman said that the task of scheduled completion of WAPDA projects could be achieved with a coherent team work, for which, every employee will have to play his or her due role with utmost dedication.

Water-related disasters could cost $5.6trn by 2050

Worsening droughts, storms, and torrential rain in some of the world's largest economies could cause $5.6 trillion in losses to GDP by 2050, according to a report released Monday.

This year heavy rains have triggered floods that inundated cities in China and South Korea and disrupted water and electricity supply in India, while drought has put farmers' harvests at risk across Europe.

Such disasters are costing the global economy hundreds of billions of dollars. Last year's extreme droughts, floods and storms led to global losses of more than $224 billion, according to the Emergency Events Database maintained by the Brussels-based Centre for Research on the Epidemiology of Disasters.

But as climate change fuels more intense rainfall, flooding and drought in coming decades, these costs are set to soar, warns the report by engineering and environmental consultancy firm GHD.

Water – when there's too much or too little – can "be the most destructive force that a community can experience," said Don Holland, who leads GHD's Canadian water market programme.

GHD assessed the water risks in seven countries representing varied economic and climatic conditions: the United States, China, Canada, the United Kingdom, the Philippines, the United Arab Emirates and Australia. Using global insurance data and scientific studies on how extreme events can affect different sectors, the team estimated the amount of losses countries face in terms of immediate costs as well as to the overall economy.

Qatar to invest $3bn in Pakistan infrastructure

Finance Minister Miftah Ismail has said that through its $3 billion investment, Qatar was interested in leasing Pakistan's airports, setting up fuel terminals at seaports, acquiring LNG plants, and investing in solar parks.

Addressing a press conference, he said Pakistan did not discuss sale of Pakistan International Airlines (PIA) and Roosevelt Hotel to Qatar. He said: "Middle-eastern country is primarily interested in long-term lease of our airports and their management, investment on seaports and fuel terminals, LNG plants and solar farms to be established by the government."

As an additional option, Qatar could invest in the Pakistan Stock Exchange, he said. "Qatar will also invest in solar plants having a capacity of 8,000MW to reduce the electricity price in Pakistan."

Talking about the recent waiver of fuel charges adjustment in electricity bills of consumers using up to 200 units per month, Miftah added that Prime Minister Shehbaz Sharif constituted a committee to devise a mechanism to provide relief to people using 200-300 units per month.

Govt unveils solar PV projects policy

The government Wednesday unveiled its policy on fast-track development of solar PV projects at an investors' conference to offer projects of 600 MW.

The salient features of the policy are: (i) single stage, two-envelope bidding; (ii) straight line tariff; (iii) 70 percent indexation of tariff; (iv) benchmark tariff by Nepra; (v) guaranteed purchase of power; (vi) land and interconnection to be provided by GoP; (vii) exemption on all import related duties and taxes; (viii) existing EPA & IA will be used; (ix) Commercial Operation Date (COD) within 12 months of Energy Purchase Agreement (EPA); (x) term-25 years on BOOT basis; (xi) 11.15 percent income tax; and (xii) payment guaranteed on 60th day after invoice through bank default.

Security documents are included in GoP Implementation Agreement (IA), principal concession agreement, and backstops of all contractual obligations of public sector entities covers all fiscal and financial incentives, force majeure and change on law protections etc.

Energy Purchase Agreement is the pivotal commercial document that sets out the terms and conditions of sale and purchase of electric power between seller and buyer including testing and commissioning, payment mechanism, delays and default provisions, dispute resolution, etc.

Former prime minister Shahid Khaqan Abbasi, Chairman Prime Minister's Task Force on Solar Energy Initiatives, Minister for Power, Khurram Dastgir Khan and Secretary Power, Rashid Mahmood Langrial and others addressed the conference and shared details of solar initiatives.

Shahid Khaqan Abbasi, in his address said that Pakistan's power sector has substantial losses which the government is trying to fix this issue. He said, the government will provide land, interconnection and purchase all the kilowatt hours to be produced by the companies, adding that payments will be made in 60 days' period. He hoped there would be no disputes on the issues to come up and this would not be part of circular debt but rather help in the resolution of circular debt issue.

"We believe this would be very lucrative opportunity for the investors to come in and invest in these solar projects," he added.

Abbasi maintained that if investors do not agree with the incentives and other proposals these can be reviewed.

"We are also targeting one megawatt generation directly to 11 kV feeders totaling to 2,000 MW to be directly supplied to Discos. The government is also targeting solarization of 2,000 MW for government buildings," he said, adding that both the government and private sector will invest in this scheme.

He urged investors to come forward and invest in 600 MW solar plants near 220 kV and 500 kV transmission lines. CEO Alternative Energy Development Board Shah Jehan Mirza, Chairman NEPRA Tauseef H. Farooqi and others also spoke on this occasion.

WWEA expresses solidarity with flood victims

WWEA has expressed solidarity with the flood victims in Pakistan as the country has been hit by worst climate disaster. Following extremely heavy monsoon rains, a third of the country is currently under water and more than 30 million people have been directly affected by the floods, many of them lost their homes. WWEA called on the governments and people around the world to support the people of Pakistan in this tragic crisis. Immediate aid is needed to help the country cope with the worst effects of the disaster. WWEA President Hon. Peter Rae AO said: "We call on the world community to support Pakistan now in this emergency. WWEA itself is preparing to help Pakistan rebuild."All the wind power plants are still producing electricity and helping our country cope with this epic crisis" says Dr Irfan Mirza, WWEA Vice President, Pakistan. "The climate disaster once again underlines the urgency to fully switch to renewable energy.

Former Prime Minister of Pakistan Shahid Khaqan Abbasi attending the reception ceremony at Marriott Hotel Islamabad on invitation of Abdul Sami Khan - Chairman Pakistan Petroleum Dealers Association of Pakistan (Sitara-e-Imtiaz), Malik Khuda Baksh, Anwar Kamal, Ameer Khan, Tariq Hassan, Saeed Khan and Anwaar also present in the welcoming ceremony.

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19th

Annual Environment Excellence Award 2022

&

National Conference on Waste Management Challenges and Opportunities

SPECIAL REPORT

NFEH 19TH ANNUAL ENVIRONMENT EXCELLENCE AWARD 2022

National Waste Management Conference & 19th Annual Environment Excellence Awards

EVENT HELD

Experts urge govt to dispose of urban cities' garbage in proper way

Ruqiya Naeem

The National Waste Management Conference and 19th Annual Environment Excellence Awards-2022 was organised by the National Forum Forum for Environment (NFEH) at a Karachi hotel, which extensively analysed garbage issues in big urban citied of Pakistan for finding a lasting solution to the serious and constant environmental problems.

One of the startling disclosures made at the conference was that there is no separate handling on modern lines of around 1,100 tonnes of garbage being generated from hospitals in Karachi daily as disposal of medical waste creates a serious public health risk.

This was stated by the Dean of Architecture and Management Sciences of the NED University of Engineering & Technology, Prof Dr Noman Ahmed, in his keynote address at the National Waste Management Conference. Dr Ahmed said the municipal workers and scavengers in the city were prone to deadly infectious diseases as they handled the hospital waste daily without any safety precautions much like the casual way the municipal garbage is handled in Karachi.

He lamented that there was no check at all to stop scavengers from extracting useful and recyclable material from the hospital trash as this practice should come to an end to safeguard public health. He said the hospital waste was quite often mixed with the regular municipal trash generated in the city instead of disposing it of in a safe manner.

The senior faculty member who remained involved in different studies on waste management practices emphasized that the hospital waste should be properly segregated before its disposal on a scientific basis. He said the government should provide maximum resources and support for developing an efficient system of hospital waste disposal as unsafe practices in this regard had gravely compromised public health during the coronavirus pandemic.

Zubair Ahmed Channa, Managing Director of Sindh Solid Waste Management Board (SSWMB), told the audience that a very haphazard system had been

present before the SSWMB had come into existence in 2014 for the disposal of 11,000 tonnes of municipal waste generated in Karachi daily. He said the private contractors and scavengers who had been collecting waste from different neighbourhoods of the city prior to the establishment of the SSWMB hadn't ensured that the trash collected by them should ultimately reach Karachi's two proper landfill sites as instead the garbage was thrown at various dumping points nearby residential localities.

He said that before the SSWMB had put in place its proper waste collection system, different agencies in Karachi, including cantonments, didn't ensure that the waste collected by them should reach the two landfill sites for proper disposal.

He said that SSWMB had ensured that up to 9,000 tonnes of waste generated in Karachi daily reached the landfill sites as just a year ago only 3,000 tonnes of garbage had been reaching these sites for safe disposal. Channa said that he had been facing immense difficulties to convince the residents of a number of residential localities and office-bearers of various industrial estates in Karachi not to depend any more on irregular private contractors for waste collection as instead, they should fully rely on SSWMB for the same essential service.

He said that owing to improper handling and disposal of trash in Karachi it was utterly difficult to consume municipal waste for useful purposes like waste-to-energy and recycling projects.

Wasif Ijlal, CEO of TransKarachi, said the Red Line BRTS project being built in Karachi from Malir Halt to Numaish would generate minimal carbon emissions as it would operate on biogas to be generated by dung available in Karachi's Cattle Colony. He said the Red Line BRTS would become operational in the next three years as it would resolve the issue of safe disposal

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of dung produced in the Cattle Colony that is otherwise unsafely disposed of into the sea.

He said the use of biogas for the Red Line bus service would minimize its fuel cost as it would become the first BRTS in Pakistan, which would require no subsidy from the government for its operations.

He said the project apart from generating renewable fuel for a mass transit system would also help in resolving the serious issue of hazardous waste generated from the Cattle Colony of the city. Otherwise, Cattle Colony's waste had been disposed of into the nearby drain as ultimately it caused constant marine pollution, he said.

NFEH President Muhammad Naeem Qureshi said that his non-governmental organization had hosted the conference to find a lasting solution to the municipal and hazardous waste generated in Karachi for protecting the health of its citizens. He said the NFEH for the past 19 years had been implementing an institutionalized system to recognise and appreciate the best environmental protection services by the corporate sector in the country. Mr Qureshi said the NFEH's struggle had encouraged more and more companies in the country to beef up their operational protocols for environmental safety in accordance with international standards. He said the NFEH had partnered with a number of government authorities, civic agencies, and private sector organisations to carry out extensive tree plantations in Karachi and other cities.

In his concluding remarks, Sindh Local Government Minister, Syed Nasir Hussain Shah, assured the audience that in the next few weeks, the proper waste collection system of the SSWMB would be deployed in all districts of Karachi for daily collection and disposal of garbage.

He said that in the next step, the SSWMB would unfold its waste disposal system in other major cities of Sindh after resolving the trash issue in Karachi. The minister said the Sindh government had the utmost resolve to make Karachi clean, green, and a fully developed city and for this purpose, its roads and civic infrastructure would be rebuilt and overhauled as soon as monsoon rains ends. He appreciated the industries and businesses that make consistent efforts to improve the environment and make sure that their operations shouldn't cause pollution.

Later on, an interactive question and answer session was held as the audience was given the opportunity to ask questions from the panellists of the conference. Most of the questions were posed to the SSWMB chief.

During the question-answer session, the SSWMB MD hinted that soon a fee would be charged from the residents and businesses of Karachi for providing them proper waste disposal services. He assured the audience that the SSWMB had been trying to engage the services of private scavengers already working in Karachi to overcome the shortage of manpower to provide waste disposal services in every part of the city. He said the SSWMB surely required cooperation from every citizen and business in Karachi to ensure a neat and clean provincial capital.Later, the Local Government Minister gave away the Environmental Excellence Awards to 70 companies while four awards were given for participation in tree plantation drives. Over 90 organisations submitted nominations for the awards.

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19th Annual Environment Excellence Award 2022

About NFEH:

National Forum for Environment & Health, commonly known as NFEH, is a purely Non-Governmental, Non-Profit Organization, established on June 5, 1999, with the aim to facilitate, promote and help create environmental, healthcare and educational awareness among the masses in general and youth and children in particular. NFEH is affiliated with the United nations Environmental Programme (UNEP) and supported by the Ministry of Environment, Govt. of Sindh. It is committed to serve and promote the causes of healthcare and protection of natural environment by creating awareness among all segments of society. NFEH has been successfully organizing various interactive events to meet these objectives. Annual Environment Excellence Awards were instituted fifteen year ago and have elicited a very enthusiastic response from the industry. These award have become the benchmark for the standards that need to be followed.

Aims & Objectives of NFEH's Annual Environment Excellence Awards

The Annual Environment Excellence Awards are designed to recognize and promote the organizations which make an outstanding contribution to sustainable development. They aim to highlight policies, practices, processes and products from all sectors of business in the country, which help achieve ;economic and social development without detriment to the environment and natural resources upon the quality of which continued human activity and further development depend.

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PFIZER PAKISTAN LIMITED	PHARMATEC PAKISTAN (PVT) LIMITED	PHARMEVO (PVT) LIMITED	QUAID-E-AZAM THERMAL POWER (PVT.) LIMITED (QATPL)	ROOTS INTERNATIONAL SCHOOLS & COLLEGES	ROOTS SCHOOL SYSTEM	SINDH ENGRO COAL MINING COMPANY	SINO SINDH RESOURCES (PVT.) LIMITED
SAPPHIRE TEXTILE MILLS LIMITED	SEPCO-III ELECTRIC POWER CONSTRUCTION COMPANY	SHABBIR TILES & CERAMICS LIMITED	SUI NORTHERN GAS PIPELINES LIMITED	THAR COAL BLOCK -1 POWER GENERATION COMPANY (PVT.) LIMITED	THE AGA KHAN UNIVERSITY HOSPITAL	THE SEARLE COMPANY LIMITED	TOTAL PARCO PAKISTAN LIMITED
THAL ENGINEERING	TRI PACK FILMS LIMITED	UCH-II POWER (PVT) LIMITED	UCH POWER (PVT) LIMITED	UNIVERSAL CABLES INDUSTRIES LIMITED	YUNUS TEXTILE MILLS LIMITED	WAH INDUSTRIES LIMITED	19TH ANNUAL ENVIRONMENT EXCELLENCE AWARDS 2022

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PROFILES OF AWARD WINNERS

ABBOTT LABORATORIES (PAKISTAN) LIMITED

Abbott life. to the fullest.

