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Rebuilding Vital Resources: a new strategy for revival of agriculture

About IPR

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Ths report is a summary of an online panel discussion held by IPR on 13 July 2020. The speakers were:

- *Syed Fakhar Imam, Minister for National Food Security*
- *Syed Yawar Ali, Chairman Pakistan Business Council*
- *Dr. Iqrar A. Khan, Former VC University of Agriculture*
- *Dr. Erum K. Sattar, Professor Tufts University*
- *Mr. Humayun Akhtar Khan, Chairman & CEO, IPR*

Moderator: Ashraf M. Hayat, IPR

Humayun Akhtar Khan

- The agriculture sector is the clearest example of not paying attention to the real sectors of the economy.

- We either do not invest the foreign aid and spend the money elsewhere, or do not invest it in a way that increases our productive capacity to produce exportable goods. So, despite the large amount of grant aid received in 2000s, our debt kept

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climbing, and in most years, current and fiscal accounts were in deficit.

- Economies need capital accumulation to grow, so that they build assets that produce better goods, which can be exported. Domestic public investment must crowd in-private investment and help increase productivity. We have missed out on these essentials of economic policy. As a result, we have not made the infrastructure and policy investments in both manufacturing and agriculture sector. This is at the expense of growth.

- In the last 20 years, contribution of agriculture to GDP has fallen by 8%. As a sector that offers the highest jobs, including in the informal sector and as a source of raw material for key industry, the neglect of the agriculture sector is hard to understand. This indifference is not without major harmful effects on poverty and economic growth.

- Two key inputs of water and fertilizer are either scarce or are subject to large fluctuations every year. Water availability is in long term decline. We have not done much to augment its supply, nor have we improved efficiency of its use. The quantity of fertilizer available to the farmlands changes from year to year. Its production depends on gas supply, while imports is contingent on the health of the external account, which is often fragile.

- Also, for decades, we have not dealt adequately with the virus affecting cotton and the harm done to all crops by insects. It is no surprise, therefore, that many sectoral

indicators reflect the above reality. The area under cultivation has stayed the same as it was 20 years ago, that would have been okay if productivity were on the rise.

- However, the production of wheat per hectare has not grown, and cotton productivity has fallen. So far, there has not been a single meaningful discussion on the effect of climate change or food security.

- This suggests that agriculture suffers from both underinvestment, flawed policies and lack of connection between research and policy. In times of crisis, we offer Band-Aid solutions but avoided studying the systemic issues that affect agriculture. However, it is not a lost cause yet. There are reports that government has announced the Prime Ministers Agriculture Emergency Program worth a whopping RS 277 billion. After decades, there is hope that a meaningful reversal in agricultures fortune takes place and with it, of the country's economy as well.

Syed Fakhar Imam

- Till the 1990's Pakistan's rates of growth were close to 4%, continuously on the average for nearly two decades. Our major breakthrough in agriculture came when we had a paradigm shift both in our wheat production with the assistance of Dr. Norman E. Borlaug and with IIRI in the cultivation of rice, that went up by two and half times our traditional.

- However, after 1966 things changed because of two specific elements. Short stature mexi-pak, use of chemical fertilizer and optimal use of application of water with the fertilizer. This changed the entire paradigm. And since then there has not been a second shift in paradigm.

- We have five major crops, wheat (which utilizes 36% of our area), rice, sugarcane, cotton and maize. Maize appeared in the last 12 years, and could be considered a somewhat of a breakthrough. About 12-14 years ago it accounted for only 1.5 million tons now it has gone

up to 6.7 million tons, primarily because the poultry industry depends on it. Then we have these other small crops.

- However, most of the maize or corn seeds are being obtained through multi-national companies (MNCs) and we are reliant on foreign support. Seed production has been one major area in which Pakistan has been seriously lacking.

- For a decade, Pakistan was not able to cope with the 'curl leave virus'. Nor have we successfully adapted seed technology and Pakistan. Many other countries successfully did so. Pakistan has been the sole exception. Previous governments relied on local seed technology and hoped they could deliver, which they never could.

- In total Pakistan needs about 42-25 thousand tons of seed. There was a time when Punjab Seed corporation was providing reasonably standardized seed. That met 30-35% of Pakistan's seed requirement. GoP is encouraging Sindh and Punjab governments to purchase the seed in partnership with private sector to cover about half the requirements. The cost of this to governments is affordable. his way quality seed would be available for the next crop. The above is for several crops. We should also do the same with wheat.

- Our entire research system needs to change. Specialists will soon appraise, evaluate and analyze our research systems in their areas of specialization. It is now time to move from tall claims to actual results that can bring a paradigm shift in agriculture.

- For all major inputs Pakistan relies on imports. We manufacture very little in the country. This has been the bane for Pakistan's policy. All machines, pesticide, and much fertilizer are imported.

- Pakistan also has done little to improve the seed genetics in the agriculture sector. Pakistani geneticists have done little to add value to the farming and agricultural community.

- Regarding water, the government has decided to make Diamer-Bhasha Dam, if it does, it will be the biggest achievement. There has been some resistance to the project but it should not matter, because after Tarbela this project will provide 4500 megawatts and eight million acre feet (MAF) reservoir.

Syed Yawar Ali

- The crop sector which consists of five major crops, accounts for only 10.2% of our GDP, whereas, livestock sector accounts for 11.6% of our GDP. Milk and meat alone are bigger than the five major crops. These areas government investment for further growth and productivity improvement. Present low productivity is a key issue.