Abbott Laboratories (Pakistan) Limited (the Company) is a public limited Company incorporated in Pakistan on July 02, 1948, and its shares are quoted on Pakistan Stock Exchange. The address of its registered office is opposite Radio Pakistan Transmission Centre, Hyderabad Road, Landhi, Karachi. The Company is principally engaged in the manufacture, import and marketing of research based pharmaceutical, nutritional, diagnostic, diabetic care, hospital and consumer products.

ARTISTIC GARMENT INDUSTRIES (AGI DENIM) (PVT.) LIMITED

AGI DENIM

AGI Established in 1949 in Karachi, AGI Denim is one of Pakistan's leading premium denim manufacturers. As a market leader, keeping abreast of the changing times, we produce quality yarn, denim in an innovative culture that seeks out and uses only the latest equipment and machinery. We pride ourselves on maintaining production methods that ensure a safe and productive work environment for our employees. AGI are vertically integrated company with a largescale operation based in several locations across Karachi, Pakistan. AGI Denim ensures quality, innovation, and design that sets the standard for excellence within the denim manufacturing industry. AGI is also proud to add the first LEED GOLD certified spinning unit in the country, designed according to the industry 4.0 principles. Our state-of-the-art new LEED certified spinning has the capacity to produce 22 million kg of yarn annually. In addition, keeping with our zero waste focus, we also have the technology to recycle spinning waste into making yarn.

ARCHROMA PAKISTAN

ARCHROMA LIFE ENHANCED

Archroma is a global, diversified provider of specialty chemicals serving the branded and performance textiles, packaging and paper, and coatings, adhesives and sealants markets. Headquartered in Pratteln, Switzerland, Archroma operates in over 100 countries, with more than 2800 employees located in 31 countries and 25 production sites. Archroma is passionate about delivering leading and innovative solutions, enhancing people's lives and respecting the planet. The company is committed to the principles of "The Archroma Way to a Sustainable World: Safe, Efficient, Enhanced. It's our nature!"; an approach reflected in its innovations, world-class quality standards, high service levels, cost-efficiency and resource saving solutions..

Archroma Pakistan Limited (formerly: Clariant Pakistan Limited) represents Archroma in Pakistan. Archroma was formed in September 2013 from the textile, paper and emulsions businesses of Clariant. Clariant itself was formed in 1995 as a spin off from Sandoz, a chemical company which was established in Basel in 1886. In 1997, Clariant acquired the specialty chemicals business of Hoechst, a German chemical company. Through this direct lineage, Archroma has also acquired textile Chemicals Business of BASF In 2015 and M. Dohmen company in 2018. Archroma, represents on five continents and more than 35 group companies, employs around 3,000 people, headquartered in Reinach, Switzerland. In 2021, Archroma was also awarded with the EcoVadis platinum rating in corporate social responsibility, placing our company within the top 1% of the best rated companies in its industry.

In Pakistan, Sandoz (Pakistan) Limited was formed in 1963 subsequently became Clariant Pakistan Limited and incorporated in 1996 and now Archroma Pakistan Limited is listed on the Pakistan Stock Exchange. It has manufacturing facilities at Jamshoro and Landhi (Karachi). Besides manufacturing, the Company also acts as Indenting agents for the parent company and affiliates.

Based on the Company's performance Archroma Pakistan (formerly: Clariant Pakistan) has been honored for the 19th consecutive year with prestigious Top 25 Companies Award by the Pakistan Stock Exchange

ARTISTIC MILLINERS (PVT.) LIMITED

Artistic Milliners
DENIM COMPANY OF THE FUTURE

Artistic Milliners, headquartered in Pakistan, is a multinational denim manufacturing powerhouse with a strong focus on automation, innovation, people and planet. The company has an annual production capacity of 88 million pounds of yarn, 108 million meters of fabric and 30 million garments. Artistic Milliners has diversified its portfolio to include renewable energy with a current capacity of 100 MW of Wind Energy, and has a growing interest in Solar and Hydro plants.

Green Collaborations

Scaling up our sustainability and social impact, we are collaborating with the very best in the world. In 2020, AM became the only manufacturer to pledge to the UN business ambition for 1.5 C. We were also the world's first Cradle 2 Cradle certified denim manufacturer.

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AGP LIMITED

AGP has partnered with World Wide Fund for Nature (WWF) and has obtained the Green Office Certification in 2022 due to its continuous efforts to minimize its carbon footprint by reducing its consumption of scarce resources. The Company has set objectives to reduce its consumption of energy, paper and fuel. AGP is also providing regular environmental awareness to its employees to decrease its energy and resource utilization. From the start of the calendar year 2022 to date, AGP has reduced its recyclable waste by around 20%, fuel through travel by 5% and water consumption by 13%.

Environment Excellence Awards 2022 Furthermore, AGP is also shifting towards recyclable energy sources and is currently meeting some part of its energy requirements through successful installation of solar panels in all 3 production plants. AGP is also disbursing regular content and trainings to increase awareness of environmental-friendly means to conserve energy.

CENTURY PAPER & BOARD MILLS LIMITED

Century Paper & Board Mills (CPBM) started its commercial production in 1990 with Three Paper Machines (PMs) with an installed capacity of 30,000 TPY. Till 2008, Century gradually increased its production capacity to 240,000 TPY with Seven Machines (PMs) in operations. In 2003 Company also entered into manufacturing of quality Corrugated Cartons business line with current installed capacity of 40,000 TPY. Company has two Pulp Lines to process wheat straw and other agricultural residues to produce Bleached and Unbleached Virgin Indigenous Pulps. The chemicals required for pulp mills are produced mainly at mills site. In view of the energy constraints, company developed a very comprehensive power generation back up apart from the load available from national grid to meet the Energy requirements of the plant with multiple options to use Natural Gas, Biomass, Coal, Furnace Oil or High-Speed Diesel, which is supporting most viable and continuous operations of the company to strengthen its position as the most reliable source of supply to its valued customers chain. Having specialized in Coated Packaging Boards by installing state of the art plant and acquiring the most modern technology company stands as market leader in One Side Clay Coated Boards, produced on its two multilayer board machines with online multilayer coating facilities. Most of its Coated Boards are used for offset printing for eventual use as folding cartons by various FMCGCs, Pharmaceuticals, Confectionery and Tobacco industry etc. Company is currently substituting imports of One Side Coated Boards from Fareast and Europe and successfully meeting the requirements of the quality of Off Set Printing Houses, equipped with the latest Hi- Speed / Hi-Tech machines from European origins mainly.

BESTWAY CEMENT LIMITED

UNITS: FAROOQIA, HATTAR, CHAKWAL, KALLAR KAHAR

In line with its diversification strategy, the Group identified the cement sector in Pakistan as an opportunity and subsequently set up the group's first cement plant in Hattar, Pakistan with an annual production capacity of 1.1 million tonnes in 1995.

With an initial investment of US$120 million, civil works on the group's first cement plant commenced in 1996 and the kiln was fired two years later. BCL Hattar was established in industry record breaking time of 24 months. This was a greenfield project and the plant was set up in an economically deprived area of Hattar, in the KP Province of Pakistan. Bestway's investment led to the creation of over 800 direct jobs and the economic development of the area.

In February 2004 anticipating a period of resurgent demand in the domestic market, it was decided to expand BCL's operations through setting up its second greenfield plant with an annual capacity of 1.8 million tonnes. The plant was set up in Chakwal in the Province of Punjab, Pakistan at a total investment of US$140 million in another record breaking period of 19 months. Bestway's investment in one of the most underdeveloped areas of Central Punjab led to the creation of 900 jobs for the local community.

In September 2005 the Group acquired its third cement plant, Mustehkam Cement as part of the Government's Privatisation Programme. This plant had remained non-operational since 1999 and recommenced commercial production within a period of three months post-acquisition. In the post acquisition period the Group has invested in excess of US$50 million. In 2009 plant capacity was enhanced to 1.1 million tonnes per annum. BCL's investment in Mustehkam led to the creation of 800 new jobs which had a direct positive effect on the local economy.

In June 2008 Bestway set up its third greenfield plant, adjacent to the existing site in Chakwal, at a cost of US$180 million. This plant had an annual capacity of 1.8 million tonnes and created 500 jobs. BCL saw an opportunity in the Afghanistan market and in 2003 began exporting cement there. BCL is the largest exporter of cement to Afghanistan and has been winning the national export awards since 2004. In 2007 BCL started exporting cement to India and in just over two years became the largest exporter to India. BCL also exports cement to South Africa, Sri Lanka and the Middle East.

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CHINA POWER HUB GENERATION COMPANY (PVT.) LIMITED

China Power Hub Generation Company (Pvt.) Limited (CPHGC) CPHGC is a joint venture company registered by China Power International Holding Ltd (CPIH), a wholly-owned subsidiary of State Power Investment Corporation Limited, and Hub Power Company Limited (HUBCO). The equity proportions of CPIH and HUBCO in CPHGC are 52.5% and 47.5%, respectively. CPHGC is the first true joint venture company in the CPEC, it is responsible for the development, construction, and operation of a 2×660MW Coal-fired Power Plant in Hub, Balochistan with a total investment of approximately US$1.9 billion. CPHGC Project is 50 km to the west of Pakistan's largest city, Karachi, near the Arabian Sea. Construction began in February 2017 while the Commercial Operations Date (COD) was achieved at 0:00 hours on 17 August 2019. Up till now, CPHGC Project has generated more than 15 billion kilowatt-hours of electricity, providing Pakistan with a stable power supply and greatly alleviating its energy shortage. It has obvious advantages in terms of unit performance, power generation cost, environmental protection indicators, etc. It has successfully replaced the old oil-fired power station model which is responsible for high pollution and high energy consumption. Subsequently, it has helped not only increase Pakistan's total power generation but also helped to improve the overall quality of electricity generated in the process ensuring a reduction in power consumption Costs, improvement in the global competitiveness of export products and bring a wide range of social and economic benefits to Pakistan. In addition, up to now, the Project has generated more than 44.1 billion rupees (approximately US$0.3 billion) in taxes for Pakistan. The construction of CPHGC Project has made a positive impact on the local economy and has generated more than 6000 direct local job opportunities. Indirectly, it created an economic windfall through procurement from Pakistani vendors. At the moment, there are 300 Pakistani employees in key positions such as finance, business, legal affairs, operation and maintenance. They account for reaching 50%. CPHGC is committed to providing continued opportunities to the locals in terms of vocational training that will help them meet market expectations and help realize the localization of the plant in the future.

DAWLANCE PRIVATE LIMITED

Since 1980, Dawlance Premium Home Appliances Company has been turning houses into homes with thoughtfully innovative household appliances. The legacy of Dawlance – that now stretches over more than 3 decades - started off with the production of Refrigerators. Today, Dawlance – with reliability as its core value - provides cutting edge Washing Machines, Chest Freezers, Vertical Freezers, Split AC, Microwave Ovens & Water Dispenser. Over the last 40 years, Dawlance has not only developed the largest dealer network but has also established the largest after-sales service across Pakistan.
Dawlance is on its way to reform practices and incorporate societal commitment and consideration into their daily operations. These include awareness programs, social responsibility initiatives and donation drives. Dawlance and its employees comply with all applicable national and international environmental laws and regulations; manufacture environmentally friendly products in line with environmental management system based on Continual improvement and sustainability principles.
We perform our activities to:
Inherit a climate change respected, clean and healthy environment to the new generations. Use energy and natural resources efficiently. Minimize the adverse environmental impacts of products and production through product life cycle. Prevent pollution at the source. Prioritize climate change and sustainability in all activities. Raise environmental awareness of our employees and the society. Accompanying the Quality, Health and Safety and Energy Management Systems and we strive to set a model in durable goods sector with regard to environmental efforts.

Deokjae

Deokjae Construction was established in Pakistan in the year 2009 with the objective to participate in projects involving infrastructure development and civil such as construction of roads, bridges, underpasses, pavements, drainage and earthwork. The company with its expertise to provide turnkey solutions, from drawing board to completion and its quest for. excellence soon helped to enhance its reputation as a dynamic company delivering value for money Ever since its inception Deokjae has put a strong emphasis on quality which is further complemented by its belief to adopt the most advanced technologies, ensure stringent quality control procedures, efficient working techniques, reliable safety guidelines and above all on-time completion. All these integrated values have helped us to exceed client expectations and in the process has benefitted our employees, stakeholders and most importantly the surrounding communities. Our major achievement includes the 59 Km. Hyderabad-Mirpurkhas Dual Carriageway Road in Sindh which is of economic and strategic importance as it connects to the Thar Coal Projects, leads towards the Indian borders and has also provided an impetus to the Farm to Market access thus facilitating the farmers in the region to deliver the agricultural yields. Furthermore, Deokjae enhanced the efficiency of the Hyderabad-Mirpurkhas Toll Gate by installing the first ever Electronic Toll Management System that is the latest and matches global standards.

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D.G. KHAN CEMENT COMPANY LTD. (D G KHAN CEMENT PLANT)

Nishat Group is one of the leading and most diversified business groups in South East Asia and ranks amongst top five business houses of Pakistan. Under privatization initiative of the government of Pakistan, the group acquired D G Khan Cement Company (DGKCC) in 1992. At the time of acquisition, company owned 2000 tons per day (TPD) dry process UBE Japan cement plant. The plant is located 40 Km North-West of D G Khan City. Since 1992 D G Cement Company have strived to reach greater heights and had the distinction of becoming the first enterprise in Pakistan to obtain the prestigious ISO 9002 and ISO 14001 certification. The Company achieved several milestones, including: 1. Setting up of 3300 TPD new independent dry process cement plant at D G khan 2. Setting up of Captive Power Plant (48 MW) 3. Increasing 1200 TPD production at both cement kilns through optimization 4. Setting up of Waste Heat Recovery plant as CDM Project 5. Installation of 10.4 MW Waste Heat Recovery Power Plant with potential of an annual emission reduction of 33845 tons equivalent CO2/year at D G Khan 6. Setting up of Fully automated 6700 TPD Cement Plant at Khairpur Chakwal. 7. Installation of 8.5 MW Waste Heat Recovery Power Plant at Khairpur Chakwal WITH Air Cooled Condenser. 8. Setting up of 30 MW coal Fired Power Plant for shifting away its reliance from unreliable and expensive grid electricity at D G Khan. 9. Setting up of fully automated 10000 TPD Cement Plant at HUB Baluchistan 10.Setting up of 30 MW coal Fired Power Plant for shifting away its reliance from unreliable and expensive grid electricity at Hub Baluchistan with nAir Cooled Condenser. 11.Installation of 10 MW Waste Heat Recovery Power Plant at Hub Baluchistan with Air Cooled condenser.

FAST CABLES LIMITED

Since its inception in 1985, Fast Cables Limited has emerged as Pakistan's leading and most trusted electrical cable manufacturer. At Fast Cables quality is our first priority combined with superior customer service and affordability. Our emphasis on quality has made Fast Cables one of the most reliable brands in the Cable Industry of Pakistan and the choice of leading electrical consultants, engineers and architects in the country. Our manufacturing plant in Lahore is equipped with state of the art technology along with an excellent quality assurance system. In addition to our current product portfolio, we also manufacture electrical cables and conductors to cater to the specific needs of our valued customers. We have served the cables needs of our customers from diverse sectors including Building & Infrastructure, Oil & Gas, Telecommunication and many others.

EFU GENERAL INSURANCE LIMITED

EFU General Insurance Limited is Pakistan's largest and oldest general insurance company, always ready to go the extra mile to serve better.

Ever since the company's establishment in 1932, it has met the challenges of changing times. It has built a diversified customer base, covered more types of risks than any other, enhanced the expertise and delivered on the promises. In the year 2017 EFU General Insurance Ltd. including its Takaful (Islamic Insurance) operations have crossed the Premium/Contribution figure of Rs.20 billion. It is the first general insurance company in the history of Pakistan to achieve this milestone.

EFU General provides wide range of insurance service to fulfill all needs of commercial or individual clients. It provides Fire, Engineering, Marine, Aviation, Motor, Miscellaneous services and Takaful (Islamic Insurance) covers. It has a diversified customer base and writes all classes of industrial, commercial risks and caters to retail business like travel insurance, vehicle insurance, etc. It is rated by national and international rating agencies. i.e., VIS, PACRA of Pakistan and AM Best of USA. VIS and PACRA have assigned rating of AA+ with stable outlook and AM Best have assigned rating of B+ with Outlook Positive. EFU is an ISO 9001:2015 certified company.

Regarding the recognition of EFU General's services to the industry and the economy of Pakistan, it has also received various awards including Corporate Excellence Award of Management Association of Pakistan, Best Corporate Report Award of Institute of Chartered Accountant of Pakistan (ICAP) and Institute of Cost and Management Accountants of Pakistan (ICMAP), Achievement Award & Gold Medal of the Federation of Pakistan Chamber of Commerce and Industry (FPCCI), SAFA Best Presented Annual Report (Certificate of Merit) of South Asian Federation of Accountants (An apex body of SAARC), Brands of the year Award of Brands Foundation, Consumers Choice Award of Consumers Association of Pakistan, and Top 25 Companies Award of Karachi Stock Exchange, etc.

EFU General is the most powerful trusted brand in the country and is the leading insurer of Chinese infrastructure projects (CPEC) in Pakistan. It has always played a pivotal role of institution, giving the Pakistan insurance industry the leadership, manpower and drive needed to grow and face challenges.

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FATIMA FERT LIMITED PLANT SITE SHEIKHUPURA

Fatima Fert Limited (Formerly DH Fertilizers Limited) is located at Sheikhupura, Punjab, Pakistan. It's a urea manufacturing complex with a current production capacity of 815 MTPD of ammonia and 1350 MTPD of urea. FFT produces Urea as its main Product & Liquified Ammonia as a By-Product. Ammonia Plant uses Natural gas as the basic raw material. Ammonia and its by-product Carbon dioxide are then used for the production of prilled Urea. For details please refer to FFT introduction attachment. FFT has 'Local Fabrication Cell' for in-house equipments fabrication & machine spares development. It also has full fledge 'Model Lab' equipped with all necessary gadgets, tools and simulation softwares for training, Research & Development purposes. FFT has fully functional Workshop having large Machines, testing rigs, contains Electrical, Instrument, Carpentry and Equipment shop. Central Quality Control Laboratory has Instrument for analytical chemistry and product Specification Conformance and Testing. Two Emergency Control centers (EECs) on site & rear site for management support in emergency handling. 24 Hours manned fully Functional Fire Station with Fire Tender to meet any emergency. FFT is self- sufficient in power generation for its production facility and residential colony (Township). We are committed to high standards of corporate governance and comply with requirements of all Listing and Prudential Regulations. Site has DuPont PSM, DuPont OHIH, DuPont EMS safety systems and ISO certifications, IFA Certifications & Green Office certifications.

FATIMA FERTILIZER COMPANY LIMITED

The fertilizer complex is a fully integrated facility, capable of producing intermediate and final products. The Fatima Fertilizer Company Limited was incorporated on December 24, 2003, as a joint venture between two major business groups in Pakistan namely, Fatima Group and Arif Habib Group. The fertilizer complex is a fully integrated production facility, capable of producing two intermediate products, i.e., Ammonia and Nitric Acid and four final products which are Urea, Calcium Ammonium Nitrate (CAN), Nitro Phosphate (NP) and Nitrogen Phosphorous Potassium (NPK) at Sadiqabad, Rahim Yar Khan. The Complex has a 56MW captive power plant in addition to off-sites and utilities. The Complex has been allocated 110 MMCFD of gas from the dedicated Mari Gas fields. Foundation stone was laid on April 26, 2006 by the then Prime Minister of Pakistan. The construction of the Complex commenced in March 2007 and is housed on 950 acres of land. The Complex, when completed, is designed to produce: • 500,000 Metric Tons of Urea per Annum • 420,000 Metric Tons of Calcium Ammonium Nitrate (CAN) per Annum • 360,000 Metric Tons of Nitro Phosphate (NP) per Annum The Complex, during its construction phase engaged over 4,000 engineers and technicians from Pakistan, China, USA, Japan and Europe. The Complex provides modern housing for its employees with all necessary facilities. This includes a school for children of employees and the local community, a medical centre and sports facilities. Vision and Mission Our vision and mission reinforces our position as a driving force in the agricultural sector. Vision: To be a world class manufacturer of fertilizer and ancillary products, with a focus on safety, quality and positive contribution to national economic growth and development. We will care for the environment and the communities we work in while continuing to create shareholders' value. Mission: • To be the preferred fertilizer company for farmers, business associates and suppliers by providing quality products and services. • To provide employees with an exciting, enabling and supportive environment to excel in, be innovative, entrepreneurial in an ethical and safe working place based on meritocracy and equal opportunity. • To be a responsible corporate citizen with a concern for the environment and the communities we deal with.

FAUJI FERTILIZER BIN QASIM LIMITED

Fauji Fertilizer Bin Qasim Limited (FFBL) is mainly involved in manufacturing and distribution of chemical fertilizers for the farmers and agriculture sector of Pakistan. FFBL is the only manufacturer of DAP and Granular Urea in Pakistan. Its fertilizer manufacturing complex is located at Port Qasim Karachi, whereas its registered office (Head Office) is in DHA Phase-2 Islamabad. Company is listed on Pakistan Stock Exchange (PSX) since May 14, 1996 and the trade symbol of the Company is "FFBL". Major shareholders of the Company are Fauji Foundation (18.29%) a charitable trust incorporated under The Charitable Endowment Act 1890, and Fauji Fertilizer Company Limited (FFC) holds (49.88%) shares of the Company. This makes the Company part of The Fauji Group which is one of the largest conglomerates of Pakistan and has stakes in fertilizer, cement, power, oil & gas sectors of Pakistan. Fauji Group is also involved in foods, oil and grain terminal operations and financial services. A Board of Directors (BoD) nominated by FF Group manages the Company. BoD consists of four Independent Directors, seven Non-Executive Directors including Chairman of the Board and MD&CEO as Executive Director. The Company was incorporated in 1993 and commenced its commercial operations in year 2000. It had an installed capacity 1,670 MT/day of Urea and 1,350 MT/day of DAP. Through consistent in-house expansion and upgradation, the Company has successfully attained highest levels of 2,021 MT/day of Urea and 2,533 MT/day of DAP.

In 2005, Fauji Group started a Joint Venture with Office Cherifien des Phosphates Group (OCP) and formed a new entity with the name of Pakistan Maroc Phosphore S. A (PMP). FFBL has 25% equity holding in PMP and has ensured its continuous supply of Phosphoric Acid (P2O5) which is a raw material for production of DAP Fertilizer. Company as part of its diversification strategy acquired 21.57% of shares in Askari Bank and has 67.50% shares in Fauji Foods Limited (FFL). FFBL also has diversified in energy sector and has 35% stakes each in Foundation Wind Energy-I Limited & Foundation Wind Energy-II Limited (FWE-I & II). FFBL has majority stakes in its two unlisted subsidiaries, FFBL Power Company Limited (FPCL) and Fauji Meat Limited (FML), besides its 100% ownership in FFBL Foods Limited. Fauji Fertilizer Bin Qasim Limited (FFBL)

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EMC PAKISTAN PVT LTD

Established in January 1997, EMC Pakistan (Pvt) Limited, is one of the pioneering consulting companies of Pakistan offering services in the field of Environment, Health & Safety and provides economic and technical solutions to Pakistan's rapidly expanding industrial & commercial sector. EMC comprises a team of highly talented professionals, who work in sync with clients ensuring that the defined assessment, survey or reporting is executed with high level of efficiency. In its 22+ years' working tenure, EMC has successfully conducted large number of assignments pertaining to Environmental Audits, EIA/IEE, Environmental Management, Occupational Health and Safety and Waste Management. In the Industrial Development sector, a consortium of well qualified and experienced professionals constitutes the core team of experts to provide well thought of solutions keeping in view the different dimensions of master planning, legislative requirement and their impacts on the biophysical and socioeconomic environment.

Portfolio of the Services Offered

Environmental Studies. Environmental Impact Assessments/Initial Environmental Examination. Environmental & Social Baseline Studies. Environmental Management Plans. Waste Management, Research for Reuse – Recycling of Waste. Designing of complete Waste Management System,Feasibility Studies. Waste Audits. Management of Hazardous & Non-Hazardous Wastes. Supervisory services of Waste management practices. Wastewater Treatment. Designing of Wastewater Treatment Facilities. Installation of Wastewater Treatment Facilities. Feasibility Assessment of WWTP. Need assessment-Analysis of the requirements of Combined Effluent Treatment Plants (CETPs). Evaluation of Performance of Wastewater Treatment facility. Environmental Impact Assessment of WWTP. Surveys- -Existing Water Supply Drainage and Sewerage pattern. Surveys-water supply improvement schemes. Air Quality, Noise Management and Mathematical Modeling Studies. Air Quality Testing. Industrial Monitoring. Noise Monitoring. Air Dispersion Modelling. Thermal Plume Dispersion Modelling. Noise Mapping. Site Assessments. Land contamination investigation and solutions. Environmental Site Assessment (ESA)/ Due diligence survey. Occupational Health & Safety. Hazard/Risk Assessments Studies. SE Audits and Gap analysis. Trainings on Health and Safety. Management Systems & Audits Environmental Management System (EMS) & OH&S Development and Audit.

FAUJI FERTILIZER COMPANY LIMITED - GOTH MACHHI

Fauji Fertilizer Company Limited (FFC) is Pakistan's leading enterprise with multiple businesses across the country. FFC is the largest urea manufacturer of Pakistan. Its product is marketed under the brand name of Sona Urea. Besides Urea production, the company is also involved in energy generation, food processing, banking and chemicals production. With a diversified profile, FFC is pursuing multiple growth opportunities both inside and outside Pakistan, providing value for its employees, stakeholders and customers. The company pioneered wind power generation in Pakistan by establishing a 49.5 MW wind power plant which is in operation since May 2013. In food sector, FFC is operating the only IQF food preservation plant in Pakistan. FFC also holds equity stake in Fauji Fertilizer Bin Qasim (FFBL), Askari Bank, Fauji Cement, Thar Energy Ltd and Pakistan Maroc Phospore of Morocco.