- More than seventy million people depend on livestock for their livelihoods. Unlike livestock, especially milk, generates income throughout the year. The kitchen expenditures of farmers are usually run through selling milk.

- In the last century, productivity of milk has been static. While in America it has grown seven times.

- Many modern farmers have imported breeds from Australia, USA, and Holland. The yield of imported cows is three times more than the Pakistani breed. Productivity is based on breed improvement and genetics. Its genetics both in the seed as well in the semen.

- We have to adapt to new technologies, especially In Vitro Fertilization.

- Pakistan's poultry sector has been a success and is globally competitive. This happened through the improvement of knowledge in nutrition and genetic selection.

- To increase our exports, Pakistan must:
    - Improve genetics
    - Rationalize feed cost, which is 70% of cost of production
    - And build and improve the processing industry. Processing quality and volume makes a perishable commodity competitive.

- Pakistan needs short and long term plans with sufficient resources and clearly defined roles for government and private sector. Government must support the private sector and not compete with it, as it does now. Government should focus on research and expansion, research that is need based and meets market needs.

- We need to develop a new roadmap to increase productivity, reduce cost, and become globally competitive as the poultry industry in Pakistan has shown us.

Dr Iqrar A. Khan

- Pakistan's biggest challenge is small farm size and fragmentation. Bulk of present land holdings do not allow absorption of available technology. The research available cannot be utilized by small farm holders.

- Due to large scale urbanization, parts of the country is threatened with desertification. Range lands are being overgrazed and salinity is a continuing threat to productivity. This is happening because of excessive groundwater mining.

- Water is an endemic issue. Investment in on-farm water management and large storages have yet to show results on ground. While the need is for high efficiency irrigation, our system is operating on gravity. High efficiency irrigation systems require pipelines and energy and on-farm storage. The water can be tendered and delivered on demand. In Pakistan, we are still reliant on the 'warabandi' rotational water allocation system which is not linked to high efficiency.

- Regarding climate change, there is plenty of information available in the form of agro-ecological zoning and it is time that the policy shift takes place and we move out of the traditional mindset of having rice-wheat system or cotton-wheat system or talking about mixed cropping. We have around a hundred different agro-ecological niches which are available. Therefore, crop diversification can be incentivized.

- On the infrastructure side, in addition to water storage, government should construct two new canals. New canals should be designed and constructed and put to use according to the needs of high efficiency irrigation system.

- Framers face difficulty in access to market and the size, efficiency, and proximity of markets. We need better market governance to build efficiencies. Markets are not competitive or facilitative. They are structured to exploit the farmer and consumer. The farmer is the least served stakeholder in the market. Therefore, the market deserves attention in terms of hard and soft infrastructure development.

- Then there is the issue of political economy, and resource transfer and allocation. Enforcement of the Plant Breeders Rights Act, 2016 has not begun in earnest. Mechanization is lagging. We have tractors but we don't have any agricultural mechanization. To reduce reliance on the five major crops we need higher productivity and diversification. There is no policy or on ground support in this regard. Political economy limits the option for farmers.

- There are three crops in which stagnation can be broken with the current technology, provided we achieve the optimum plant population; wheat, rice, and cotton. If we manage to achieve the optimum plant population with these three crops we can not only manage to break the stagnation, but also an additional 4% to our GDP.

- We should also use the latest technology to reduce the post-harvest losses. Our current post-harvest loses in grains are to the tune of 12-15% and in perishable good it amounts to 20-40%. If we could target the reduction of loses in three to five years, this could also add 2%

to our GDP growth.

- We have a technology lag, not only in mechanization and seed, but we have not also benefited from genetically modified seeds. We have been stuck with 'BT cotton', whose induction was flawed, and we could not take advantage of this genetically modified organism.

- We have been missing out on genetically modified crops, we are missing out on digital technology, precision agriculture. The government should do the regulatory work and create an environment for entrepreneurship and private sector-led seed technology and seed multiplication business.

Dr. Erum Khalid Sattar

- Pakistan still relies on the 1873 Canal and Drainage Act. In essence the country's water governance is based on a hundred and fifty-year old legal foundation. This is a huge problem and we need to problematize the fact that the entire functional basis of our water sharing across the Indus river basin is essentially outdated.

- Currently, water law is not part of the curriculum in Pakistan. That is a massive gap and problem because therefore we never solve the problems that face our country. We need to make legal reforms and include experts, lawyers, social and environmental scientists to strengthen institutional governance of water.

- The structure of water supply is important. Just sixty percent of the watershed of the Indus river basin lies within Pakistan, through glacial melts. That means 40% of the watershed lies outside the countries territorial control. So what happens outside the country is massively important.

- Pakistan can and should think very carefully and seriously because we are an entirely river system dependent country. We are 220 million people heading towards 320 to 350 million

by the half century mark. We have a massive population on a landmass with a depleting resource base. This should scare us and we should strive towards in becoming a leader in global climate change initiatives.

- Pakistan's inter-provincial water accord of 1991 was a huge step forward. But instead of creating confidence in water sharing, it has led to provincial disharmony and mistrust. We should better operate the accord with a professionally driven agenda.

- It is about time that our water management institutions work on actual problems that farmers face. Essentially, all of these institutions work on things that have nothing to with the actual problems or the problems we will suffer in the future due to an increasing population and depleting resources due to mismanagement.

- We must allow sufficient water flow to the sea to prevent ingress of the sea. The livelihood of one million people depends on the delta ecosystem.