Fauji Fertilizer Company is operating three urea plants, two of which are situated at Goth Machhi, Rahim Yar Khan. The plants at Goth Machhi have a total design capacity of 1.33 million tons of urea per annum. The company is ISO-9001, ISO-14001 & OHSAS-18001 certified. It is also associated with National Safety Council, USA and International Fertilizer Association, IFA. It is also certified under IFA's Protect & Sustain Stewardship Program.

FFC gives paramount importance to Occupational Health, Safety and Environmental Protection. FFC strives to follow voluntarily developed initiatives in the areas of environment, energy & water conservation, sustainable utilization of natural resources and Social Management. FFC continuously invest in environment friendly technologies and up-gradation of our plants to reduce our environmental footprint. The company boasts a comprehensive safety program undertaken to foster a safe and healthy work environment. The program focuses on both the permanent and contract employees of the company.

Cognizant of its responsibilities, FFC has an unwavering commitment to Environment, Occupational Health & Safety of its employees.

FAUJI TRANS TERMINAL LIMITED

FOTCO in a joint venture partnership with Trans Group Pvt Ltd has set up M/s. Fauji Trans Terminal has invested over US$ 32 million in the development of a state-of-the-art Bulk Oil Storage Tank Farm at Port Qasim with a total capacity of 108,000 M. tons in the first phase for the storage of petroleum products. The storage terminal is intended to facilitate efficient unloading of POL at the existing FOTCO terminal to help reduce Port congestion by unloading vessels at high flow rates of up to 4000 MT/hr. The storage tanks are being made available to Oil Marketing Companies (OMCs) on a spot and term basis, enabling them to enhance their storage capacities. The storage terminal commenced its commercial operations in January 2020.

FTTL is a modern facility, fully integrated with FOTCO Jetty at Port Qasim. The facility is capable of multi-product handling completed with pipelines and truck loading/unloading gantries. The terminal is strictly built-in accordance with the guidelines of the American Petroleum Institute (API) and National Fire Protection Authority (NFPA) of the United States and is equipped with the latest firefighting systems of International Standards. FTTL has a further enhancement capacity of 150,000 M. Ton additional storage, planned for Phase 2.

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FAUJI OIL TERMINAL & DISTRIBUTION COMPANY LIMITED

FOTCO is located at Port Qasim about 35 km East of Karachi. The Terminal located on the North side of the Kadiro Creek at position 24o47 N; 67o17 E is an established state-of-the-art oil handling facility capable of handling about 9 million tons of oil per annum with a growth potential of 27 million tons per annum. FOTCO was established in the year 1995 and since has been handling the majority of Diesel and Furnace Oil imports of the Country. Designed and equipped to handle all types of POL Products, the terminal has so far handled over 163 million tons of oil. FOTCO Terminal plays an important role in Pakistan's maritime operations by providing safe, efficient, and smooth handling of the country's fuel requirements. It is the only terminal in the entire region equipped with state-of-a-art automated jetty monitoring system.

GERRY'S INTERNATIONAL PVT. LTD

Gerry's International (Pvt.) Limited is one of the leading conglomerates of Pakistan, Gerry's Group. (The Late) Mr. Wali Muhammad Tayyab aspired to enter Pakistan's air travel arena in 1963 to turn his dream into reality. He remained committed to achieve his desired goal with the inception of IATA-approved Gerry's Travel Company, providing a variety of services in partnership with international companies. The foundations of Gerry's International were laid down by (The Late) Mr. Wali Muhammad Tayyab, who, just like his successors, had an excellent eye for detail and a profound understanding of customer needs. Gerry's International (Pvt.) Limited was founded on the principle of reliability, efficiency, and integrity. This has allowed us to become a top entity for travel requirements, with a strong presence in the UAE, USA, and UK. We have offices nationwide and an extensive network of employees who strive to bring nothing but excellence to the table. Our scalability proclaims that we do not hesitate to flash our feathers as a one-stop solution for all your travel needs - be it Visa Facilitation, Courier, or Logistics. The efficiency of our services is due to the fact that we put our clients first; understanding their requirements and acting upon them with the utmost sincerity. This efficiency is also a result of significant investments in the latest technologies that have facilitated Gerry's International's growth into what it is today - a major player not just in Pakistan, but internationally as well. The company is comprised of various divisions and ventures with expertise in the domain of; • Travel and Holidays • Courier • Freight and Logistics • Airport Ground Handling Services • Information Technology and Management Information Systems • Food and Beverages • Visa Facilitation

Vision: Our Vision is to become industry leaders both in Pakistan and internationally by providing the best quality service with innovation as our foundation.

Mission: Our mission is to satisfy our customers by identifying their needs and providing the most advanced and convenient solutions existing in the market.

HABIB BANK LIMITED

HBL, Pakistan's largest bank, was the first commercial bank to be established in Pakistan in 1947. Over the years, HBL has grown its branch network and maintained its position as the largest private sector bank in Pakistan with over 1,650+ branches and 2,100+ ATMs globally, serving 23 million+ customers worldwide.

HBL is shaping the future through a paradigm shift as a 'Technology Company with a Banking License'

The Bank's multiple digital channels are helping it get closer to its customers through innovative and frictionless ways

The Government of Pakistan (GoP) privatized HBL in 2004 through which Aga Khan Fund for Economic Development (AKFED) acquired 51% of the Bank's shareholding and the management control. The remaining 41.5% shareholding by the GoP was divested in April 2015. AKFED continues to retain 51% shareholding in HBL while the remaining shareholding is held by individuals, local and foreign institutions and funds including CDC Group Plc which holds 5% and International Finance Corporation which holds 3%.

The Bank is a leading full-service commercial bank. The key areas of operation are Branch Banking, Corporate & Investment Banking, Treasury, SME & Rural Banking, Financial Institutions & Global Trade Services, Transaction Banking and Islamic Banking.

The Branch Banking business is the mainstay of the Bank, positioning HBL as the largest retail bank in Pakistan catering to all market segments. HBL Corporate & Investment Banking Group is a leading provider of financial services to multinational and local corporate clients across the country. The Bank also has the largest Treasury operations in Pakistan and plays a key role in Pakistan's domestic markets.

HBL enjoys a significant international footprint and is the largest domestic multinational. The Bank's international footprint is important as it provides opportunities to effectively serve its core customers across its network. China remains the lynchpin of HBL's international strategy and the Bank is the largest executor of CPEC related financing in Pakistan. In November 2019, HBL created history when the HBL Urumqi Branch formally commenced the RMB business by becoming the first and only bank from Pakistan and one of the three banks from the South Asia and MENA region to offer end-to-end RMB intermediation. In December 2019, HBL became the first Pakistani bank to be awarded the much coveted branch license to offer financial services to clients in Beijing. As the leading financial intuition of Pakistan, HBL is at the forefront of all development initiatives which includes growth of priority sectors and targeting the unbanked population in the country. As the leading financial institution of Pakistan, HBL remains committed to its objective of financial inclusion for all segments of society. The Bank is already playing a leading role in enhancing financial inclusion through initiatives such as the Ehsaas Kafalat Program and facilitating access of women to the financial sector.

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HARBIN ELECTRIC INTERNATIONAL (O&M)

Harbin Electric International Co., Ltd. (HEI), an important member of HE Group, is China's leading large-scale enterprise is a power solution business oriented company has been established in 1983, HEI is leading business in the entire course of power projects, EPC projects design, construction , commissioning /operation & maintenance and sustainable transmission lines, and other utilities in the area of thermal power plants, hydropower station projects, combined-cycle power plants and wind power projects. HEI also provides comprehensive professional after-sale service for the power plants. Harbin Electric International has formed its Operation & Maintenance company in Pakistan in 2016.
HEI has accomplished first O&M contract after safe and successful completion of RLNG based QATPL Bhikki 1180 MW CCPP.
Our ongoing Quaid E Azam Thermal Power Plant is one of the leading contributor for an uninterrupted power supply to the national grid to cope up the shortages of power crises of country. The dispatch of electricity generated is fulfilling the requirement of approximately 2.4 million customers across the nation.
HEI-O&M is one of the first amongst the who are Operating & Maintaining GE 9HA world's latest and most efficient Gas Turbine.
HSE is one of our core value. We are not only focused on productivity but safety of our personnel's and protection of environment and community is HEI's utmost priority.
No any business is successful without its environment friendly initiatives. We are in fully compliance with NEQs, PEQS, European and world bank guidelines. HEI O&M environment friendly initiatives acknowledged and awarded by National environmental forums of Pakistan. We have received Annual Environment excellence award consecutively in 2020, 2021 and 2022. We are the first green office power plant in Punjab Pakistan certified by WWF.
HEI O&M has successfully achieved its benchmark of valued reputation in emerging power sector in very short time. Our core values are integrity, safety, quality, accountability which are our foot prints and one of the secrets of success gives confidence and trust to our esteemed customers. Therefore, HEI has accomplished several other business opportunities beyond the boundaries.
O&M of 1263 MW haveli Bahadur Shah Power Plant,
Commissioning of 900 MW BQPS-III Power Plant

HILAL FOODS (PVT.) LTD.

Hilal Foods is one of the Pakistan's leading FMCG company in value-added food segment with state-of-the-art manufacturing facilities, and quality brands nurtured through innovation and excellence. The company successfully exports to more than 20 countries around the world. Since its inception in 1957, Hilal Foods is manufacturing high quality products with prime focus on continuous improvement and Research and Development. Our Vision Through innovation and excellence, we aspire to become the preferred choice in high quality branded food products by growing our consumer base globally and achieve Rs 20 billion by 2023 through promoting a winning culture that makes us an Employer of Choice. Our Mission To provide countless Reasons to Smile to everyone, everywhere, every day.
Core Values Hilal Group is guided by a set of core values, we believe in, and stand for; which guide our actions, decisions and are the core drivers of our corporate belief system. People – We are a team with a winning & entrepreneurial mindset Integrity – We have zero tolerance on breach of integrity as this is the human quality most necessary for business success Excellence through Innovation – This is our passion, built in our DNA & one of our key success factors Collaboration – Key driver to promote teamwork, trust, respect, honesty and an open culture Customer & Consumer – Our ultimate goal.

HUANENG SHANDONG RUYI (PAKISTAN) ENERGY (PVT.) LIMITED

China Huaneng Group (CHNG) is a key state-owned company established with the approval of the State Council of the People's Republic of China, a state-authorized investment institution and a pilot state-holding company. It is an integrated energy group, with its installed capacity ranking first in the world and its business involving electric power, coal, finance, technology and transportation industries.
CHNG is the first company to have reached the total installed capacity of 100GW in China and has a total wholly-owned installed capacity of 160GW domestically and overseas.
The installed capacity and power generation accounts for 12% in China. The overseas units are located in Australia, Singapore, Myanmar, United Kingdom, Netherlands, Mexico and Philippines distributed in four continents. The coal production capacity reaches 68.17 million tons/year, with total assets of 751.3 billion RMB yuan and more than 140,000 employees. CHNG was the first Chinese power producer to join the ranks of Global Fortune 500 Companies, ranking 217th in 2016. CHNG has achieved excellent operating results and made important contributions to the national energy security and the stable and rapid economic development, with its overall strength leading in the domestic power industry.
As of the end of 2015, The consolidated operating income reached more than 300 billion RMB Yuan, the controllable installed capacity exceeds 160GW, the low-carbon clean energy consumption accounts for more than 25%, the controllable coal production capacity exceeds 100 million tons/year with more than 25% for CHNG's power generation consumption, and the overseas holding capacity accounts for more than 5%.

Corporate Mission

· A red company fulfilling the need of loyalty and harmony
· A green company advocating Technological innovation and environmental protection
· A blue company advancing forward via continuous innovation and internationalization.

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INDUS MOTOR COMPANY LIMITED

Indus Motor Company Limited (IMC) is a joint venture between certain companies of House of Habib of Pakistan, Toyota Motor Corporation (TMC) and Toyota Tsusho Corporation (TTC) of Japan. Incorporated in 1989, the Company manufactures and markets Toyota brand vehicles in Pakistan. These include several variants of the flagship 'Corolla' and the newly launched "Yaris" in the passenger car segment, "Hilux" in the light commercial vehicle segment and "Fortuner" in Sports Utility Vehicle segment.

IMC's manufacturing facility and offices are located at a 107 acre site in Port Qasim, Karachi. The product is delivered to end customers nationwide through a strong network of 46 independent 3S Dealerships spread across the country.

Over 30 years, since inception, IMC has sold more than 903,800 CBU/CKD vehicles. It has also demonstrated impressive growth in terms of volumetric increase. From a modest beginning of 20 vehicles per day production in 1993, daily production capacity of the Company has now increased to 268 (with overtime) units per day. This has been made possible through the development of human talent embracing the 'Toyota Way' of quality and lean manufacturing.

IMC has made large scale investments in enhancing its own capacity and in meeting customer requirements for new products. Corolla is, today, the largest selling automotive brand model in Pakistan. This country is the highest Corolla-selling nation in the Asia-Pacific region and also has the distinction of being # 1 in Toyota's Asian market.

The Company has a workforce of 2,855 persons at year end. It invests heavily in training the team members and management employees and creating a culture of high performing and empowered teams who work seamlessly across the various processes in search of quality and continuous improvement.

IMC employees are encouraged to pursue high standards of business ethics and safety according to the core values of the Company; they communicate candidly by giving bad news first and extend respect to people. Employees rate IMC high on work environment and level of job satisfaction as per the bi-annual TMC morale survey.

IMC has played a major role in the development of the entire value chain of the local auto industry. It is also proud to have contributed in poverty alleviation at the grass root level by nurturing localization. This, in turn, has directly created thousands of job opportunities and transferred technology to 52 vendors supplying parts. The Company is also a major tax payer and significant contributor to the Government's exchequer.

ICI PAKISTAN LTD (CHEMICALS & AGRI SCIENCES BUSINESS)

ICI Pakistan Limited is a dynamic, growing Pakistan-based manufacturing and trading company that provides essential products for a diverse range of applications in almost every industry in Pakistan. Currently, our primary Businesses include Soda Ash, Polyester, Life Sciences and Chemicals & Agri Sciences. In addition, ICI Pakistan Limited has a growing footprint in the infant formula business in partnership with (Morinaga) of Japan, and Unibrands (Private) Limited (Unibrands). The Company prides itself in complying with all the regulatory and legislative requirements, the National Environmental Quality Standards (NEQS) specified by the Environmental Protection Agency (EPA) and international Health & Safety standards.

ICI PAKISTAN LTD (PHARMACEUTICALS BUSINESS)

ICI Pakistan was originally established in 1944. With over 75 years of successful operations. The Organization is maintaining a very high caliber of standard operating procedures and practices in terms of environmental and overall occupational health and safety, continues to strive to improve working of various activities to objectively meet local requirements and relevant bylaws requirements for emissions to air, wastewater, drinking water, ambient air quality and noise, occupational health and safety practices and satisfy the requirements of various environmental legislations as prescribed by national and international agencies.

ICI Pakistan supply essential products to almost every industry in the country through our five diverse businesses: Polyester, Soda Ash, Chemicals & Agri Sciences, Pharmaceuticals and Animal Health. The Company also has a management stake in the infant milk formula business under the name of NutriCo Morinaga (Private) Limited. ICI Pakistan Limited is part of Yunus Brothers Group (YBG), one of the fastest-growing and most progressive Pakistani conglomerates with a wide portfolio of businesses including, but not limited to: cement, textiles, power generation and commodity trading.

ICI Pakistan Ltd. Initially had 01 Nutraceutical Plant working under Life Sciences Business and acquired Cirin Plant (Hattar) and Wyeth Plant (Karachi) in 2016 and 2017 respectively and now operating under separate Pharmaceutical Business of ICI Pakistan Ltd.

ICI Pakistan Limited is one of the most trusted manufacturer engaged in providing Medicinal Products. For the formulation of these products, superior quality ingredients are used. Moreover, the medicines of various potencies are offered as per the medical requirements.

Hygienically processed, these medicines are highly effective. ICI Pakistan Limited is ISO 9001:2015, ISO 14001:2015 and 45001:2018 certified company and is regularly inspected and audited by DRAP Pakistan.

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K-ELECTRIC LIMITED

K-Electric (KE) has powered Karachi for over one hundred years. Through a network spanning across 6,500 square kilometres, KE supplies power to all residential, commercial, industrial and agricultural areas that fall under the city's ambit and beyond, serving over 2.5 million customers across Karachi, Dhabeji and Gharo in Sindh, and Uthal, Vinder and Bela in Balochistan. KE is the only vertically-integrated power utility in Pakistan, which means the organisation manages all three key areas – Generation, Transmission and Distribution – of producing and delivering energy to consumers. Formerly known as Karachi Electric Supply Company Limited, the power utility is an integral part of one of the world's most populous cities. In 2009, KES Power Limited, the majority shareholder of KE, put into place a turnaround strategy which has seen investments of over USD 2.1 billion. These have resulted in 1,057 MW being added to the company's Generation capacity and Transmission & Distribution capacity has been increased by approximately 29% and 60% respectively, followed by a 15.5% point reduction in Transmission & Distribution losses. K-Electric's transformation is a globally recognised success story of business excellence. KE is proud to be one of the most dynamic institutions in the country and the organisation aspires to continuously serve Karachi with even greater vigour and purpose with the collective support of all its stakeholders.

KAPCO

KAPCO is Pakistan's largest Independent Power Producer (IPP) having a name plate capacity of 1600 MW. Kot Addu Power Plant was built in five phases between 1985 and 1996 in Kot Addu, Punjab, Pakistan, by the Pakistan Water and Power Development Authority (WAPDA). Kot Addu Power Company Limited (KAPCO) was incorporated as a public limited company in April 1996, under the Companies Ordinance, 1984 with the objective of acquiring the Power Plant from WAPDA. The principal activities of KAPCO include the ownership, operation and maintenance of the Power Plant. Following the successful completion of the Offer for Sale by the Privatization Commission (on behalf of WAPDA) in February 2005, 18% of KAPCO's shareholding is now held by the General Public. On April 18, 2005 KAPCO was formally listed on all three Stock Exchanges of Pakistan. The Power Plant comprises of 10 multi fuel fired gas turbines and 5 steam turbines. The Power Plant is divided into 3 energy Blocks. Its combined cycle technology enables KAPCO to use the waste heat from the gas turbine exhaust to produce steam in the Heat Recovery Steam Generator, which is then used to run the steam turbines, resulting in fuel cost efficiency and minimum wastage. The Power Plant is a multi-fuel gas-turbine power plant with the capability of using 3 different fuels to generate electricity, i.e. Natural Gas, Low Sulphur Furnace Oil and High Speed Diesel. The Power Plant is also the only major plant in Pakistan with the ability to self start in case of a country wide blackout. \ KAPCO is the first company in Pakistan to be awarded three simultaneously accreditations under the title of the Integrated Management System. For its achievements in areas of quality, environment and safety, KAPCO was awarded the relevant certifications in July 2004. The current certifications held by KAPCO are ISO 9001 - 2008 Quality Management System; ISO 14001 - 2004, Environment Management; and OHSAS 18001 - 2007 Occupational Health & Safety Management.

LIBERTY MILLS LIMITED

Liberty mills is one of the largest textile manufacturers of Pakistan. It was established in 1964 and ever since then have been aiming for a sustainable and ecofriendly production. It is a vertically integrated setup having state-of-the-art Spinning and Weaving Units situated in Nooriabad, whereas processing and stitching units are spread over various locations in Karachi. With every year passing by, Liberty is improving its footprint by adopting sustainable measures in production. This includes process optimization, development of ecofriendly products, investment in green energy, adopting sustainable fibers while reducing GHG emissions.

LOTTE CHEMICAL PAKISTAN LIMITED

Lotte Chemical Pakistan Ltd is a world-class supplier of purified terephthalic acid, an essential raw material used in the polyester industry. Lotte, the South Korean conglomerate, acquired the majority shareholdings in Lotte Chemical Pakistan Limited (LCPL) in September 2009. Subsequently, the name of the Company was changed to Lotte Chemical Pakistan Ltd. Lotte Chemical Pakistan Ltd is the single largest foreign direct investment to date (US$ 490 million) in Pakistan's petrochemical industry. The plant at Port Qasim, Karachi was built using ICI's state-of-the-art technology when it was commissioned in 1998. It produces Purified Terephthalic Acid (PTA), an essential raw material for Pakistan's textile and PET packaging industries and forms the backbone of the polyester chain, including Polyester Staple Fibre, Filament Yarn and PET (bottle grade) resin. In addition to its own manufacturing facilities, the Company has helped create a large infrastructure network at the Port Qasim vicinity, which includes a chemical jetty, raw water pipeline and manufacture of industrial gases through third party contracts. It has therefore been a trendsetter in industrial investment in Pakistan. The PTA plant was constructed in 1996/97 and started production in June 1998. Within a short time, PPTA's dedicated and highly motivated team of professional engineers proved that it could run this complex plant to world standards of safety, environmental care, product quality and process efficiency. Since 2002 the plant has operated above its nameplate capacity of 400,000 tons per annum and following minor de-bottlenecking and process improvements, is capable of ramping that up to 500,000 tons per annum. The plant remains one of the most advanced facilities in its class in the region. The company maintains its competitive edge by virtue of being a local manufacturer and major supplier for the domestic Polyester and PET industries with short delivery times, consistent quality and excellent customer service.

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LUCKY TEXTILE MILLS LIMITED

Lucky Textile Mills Limited was first established in 1983 and has since remained one of the leading textile manufacturers in the country to-date. With an indelible commitment to employing the most modern technology and providing outstanding working conditions for all our staff, we have always believed in creating the best value for any entity that invests its time with us. For over 30 years, our continued focal point has remained on our esteemed customers and their satisfaction, which we always strive to guarantee.

With 3 state-of-the-art weaving mills that house 750 Sulzer Shuttle-less looms which are equipped with computerized back process comprising of Karlmayer warping and sizing machines. This high-tech mechanism is installed to cater to the international market and has a capacity to process 250, 000 meters per day and over 83 million meters / annum processing capacity. Also, our factories facilitate over 6.20 MW of power generation that provides a self sufficient energy source. We maintain that every aspect of our operations is inclined towards adding to a progressive future and firmly believe that by stringently pursuing our core values of Leadership, Understanding, Commitment, Knowledge and Yielding, we will undoubtedly grow to be one of the most successful industry leaders in the country.

LONGi SOLAR TECHNOLOGY CO., LTD.

Founded in 2000, LONGi is committed to being the world's leading solar technology company, focusing on customer-driven value creation for full scenario energy transformation.

LONGi has dedicated itself to technology innovation and established five business sectors, covering mono silicon wafers, cells and modules, commercial & industrial distributed solar solutions, green energy solutions and hydrogen equipment. The company has honed its capabilities to provide green energy and has, more recently, also embraced green hydrogen products and solutions to support global zero carbon development.

Vision of LONGi: The World's Most Valuable Solar Technology Company

Mission of LONGi: Utilizing Solar Energy, Building a Green World

Core Values of LONGi: Reliable, Value-added, Delighted.

- In 2021, LONGi achieved wafer shipments of 70.01GW, and shipped 38.52GW of mono-crystalline modules.
- In Q1 2022, LONGi achieved 18.36GW in mono-crystalline silicon wafer shipments and shipped 6.44GW of mono-crystalline modules.
- In 2022, LONGi plans to increase the shipment for wafers and modules to 90-100GW(including for internal use) and 50-60GW(including for internal use).
- During the reporting period, the company's global sales performance, market share and brand influence ranked it first in the world, with its total shipment volume of domestic and exported modules exceeding the second place by more than 10GW.

LUCKY CEMENT LIMITED

Founded in 1993, Lucky Cement Limited stands as the flagship company of Yunus Brothers Group (YBG). Lucky Cement is the largest producer of Cement in Pakistan with production capacity of 12.15 MTPA and remains one of the country's leading exporters of quality cement. Lucky Cement is listed on the Pakistan Stock Exchange (PSX).

The Company has also issued Global Depository Receipts (GDRs), listed and traded on the Professional Securities Market of the London Stock Exchange and is the first Shariah Compliant Company of Pakistan certified by the SECP.

Over the years, the Company has grown substantially and is expanding its business operations with production facilities at strategic locations in Karachi to cater to the Southern regions and Pezu, Khyber Pakhtunkhwa to serve the Northern areas of the Country. Lucky Cement is Pakistan's first Company to export sizeable quantities of loose cement, being the only cement manufacturer to have its own loading and storage export terminal at Karachi Port.

Lucky Cement strives to remain an efficient and low cost producer and is one of the pioneers to introduce and install Waste Heat Recovery, Refuse Derived Fuel (RDF) and Tyre Derived Fuel (TDF) Plants in Pakistan. It also has self-sufficient Captive power generation facility of 180 MW and supplies additionally generated electricity to support the National grid. Lucky Cement owns a fleet of Bulkers and Trailers, which gives added advantage in terms of logistics and efficient deliveries to all types of customers spread across the length and breadth of the Country.

Lucky Cement remains focused on the responsible and rational use of natural resources, a strategy that allows it to reduce any adverse impact of its operations and increase its operational efficiency. The Company has embedded sustainability at the core of its operations. All the initiatives developed in relation to eco-efficiency are based on its commitment towards the United Nations Sustainable Development Goals 2030.

Environmentally Friendly Practices

Lucky Cement is strongly driven by international benchmarks for sustainable practices in business. But a greater portion of what the Company does in this sphere is by choice and conviction. From this flows its support for endeavors to conserve the natural capital, improve land and water use, and protect forest tracts and green sanctuaries.

Join the movement

Stop polluting

Save our environment

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MACPAC FILMS LIMITED

Macpac Films Ltd is Pakistan's pioneer of BOPP & CPP films, and a leader in the field in sealable, plain, and value-added films for over three decades. Our work is seamlessly woven into the lives of everyday people, in invisible yet vital ways. From confectionery and snacks to lifesaving medication, we help make products everywhere safe and durable through affordable film-based packaging. It is this ubiquity that makes us the nation's favorite and most advanced packaging manufacturer. This achievement is a credit to our talented team's commitment to success through innovation, as well as our ethos of responsibility and excellence in execution. These are also the factors that have imbued our long-term client relationships trust and stability and allowed us to create new avenues of sustainable profitability.

MONDELEZ PAKISTAN

Mondel□z International is an American multinational confectionery, food, and Beverage Company which consists of approximately 83,000 individuals around the world. It consists of the global snack and food brands of Kraft Foods Inc. The company operates in 165 counties around the world. Mondel□z international is the largest chocolatier, biscuit baker and candy maker and second largest maker of gum. Before the October 2012 it was operating as Kraft Foods. Mondel□z international portfolio includes several billion dollars brands such as Oreo, chips Ahoy, Belvita, Triscuit, LU, Nabisco, club social , Barni, and Milka , Terry's, Cote d'Or. Our most familiar products in Pakistan are Cadbury daily Milk in chocolate; éclair and softmint in candy and Tang for (powder beverages).

NETSOL TECHNOLOGIES

Proudly serving the world's top asset finance and leasing companies with smart software technology for over four decades.
NETSOL Technologies taps into its strong business acumen to find solutions to the unique set of challenges and constraints imposed by each new project and delivers solutions that fill performance gaps. We have a proven track record of successfully meeting deadlines and executing the most complex projects within budget while consistently maintaining the highest quality. NETSOL Technologies maintains its position as a leader in providing innovative solutions to the global asset finance and leasing industry. We take pride in being the first organization in the industry to introduce digital transformation and launch a complete line of digital solutions. We introduced our digital suite to help companies tap into the advantages of digitization and mobility while taking control of the challenges inherent in this environment.

MM PAKISTAN

MM Pakistan (Pvt.) Ltd. (MMP) is an independent engineering, management and development consultancy, operating in all major sectors of the economy. Established in 1986, MMP has worked with public, private and multilateral institutions to successfully deliver over 500 projects directly related to Pakistan's national and strategic interests. The unique diversity of our business by sectors, skills and geography, enables us to tackle projects of any size, in any sector, at any stage of the project life cycle - from project inception through to delivery, operation and beyond. MMP's strong organizational ethos of professionalism, integrity and excellence and the ability to leverage its existing staff of over 1,000 spread across engineering disciplines, has enabled us to have a prestigious legacy of delivering numerous landmark projects. We have participated in mega power projects with a cumulative reserve capacity of more than 20,000 MW including Jamshoro Thermal Power Plant, Suki Kinari and BUNJI Hydropower and the expansion of Tarbela Dam (T4 & T5). We are also proud to have contributed towards the development of Pakistan's water, urban and infrastructure and social sectors by participating in projects such as Guddu Barrage and Jinnah Barrage construction, Mohmand Hydropower Station, Basha Dam, Kachhi Canal (remaining works), Islamabad International Airport, Benazir Income Support Program (BISP) and Master Plans for numerous cities/districts in AJK, GB, Sindh and Islamabad. Our clients are at the center of everything we do and therefore we ensure that we provide quality services to each and every client based on a quality assurance system as envisaged by ISO-9001:2015. The diverse talents of our people, the power of technology and our strategic affiliations with major international companies gives us an edge over our competitors in the market, while also ensuring that MMP provides the best value-for-money to our clients.

NAUBAHAR BOTTLING COMPANY (PVT.) LIMITED

Naubahar Bottling Company is one of the Largest manufacturer & distributor of Pepsi Cola Soft drinks in Pakistan.
We have capacity to produce diversified portfolio of ■ PepsiCo CSD Products i.e. PET & RGB, ■ Bottle Water i.e. Aquafina Bulk & Aquafina PET ■ Juices i.e. RGB & Tetra Pak

Vision & Objective:

NBC vision & objective is based on slogan "Customer Satisfaction is our Success", for that we focused to deliver the Safe & Quality oriented Product to their Customers which should meet or exceed their perception. NBC has adopted, Best Practices for the Conservation of Water & Energy, Utilization of Renewable Resources for the Betterment of Environment. NBC also has taken the measures for the Plantation of Trees in different areas. For customer Satisfaction & improvement in process, Company always Focused on Local and National Regulatory & Legislation Obligations like PFA, PSQCA & EPA, International standards like ISO 9001, 22000, HACCP, GMP, Halal and AIB standard. NBC always believes on Innovation in Technology, values & standard procedures, focused on improvement in productivity and investing on their Employees. We believe on individual's Skills development agenda like personal Training, KPIs, Empowerment, development programs, and workshops.

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NORTHERN BOTTLING COMPANY (PVT) LIMITED PESHAWAR

Northern Bottling Company (Pvt) Ltd. is sister concern of Haidri Beverages (Pvt) Ltd. and a wholly owned subsidiary of Haidri Beverages (Pvt) Ltd. based in Peshawar.

Our production plant and main office is situated in Hayatabad Industrial Estate, Peshawar where around 700 employees are rendering their services. Sales Coverage area of the company comprises of KPK starting from Swabi being the boundary area with Islamabad franchise and including the whole Tribal belt. A wide range of SKUs including Carbonated, Energy Drinks and Mineral Water are produced here. We are one of the largest PepsiCo bottlers in Asia Pacific and serve as exclusive bottlers for all of KPK, Northern Punjab, AJK, Gilgit Baltistan and Federal Area, Islamabad. This area is catered by our system and encompasses over 120,000 trade outlets. Our plants have state of the art machinery. Some of our world-renowned brands produced in house include: Pepsi, Mountain Dew, 7UP, Mirinda, Sting, Aquafina and Slice. We have a bulk water facility and cater to in home delivery for bulk Aquafina as well. We are passionate about the beverage business and strive to provide our customers and consumers the very best. Our mission is to produce PepsiCo quality beverages, maintain market leadership by growing our sales volumes, strengthen our market share, deliver ROI to all of its stakeholders and fulfill its responsibilities in the community. We believe that a sustainable business and environment built under the umbrella of social accountability creates a huge impact on the economy benefiting not only the community but rather society as a whole.

OIL & GAS DEVELOPMENT COMPANY LIMITED

OGDCL's under a forward-looking management foresees the organization as not only the leading E&P Company of the country, but also as a company known for its people, partnerships and performance in the region. The Company continued with its strategies of accelerating oil and gas exploration, adding to its reserves, early development of newly discovered fields and strengthening of its oil and gas production base in order to enhance indigenous production of the country and create value for its shareholders. It has grown into a technically feasible and commercially viable organization and developed a highly qualified pool of professionals who can undertake and supervise almost all phases of oil and gas exploration and production starting from preliminary geological surveys and culminating in the operation of oil and gas processing plants. In order to execute the exploratory and development programmes, OGDCL has also developed a sound equipment and operational base which includes drilling rigs, Workover rigs, Geological Field Party, Seismic parties, Engineering Field Parties, Gas Gathering and Pipeline Construction Party, Seismic Data Processing Centre, Geological Analysis Laboratory, Wireline Logging Unit, Cementing Units and Data Logging Unit. OGDCL with an aggressive business development strategy provides an enabling environment for foreign participation (either as a JV partner or on a stand-alone basis). The Company is also aiming at fast-track development of its current and future projects at an aggressive pace without compromising quality and transparency.

PAK-ARAB REFINERY LIMITED

PAK-ARAB REFINERY LTD. (PARCO), is a Joint Venture between the Government of Pakistan (60%) and the Emirate of Abu Dhabi (40%), through its Mubadala Investment Company.

PARCO's major business activities are:

· Refining
· Transportation
· Marketing

PARCO has the most modern refinery in Pakistan having a capacity of 120,000 BPD, over 2000 kms of cross country pipeline network (including its JV subsidiary Pak-Arab Pipeline Company Limited (PAPCO) with a strategic storage of over one million tons, and a rapidly expanding retail network of TOTAL PARCO (TPPL) – a joint venture with TOTAL of France. With the acquisition of Chevron's fuel business in Pakistan, TPPL is now the second largest Oil Marketing Company in the country. PARCO is also marketing nationwide LPG under the brand of Pearl Gas and fuel oil under the brand of Pearl fuels. High quality asphalt is also being marketed as Biturox.

With continued support of the Emirate of Abu Dhabi and Government of Pakistan, PARCO over the years has been able to implement a number of energy projects that have contributed significantly in enhancing the country's economic growth, saving foreign exchange, transferring technology and providing employment.

PARCO`s performance is reflected not only in its technical and financial results, but can also be judged by its other achievements and awards e.g. Company has maintained its AAA and A1+ long and short term credit rating by Pakistan Credit Rating Agency (PACRA) for the twenty third year running. The company is amongst the first in Pakistan with three simultaneous international certifications: ISO 9001:2015 (Quality Management System), ISO 14001:2015 (Environmental Management System) and ISO 45001:2018 (Health & Safety Management System). PARCO has also received Environment Excellence Awards for the last several years and is rated among the top 10 organizations in Pakistan for outstanding achievement in Environment Management.

From producing environment friendly products to efficient, world class facilities and infrastructure, building a competent team, and major social initiatives, PARCO is doing its utmost in Providing Energy with Responsibility.

PAKISTAN OILFIELDS LIMITED

Pakistan oilfields Limited (POL) promoted by the Attock Oil Company Limited (AOC) was incorporated on November 25, 1950 as a Pakistani oil exploration & production company. The Attock Oil Company had been engaged in oil exploration & production since the early part of last century & has discovered oil at Khaur (1915), Dhulian (1936), Joyamair (1944) & Balkassar (1946) in the Pothohar region. POL discovered oil at Karsal (1960) & Meyal (1968) in the Pothohar Plateau. POL new Oil & Gas discovery include Pariwali – 1 (1994-95), Pindori (1995), Minwal (1996) & Turkwal (1997) in the Potwar Plateau of the upper Indus Basin.

Our Shining Present:

POL operates in nine development & production leases over Balkassar, Dhulian, Joyamair, Khaur, Turkwal, Meyal, Minwal, Pariwali & Pindori fields. POL also owns & operates one deep well drilling rig. POL is actively engaged in oil & gas exploration in two exploration leases namely Ikhlas Block & Kirther South Block in the lower Indus Basin as an Operator.The company had pioneered 3-D seismic acquisition & its interpretation on state of the art technology. POL has successfully drilled horizontal wells in Meyal, Turkwal & Pindori oil fields which are highly complex tectonic area of Potwar Plateau.

POL has exploration & production joint ventures with OGDCL, Orient petroleum International Inc, Tullow Pakistan (Development) Limited, MOL Pakistan Oil & Gas Company B.V & Pakistan Petroleum Ltd.

POL has gas processing plants at Meyal, Pariwali & Pindori fields. POL also operates an extensive pipeline network for transportation of crude oil from fields to Attock Refinery Limited at Rawalpindi.

Our Future Our Hope:

In addition to exploration & production for hydrocarbons the company also produces & markets Liquefied Petroleum Gas (LPG), Sulphur & Solvent oil. POL holds marketing license for LPG & is selling bottled LPG under the brand name of POLGAS. POL has a subsidiary company namely CAPGAS (Private) Limited, engaged in the marketing & distribution of Liquefied Petroleum Gas (LPG).

Pakistan oilfields Limited & its parent company (AOC) have from inception to-date produced more than 156 million barrels of oil & 590 billion cubic feet of gas from the Pothohar plateau region.

PFIZER PAKISTAN LIMITED

Pfizer is much concerned of the designing a comfortable office environment which is about more than aesthetics; careful attention to design can give a boost to employee happiness.

Temperature is the most common office complaint among workers, but there are a number of ways to get ahead of such issues. Our HVAC (heating, ventilation, air conditioning) system works at 26oC which gives more comfort to our colleagues working in 8 to 9 hours. Our Pfizer office space doesn't have to adhere to the old standard of a ring of executive offices around the perimeter, a cluster of cubicle spaces in the middle and a staid lunch area occupied only at mid-day. These office configurations limit collaboration and have been shown to slow response times in bringing products to market or responding nimbly to client needs.

Pfizer give thought to furniture design which ergonomically fits the needs of employees and their work habits

Pfizer has implemented the policy of open offices and open-door policy so every employee has a chance to reach out to any level of management whenever required Pfizer is associated with the plants, we have lavish green garden that credited reducing stress and helping to aid concentration. They generate good working relations by demonstrating that our company cares for its staff, good morale is good for our workers and productive happy workers are good for our bottom line.

Pfizer has also planned to establish joy corners in the facility, Pfizer EHS seeks continues improvement by providing better environment and effective monitoring i.e; Continually monitoring scientific and technical developments by remaining sensitive to EHS expectations and community needs, and taking prudent steps to manage risk Implementing corporate guidelines for conducting operation in a healthy, safe and environmentally sounds manners with legal requirements as the starting points

Continually improve our environmental, health and safety performance by regularly establishing objectives and targets

Measuring EHS performance through regular assessment of compliance with corporate EHS guidelines, internal procedures, local regulations and management reviews.

PEPSICO PAKISTAN

Since PepsiCo first entered Pakistan in 1968, our operations have reflected a strong commitment to Pakistan's people, communities and economy. We have steadily expanded our portfolio of food and beverage brands as the country itself has continued to grow and prosper, supporting and investing in Pakistan and its bountiful resources through mutually beneficial relationships with all those who collaborate in PepsiCo's value chain. Our business is guided by Performance with Purpose, our governing philosophy. This philosophy, first articulated in 2006, focuses on delivering sustained financial results while being responsive to the needs of the world around us. It specifically reflects three overarching priorities. First is making healthier products by reducing sodium, saturated fat and sugar content in our products, in some cases by more than 80 percent. Second is limiting our environmental impact by reducing water and energy consumption while increasing our recycling efforts. Third is upskilling our people while uplifting the communities we serve by sponsoring various drives and initiatives to reduce hunger and malnutrition while promoting health and wellness. The result today is a growing number of partnerships in Pakistan's business community, collectively working toward ongoing advancements in the country's economy, infrastructure, environment and society. Many of our brands in Pakistan today are immediately recognizable household names which have reduced amounts of sugar, salt, saturated and trans-fats. We have leveraged PepsiCo's global best practices to establish comprehensive internal procedures that ensure food safety controls covering the entire supply chain from raw material, through production, and ultimately the retail shelf.

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PHARMATEC PAKISTAN (PVT) LIMITED

Pharmatec Pakistan (Pvt.) Ltd. will make proper provision for the health, safety and welfare of its people, visitors and contractors and those in the community who may be affected by its activities. It will care for the environment through a commitment to good environmental practices. Continual improvement will be achieved by implementing the Company's Health, Safety & Environment {EHS) Management System and related standards, which will include the setting of objectives and targets. As a minimum the Company will meet relevant legal industry and other requirements. The Company aims to reduce the health, safety and environmental impacts of its products and processes and prevent pollution by utilizing a structured risk managed line management approach, taking into account the needs of its customers and society at large. All new activities will be assessed for environmental impact and appropriate health and safety provision.

Management is responsible for enacting this policy and giving EHS equal priority with all other business issues. Implementation will be through line managers who will involve employees in the achievement of the Company's objectives. Supported by dedicated EHS Team. It is recognized that accidents, ill health and environmental incident may result from failings in management control and are not necessarily the fault of an individual employee. All employees, however, are expected to accept their responsibility to work safely, adhering to safety rules and work procedures using safety equipment provided, and generally to contribute to the maintenance of safe and healthy conditions. They also have a duty to be environmentally responsible and to have regard for environmental controls.

The Company is committed to effective communication and constitution on EHS matters with all relevant parties and will report internally and publicly on its EHS performance on a regular basis. It will provide appropriate health, safety and environmental training to employees to enable them to meet the required standards of performance.

Whilst we are each responsible for health, safety and the environment, we do much better when we work as a team. Protecting the environment and promoting the welfare of both our people and the community matters to us all.

PHARMEVO (PVT) LIMITED

Our journey started in 1999, and our passion for relentless growth has led us to the forefront in the Pharmaceutical Industry in Pakistan. We are proud of each step of our transformational journey, and our mission to provide quality and innovative healthcare solutions has made us among the top 20 Pharmaceutical companies in Pakistan. The PharmEvo family is committed to improving lives by developing, manufacturing and marketing high-quality products. Driven by our core values, we take great pride in being pioneers of Socially Responsible Marketing in Pakistan. Our ethical approach and cause-based marketing defines our business strategy, both within and outside Pakistan.

QUAID-E-AZAM THERMAL POWER (PVT.) LIMITED (QATPL)

Quaid e Azam Thermal Power Pvt. Limited (QATPL) was established under Companies Ordinance 1984 by Government of Punjab in March 2015, with the mandate to set up Bhikki Power Plant. It is a government owned plant located along Q.B. Link Canal near Sheikhupura, District Punjab. Bhikki Power Plant is a combined cycle power plant with tested net efficiency of 61.60% and tested net capacity of 1163.123 MW. It employs the latest and state of the art H-Class gas turbines of General Electric (9HA.01). It is one of the most efficient power plants in Pakistan with one of lowest project costs.

The Project configuration is 2 gas turbines, 2 heat recovery steam generators and 1 steam turbine (2+2+1). The primary fuel is imported Re-gasified Liquefied Natural Gas (RLNG) while High Speed Diesel is backup fuel. Power evacuation is done through Gatti-Lahore 500kV transmission line. RLNG is supplied by SNGPL through 18 km spur gas pipeline from Qila Sattar Shah. The project was completed in unprecedented timeline of 32 months and achieved commercial operations date on 20-May-2018. The plant has delivered approximately 16.6 billion units of cheap and clean energy to the national grid till date. The plant has complied with all national/international/ world Bank /IFC environmental regulations since construction phase began and continues to do so.

ROOTS INTERNATIONAL SCHOOLS & COLLEGES

Roots International Schools has been voted as the best education providing institution in Pakistan. RIS is Pakistan's third largest Education System and has a broad based Global Curriculum. Established in April 1988, Roots has innovated modern education standards, with universally acclaimed academic excellence and all-round development of students. Roots International Schools has more than 50 Campuses nationwide with over 10,000 students enrolled. RIS has achieved academic excellence and all round development of students of over 29 years.

Formed with a vision of molding the intellectual based of the country. Roots serves as a catalyst for economic prosperity and social development of the youth. Its state-of-the-art teaching standards as well as high quality of the student body have earned ROOTS top ranking in the country. Thus, the efforts of RIS are to strengthen the foundations of tomorrow, by bridging the gap between the leaders of today with those who will lead the world tomorrow! Roots has helped students to break through the barriers that have them back and helped students to reach out and indelibly etch thei

Rootsians have secured 50 outstanding distinctions in the world on Cambridge, Edexcel, O Level, IGCSE, A Level and BSC Hons University of London International Programmes and ACCA. Out of which 7 have topped in the world, 25in Pakistan and 12 in the region. Such outstanding achievements are the hallmarks of Roots.

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ROOTS SCHOOL SYSTEM

EDUCATING FOR TOMORROW'S WORLD!

Developing profound knowledge, entrepreneurial skills and values through 3E's: Exposure, Expansion & Exploration to meet the challenges of 21st century! Roots School System RSS is a leading 21st model private sector educational institution styled on the modern 21st century educational system of international standards, specially designed to meet the requirement of the students to meet the challenges by involving the three E's approach EXPOSURE - EXPANSION - EXPLORATION. Established since April 1988, Roots has innovated modern education standards, with universally acclaimed academic excellence and all round development of students. Roots School System has more than 100 Campuses nationwide with an incessant increase in student number to nearly 25,000 plus students today. Roots has achieved academic excellence and all round development of students for over 25 years.

MISSION STATEMENT

Roots aim is to bring out the best in a child mentally, intellectually, academically, physically and culturally by developing the attitudes, abilities and skills in the students, required to meet the Global Challenges through advancements in curriculum, teaching methodology, school culture and technology.

VISION

Over the next ten years Roots will develop its role as a leading Pakistan based international school / college, championing a socially inclusive approach to participation in higher education. We will deliver outstanding academic and training programmes on our campuses, enabling those who choose to study at Roots to transform their lives and shape their own futures.

SINDH ENGRO COAL MININIG COMPANY

Sindh Engro Coal Mining Company (SECMC) is Pakistan's leading coal producer operating Pakistan's first open-pit lignite mine in Block II of Tharparkar area in Sindh province of Pakistan with the vision to develop a technically and commercially viable Coal Mining Project in Thar Block – II and to bring energy security to Pakistan. SECMC's mining project is categorized amongst the 'early harvest' projects under CPEC to generate electricity utilizing Thar's untapped coal reserves. With a current annual mining capacity of 3.8 million tons we continue to provide lignite quality coal to power producers in Pakistan. While the total reserves of Block II are sufficient to support 5000MW of energy for 50 years; enough to pull the country out of the energy crisis. SECMC's commitment to sustainability is the common thread that runs through all of our actions. Our sustainability strategy is deeply centered on our long-standing core values of safety and environment stewardship having amassed key national and international awards of excellence. SECMC is dedicated to market-driven leader in the coal industry and to creating superior long-term integrated value.

SINO SINDH RESOURCES (PVT) LIMITED

Sino Sindh Resources (Pvt.) Ltd, founded in 2011 in Pakistan specialized in mining operation service, is one of the overseas subsidiaries of Shanghai Electric Group Co., Ltd. Mr. Wang Xiaofan is currently the CEO and the general manager of the company. There are Admin & HR Department, Finance Department, Logistic Management Department, Business Management Department, Production Technical Depart ment, Electrical & Mechanical Management Department, HSE Department and other departments with 27 Chinese employees and 26 Pakistani employees. Coal-electricity integration project in Block 1 of Thar Coalfield, a "China-Paki stan Economic Corridor" priority implementation project, includes construction and operation of open-pit coal mine with an annual output of 7.8 million tons and 2X660MW supercritical lignite power station. Sino Sindh is the solely operator of the 7 .8 Mtpa Open-pit Coal Mine project. The Block 1 open-pit coal field covers an area of 140km2, and the estimated total lignite resource reserve is about 3.8 billion tons, which is No. 1 in Asia and No. 7 in the world and also the largest open-pit coal mine under construction in Pakistan. Surface excavation and removal adopts the interval mining process with single-buck excavators and dump trucks and through continuous mining process the coal extraction will be done using single-buck excavators, dump trucks, semi-mobile crusher station and belt conveyor. Main equipment for both the surface excavation and coal extraction work includes hydraulic excavators and dump trucks and other auxiliary equipment. Based on the workload and ex ploitation depth of each phase there are different planned transportation system. Located at the Tharparkar area of Mithi City, Sindh, the area is the most south east area of Sindh and the poorest and underdeveloped area. Thar coal field is about 65 kilometers from the city center of Mithi in the southwest. lslamkot, about 25 kilometers west to the field, is the closest town to the Thar Coalfield. The financial arrangement for the project had been closed at December, 2019 and various mining equipments are in position. The operating on the site has been on schedule.

SAPPHIRE TEXTILE MILLS LIMITED

Sapphire Textile Mills Limited is a vertically integrated composite textile unit, manufacturing cotton yarn, fabric and home textile products. STML is the flagship company of the sapphire group and one of the lead players in the textile composite sector and enjoying more than, 10% share in the sector's sales.

Why pakistan? ■ Fourth largest grower in the world. ■ textile accounts for over 60 % of the total exports. ■ most modern and organized textile production setup. ■ more than 50 years history of accumulated textile know-how. ■ Pakistan has one of the largest canal irrigation systems in the world. ■ well-established infrastructure of textile management and skilled labour.

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SEPCO-III ELECTRIC POWER CONSTRUCTION COMPANY

SEPCOIII Electric Power Construction Corporation is a professional engineering company that is dominated by unit project construction such as contract thermal power, nuclear power, hydropower, wind power, biomass power, solar thermal power, and desalination operated by EPCO, EPC, BOT, BOO, PMC mode. The total installed capacity is more than 335000MW which is top of China's average annual installation capacity among the engineering companies, and its business cover the whole world. In 2013, SEPCOIII is ranked at 54 on the American Engineering News Records (ENR) of whole world top 250 project engineering contractor.

MISSION STATEMENT

Total customer commitment, accomplishing customer's hopes scientifically and promptly.

VISION STATEMENT

To build the First Brand Company of Commissioning, O & M Contractor for Power Station.

THE SEARLE COMPANY LIMITED

Restoring suffering humanity to good health drives The Searle Company Limited (TSCL) relentlessly in the pursuit of excellence on a daily basis. This is reflected in Searle's appearance on Forbes list of Asia 200 best under a billion companies.

Searle has established a state-of-the-art Research & Development Centre at ICCBS Technology Park, University of Karachi with the first of its kind technology incubator in Pakistan where much needed research in the field of medicine takes place.

The great good fortune that the Creator has bestowed upon Searle has compelled it to work unconditionally and ceaselessly for the betterment of the less privileged amongst us with a focus on skill development, education, research, health, environment and philanthropy.

The Citizens Foundation (TCF) is a major beneficiary of Searle's CSR outlay and, alongside other conscientious corporate and private citizens, TCF runs 1,567 schools at 100 locations educating 252,000 less privileged children and giving employment to 12,000 teachers.

Searle also manages the Abdul Khaliq Abdul Razzaq (AKAR) Hospital providing free diagnosis, OPD clinics, surgeries and medicines for the less privileged.

Searle supports "The Hunar Foundation (THF)", a non-profit organization that was established in 2008 with the commitment togenerating social change by creating a skilled Pakistan.

Searle's commitment to the many communities it serves in Pakistan and across the world is without question, and it is our firm belief that the more we give back to society the more we are blessed with success. May Allah bless our Planet Earth with the choicest of health, wealth and happiness, Ameen

SHABBIR TILES & CERAMICS LIMITED

Incorporated in 1978, Stile Tiles & Ceramics Ltd is the pioneer and first private sector enterprise in the ceramic industry of Pakistan, listed at Pakistan Stock Exchange. The Company Brand 'Stile' enjoys the leading position in the Ceramic and Porcelain Tiles industry of Pakistan as its product range is unprecedented in terms of quality and diversity. Stile offers a wide range of sizes, surface finishes, colors, and designs in Porcelain and Ceramic tiles, that conform to high quality standards of durability and aesthetic values. The company has successfully diversified into building and installation materials and has achieved considerable success in manufacturing and marketing it. Our offices located in Karachi, Hyderabad, Multan, Bahawalpur, Faisalabad, Lahore, Rawalpindi, Islamabad, and Peshawar to ensure that the best services are provided to the valued customers. Moreover, to provide the customers with a wide range of tile designs and exceptional customer service under one roof, a number of company-operated flagship stores have been opened all around Pakistan named as 'STILE EMPORIUM & DESIGN STUDIO'. At our emporiums, we also provide our customers with free designing and free delivery service to help them create their dream living spaces.

SUI NORTHERN GAS PIPELINES LIMITED

Sui Northern Gas Pipelines Limited (SNGPL) was incorporated as a private limited Company in 1963 and converted into a public limited company in January 1964 under the Companies Act 1913, now The Companies Act 2017, and is listed on the Pakistan Stock Exchange (PSX). Sui Northern Gas Pipelines Limited (SNGPL) is the largest integrated gas company serving more than 6.8 million consumers in North Central Pakistan through an extensive network in Punjab, Khyber Pakhtunkhwa and Azad Jammu & Kashmir and is certified against ISO 14001:2015 & OHSAS 18001:2007 Standards. SNGPL's 11 sites have been registered under the "SMART2" Program by Pakistan Environmental Protection Agency (PAK-EPA). The Company has over 50 years of experience in operation and maintenance of high-pressure gas transmission and distribution systems. It has also expanded its activities as Engineering, Procurement and Construction (EPC) Contractor to undertake the planning, designing and construction of pipelines, both for itself and other organizations. SNGPL transmission system extends from Sui in Baluchistan to Peshawar in Khyber Pakhtunkhwa comprising over 9,143.75 KM of Transmission System (Main lines & Loop lines). The distribution activities covering 4,967 main towns along with adjoining villages in Punjab & Khyber Pakhtunkhwa are organized through 16 regional offices. Distribution system consists of 135,857 KM of pipeline. SNGPL has over 6.8 million consumers comprising Commercial, Domestic, General Industry, Fertilizer, Power and Cement Sectors.

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THAR COAL BLOCK -1 POWER GENERATION COMPANY (PVT.) LIMITED

Thar Coal Block-1 Power Generation Company (PVT.) Ltd. (TCB-1) as a subsidiary of Shanghai Electric in Pakistan, is the owner of Power Plant Project. Thar Block-1 Integrated Coal Mine Power Project is capable of powering 4 million households in Pakistan with 1320 megawatts of indigenous, affordable and reliable electricity after COD of the Project, which will also bring the local community economic benefits, and will bring the country its first large-scale, local coal-based electricity project. The Project adopts advanced supercritical technology, which includes higher efficiency, lower coal consumption and emission. By bringing this best technology to Pakistan, the commissioning of the Project will be a benchmark of the utilization of Thar coal.

Thar Block-1 Integrated Coal Mine Power Project is a key energy project in the "One Belt and One Road" energy field and also a core energy cooperation project in the "China-Pakistan Economic Corridor". On April 20, 2015, Chinese & Pakistani leaders signed the cooperation framework agreement, including: 2X660MW coal-fired power plant project plus 7.8 million tons annual output coal mine project, which are all developed by Shanghai Electric.

THAL ENGINEERING

The Thermal Systems business started its operations in 1996 with the manufacturing of Auto Air Conditioners for Toyota and Suzuki vehicles manufactured and assembled in Pakistan.

As the Thermal Business evolved in its capabilities through the market requirements for the automobile sector, Thal diversified its product portfolio by starting the mass production of heater blower and air-conditioner controls in 2001 and 2005, respectively. These diversifications were augmented through the addition of heat exchangers, such as heater core, condensers and most recently aluminum radiators. Thal Engineering is the only manufacturer of aluminum radiators in Pakistan.

Ever since its establishment, Thal Engineering's progress has been positive. To deliver a product range of excellent quality, TE entered into a TAA (Technical Assistance Agreement) with Denso Japan in 1996, the second largest auto parts maker in the world, listed on the Fortune 500 and the largest in Japan. The strategic alliance has acquired and obtained world class assistance in manufacturing car air conditioners, heater blowers & now aluminum radiators, enabling TE to move to the next level.

THE AGA KHAN UNIVERSITY HOSPITAL

Aga Khan University Hospital started operations in 1985. It is a philanthropic, not- for-profit, private teaching institution committed to providing the best possible option for diagnosis of disease and team management of patient care. AKUH's multidisciplinary approach to diagnosis and care ensures a continuum of safe and high- quality care for patients – all services under one roof.

The University Hospital provides high quality of patient care in a broad range of secondary and tertiary services to over 50,000 hospitalised patients and to approximately 600,000 outpatients annually.

In September 2006, AKUH became the first hospital in Pakistan and one of the select few teaching hospitals in the world to be awarded Joint Commission International (JCI) accreditation for achieving and maintaining highest international quality standards in healthcare. AKUH is also the first hospital in Pakistan and among the first few teaching hospitals in the world to receive ISO 9001 certification. AKUH remains a differentiated provider in the field of healthcare. It has continued to excel because it provides quality services and is keen to innovate.

TOTAL PARCO PAKISTAN LIMITED

Total PARCO Pakistan Ltd. (TPPL) is a joint venture between Total Marketing & Services and PAK ARAB REFINERY LTD (PARCO). It is one of the largest international oil marketing companies in Pakistan. Total PARCO is at the service of both retail and B2B customers in Pakistan. In 2015, Total PARCO acquired the Chevron retail network, making it the second largest OMC operating in Pakistan. Total PARCO Pakistan Limited is committed to human development, quality, reliability and operational safety for its employees, contractors and business partners. Total is a broad energy Group, which produces and markets fuels, natural gas and electricity. Our 100,000 employees are committed to better energy that is safer, more affordable, cleaner and accessible to as many people as possible. Active in more than 130 countries, our ambition is to become the responsible energy major.The Marketing & Services division of Total develops and markets products primarily derived from crude oil, along with all of the associated services. Its 32,000 employees are present in 107 countries and its products and services offers are sold in 150 countries. Every day, Total Marketing Services serves more than 8 million customers in its network of over 15,600 service stations in 71 countries. As the world's fourth largest distributor of lubricants and the leading distributor of petroleum products in Africa, Total Marketing Services has production sites all over the world, where it manufactures the lubricants, bitumen, additives, special fuels and fluids that sustain its growth. Total PARCO has the 2nd largest network in the country with more than 800 retail outlets in Pakistan, targeting an addition of more than 20 service stations per year. TPPL is an employer of choice with more than 1000 highly trained Pakistani employees (450 direct and 600+ indirect). TPPL is also the 1st Asian non-export blending plant to launch the PURE project, which is essentially revamping and optimizing the packaging of Total PARCO's lubricant ranges.

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TRI PACK FILMS LIMITED

Tri-Pack Films Limited (Tri-Pack) – a joint venture between Mitsubishi Corporation of Japan and Packages Limited of Pakistan was incorporated as a Public Limited Company on April 29, 1993 to produce Bi-axially Orientated Polypropylene (BOPP) Films in Pakistan. Its head office is based in Karachi and regional offices are located in Karachi, Lahore and Hattar where focus is to provide customers with dependable, economical and quality films backed by strong customer services. Tri-Pack is indeed proud of making distinctive contributions to the packaging industry in Pakistan. Since inception the Company has been on a growth trajectory and has come a long way from one BOPP Line of 5,400 tons to four BOPP Lines of 66,800 tons and two CPP Lines of over 17,000 tons. At Tri-Pack, our passion to cater to the needs of our customers lies at the heart of every endeavor. We go a long mile to get results, operate responsibly, apply innovative technology, execute with excellence, and capture new opportunities to create a wonderful world today for generations to come. We aim to create long term value for shareholders by catering to growing demands in a safe and responsible way. We not only strive to be a world-class operator, but also a responsible corporate citizen and an employer of choice.Our people and our products are the hallmark of our success that give us the strength to endeavor to be amongst the front runners in delivering to our customers, shareholders and community.

Our Products

Tri-Pack offers wide range of Bi-axially Oriented and Cast Polypropylene (BOPP & CPP) packaging films, which are carefully and diligently produced to not only meet the packaging needs but also outperform the expectations of the market. Our products are best suited for food and beverage applications (snacks, confectionery, dairy food, fresh cut vegetables, beverages etc.) and non-food applications (overwrapping, lamination, bag making etc.). We have the capability to supply films in various sizes and thickness, ranging from 10 to 150 micron. We manufacture specialized films having unique barrier characteristics for special needs of the market designed to cater the ever-growing demand of our customers

UNIVERSAL CABLES INDUSTRIES LIMITED

In the year 1978, a small yet solid enterprise appeared on the horizon of the Cable Industry in Pakistan and was named Universal Cables. Initially the company started off as a manufacturer of PVC insulated wires, cables and flexible cords. Within a very short span of time after its initiation, Universal Cables Industries Ltd got itself recognized as one of the leading and most credible names in contemporary market. Today it proudly stands as a universally acclaimed Cable Manufacturer and Supplier Company featuring diverse product range, advanced technology and an astute vision. Universal Cables Industries Ltd. achieved another remarkable milestone with respect to Quality and Customer satisfaction after it became ISO 14001:2015 certified. Universal Cables is now KEMA Gold Certified for adhering to world quality standards. Recently, Universal Cables had launched Greener Universal (XLPO Solar Cables.) and has got this product TUV Austria Certified, again proving that Universal Cables accords top priority in serving its customers with only top of the line products manufactured with cutting edge technology.

UCH-II POWER (PVT) LIMITED

Uch-II Power Complex achieved its commercial Operation Date (COD) on April 04, 2014 and is operated and maintained by Uch Power (Pvt.) Limited. The ISO gross capacity of the complex is 404 MW and the electricity generated from the complex is sold through a 25-year Power Purchase Agreement (PPA) with the National Transmission and Despatch Company (NTDCL), a State-owned entity. Oil and Gas Development Company Limited (OGDCL) supplies low BTU gas under 25-years Gas Sells Agreement (GSA). The complex is located approximately 600km North East of Karachi on the national Quetta-Sibbi highway at Dera Murad Jamali in the province of Balochistan, Pakistan. The site location is at a distance of about 120 kms from Sukkur airport. Environmental and Social Overview Uch-II Power (Private) Limited encompasses all its operations in environmentally compliant manner reflecting national Environmental Quality standards (NEQS). The company is currently under process of certification to ISO 14001:2015 Environment Management System. No major non-conformance has been observed since the inception of plant since 2014. The project was undertaken after an independent Environmental Impact and Social Soundness study duly approved by relevant Environmental Protection Agency (BEPA) in 2010. The asset is operated under BEPA permit (NOC) since 2014. No geological, archeological and social impacts were highlighted in the study. Plant operations are subject to regular internal and 3rd party air, water and land emissions mounting and testing. Regular monthly and annual reports are submitted to relevant environmental protection agency. No environmental noncompliance and notices are served to the asset in this regard through the history of the plant. Annual Environmental improvement plans are implemented as a part of company is operating plans each year. The company undertakes Engie Earth Audits regularly and comply to all its applicable indicators. World Environment Day, earth hours are observed regularly each year to highlight the importance of company's and individual environmental responsibilities. Tree Plantation initiative taken regularly for plantation of trees each year to increase green environment inside asset boundaries, creating cool and green surrounding in dry and arid area. Plant Management is always eager to promote Green Environmental Initiative. Alone in 2018 in month long drive 350 trees of different types planted across the site. Tree plantation also helps in mitigating carbon emissions. Each year dependency of carbon fuel is reduced and initiatives like use of bicycles and club travelling is encouraged. Employees are encourage to use bicycles for commuting at plant and inside residential complex. This also contributes to healthy life style and further reduction carbon emissions.

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UCH POWER (PVT) LIMITED

The Uch Power Station is situated 42 km North West Jacobabad, in Dera Murad Jamali Baluchistan Province of Pakistan. The 586 MW plant consists of three General Electric Frame 9E Gas Turbine/Generators (GTs) capable of pro ducing 126 Megawatts each when burning low BTU gas and a GE steam turbine in combined cycle mode. UPL is fully owned by Engie Group an international energy and Power Company.

YUNUS TEXTILE MILLS LIMITED

Yunus Textile Mills Limited is a part of Yunus Brothers Group, and started operations in 1998 on the basis of advanced technical support, strong infrastructure, and quality human capital management. Over a short period of time, the company has secured a prominent position as a leading home textile exporter, having a production capacity of 10 million meters per month.

Its Vision of "Textiles for a Better Life" is what drives the organization toward sustainable initiatives and adapting to change.

The contribution of environmental resources to well-being is comprehensive and when it comes to the well-being of society, Yunus Textile Mills Limited reaffirms to be the leader.

They believe that sustainability is the key to making your tomorrow safe, secure, and reliable by taking significant initiatives today. For them, sustainability is no longer about doing less harm; it's about doing better.

WAH INDUSTRIES LIMITED

Wah Industries Limited was established in 1958 as a commercial enterprise of Pakistan Ordnance Factories and was incorporated as a Public Limited Company under the Companies Act 1913 (Now Companies Act 2017) and appointed as sole selling agent of POF.

OUR MISSION

To supply products on most competitive rates to valued clients across Pakistan and the globe.

OUR SERVICES

- Arms and Ammo
- UAVs and Quadcopters
- Thermal & Optical Sights
- Trading
- Tactical Items
- Information Technology
- Commercial Explosives
- Trading
- 12 Bore Ammunition
- Chemicals
- Power Generation
- Brass Products
- Clothing
- Security Services

Eradicate pollution,

Save the environment

12TH ANNUAL FIRE SAFETY & SECURITY CONVENTION 2022

NFEH
NATIONAL FORUM FOR ENVIRONMENT & HEALTH
WWW.NFEH.ORG.PK

FPIP
FIRE PROTECTION INDUSTRY OF PAKISTAN

November 23, 2022

Marriott hotel, Karachi

IFSSC 2022 Important Segments

- 12th Annual Fire and Safety Awards 2022
- Int'l Conference on Fire Safety and Security
- Fire Safety and Security Technology Showcase

Contact For:

- ✔ Award nomination,
- ✔ Conference registration
- ✔ Sponsorship/Branding/Stall

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Energy Lifeline for the Nation

Growing through Expansions and Acquisitions

Pak-Arab Refinery Ltd. (PARCO) is a successful joint venture between the Government of Pakistan and Emirate of Abu Dhabi.

- Pakistan's most modern refinery (120,000 barrels of crude oil/day)
- Energy lifeline of the country with over 2000 KM pipeline network
- Combined strategic oil storage of about one million metric tons
- Retail network in joint venture with TOTAL of France
- Marketing and nationwide distribution of LPG
- Production and sales of high quality asphalt

PARCO

PAK-ARAB REFINERY LIMITED
A Pakistan-Abu Dhabi Joint Venture

ARGUS

Energizing Pakistan

Oil & Gas Development Company Limited

Exploration & Production Leader in Pakistan

MISSION

To become the leading provider of oil and gas to the country by increasing exploration and production both domestically and internationally, utilizing all options including strategic alliances.

To continuously realign ourselves to meet the expectations of our stakeholders through best management practices, the use of latest technology, and innovation for sustainable growth, while being socially responsible.

VISION

To be a leading multinational Exploration and Production Company

We Explore Prosperity ►►► Largest Taxpayer Company of the Nation ►►► *Fueling the Future of Pakistan*