

## A knock on the door

Pakistan has a golden opportunity to export its farm and fish surplus to China but no potential project is being actively considered under CPEC.

BY AMJAD MAHMOOD

WITH a population crossing 1.4 billion mark, growing urbanisation, rising per capita income and changing consumption patterns leading to increasing demand for high-quality food, China has become one of the largest food markets. It has 0.19 acres of arable land per capita much less than one acre per capita as per US standards. And the available cultivable land is facing water and air pollution issues due to rapid industrialisation, limiting its domestic farming capacity. In 2014, at least 13 million tonnes of crops had reportedly been found tainted with heavy metals.

A Food and Agriculture Organisation (FAO) report in 2016 put China as the largest producer of fish, always a staple diet and increasingly becoming a source of protein for Chinese people. To meet its local demand, around 2,500 Chinese boats are fishing in distant waters as far as Antarctica because fish stock in its own seas is overexploited. It is also the third largest importer of fish.

To offset its domestic agriculture and fisheries limitations, China is fast becoming reliant on imports to meet food requirements of its growing population. Pakistan is an agricultural country and shares borders with China. Under the China-Pakistan Economic Corridor (CPEC), it is also developing road and rail links with the time-tested friend. All these facts offer Pakistan a golden opportunity to export its farm and fish surplus to China. But, so far, Pakistan's farm exports to China do not cross the \$400 million per annum mark. Half of these exports, as per a study by CPEC cell of the Punjab Agriculture Department, comprised cereals (rice, wheat, corn, barley, rye and oats), followed by beverages and vinegar and then edible fruit and nuts. Raw agricultural products constituted 68 per cent and value-added processed items 32pc of the exports to China.

Agricultural development is already one of the seven areas of cooperation envisaged in the CPEC's long-term plan (LTP; 2017-30). Cotton production, efficient irrigation and post harvest infrastructure along the CPEC's land route are the areas of prime interest for China during this phase. But, unlike the early harvest (2014-17) projects of



energy and road infrastructure, Pakistan seems to be lacking vision on the agriculture front. It is also deficient in the enthusiasm needed to grab the godsend opportunity. The situation in livestock sector is worse as except a couple of internal meetings of provincial departments no concrete proposal or study has been authored by those at the helms of affairs.

Pakistan Agriculture Research Council (PARC) Chairman Dr Yusuf Zafar says that unlike the well-planned work for energy and infrastructure projects under the CPEC, no tangible plan has been prepared for the agriculture sector. The LTP portion on agriculture only talks in generic terms about setting up cold chains and undertaking agriculture projects in industrial zones along the CPEC route. There is also no mentioning of timeframe for undertaking the projects nor the amount and source(s) of funding for the same, he adds.

Planning and Development Minister Prof Ahsan Iqbal says that under the LTP, a Joint Working Group (JWG) comprising public office-holders and experts from the two countries has been formed. Sub-groups of the JWG in both countries are working to finalise their nominations for the forum as well as identifying projects in areas of bilateral

cooperation in the agriculture sector in the light of CPEC. "Our main thrust is to transfer technology from China for adding value to our agriculture. Our farm produce is of very low value. We need technology in seed development, drip irrigation, and the whole supply chain of agriculture benefiting from the progress China has made in this respect."

Spokesperson for CPEC projects Asim Khan Niazi argues that the agriculture sector is indirect beneficiary of energy and infrastructure projects too. Quoting a study by Preston University scholar Rizab Ahmed and PIDE's Usman Mustafa, he says rural electrification increases irrigated area and improves irrigation facilities as a result of which crops output increases. The electricity also helps setup cold chain facilities for farm and livestock produce, while a better road network reduces post-harvest losses and improves farmers' access to farm and financial markets, he adds. About timeframe of projects, he says a decision will be made by the JWP when the areas and industries, in which we need Chinese help, are identified.

Experts believe that Pakistan has the potential to benefit from the CPEC opportunity but complain of sluggish pace and lack of enthusiasm among the authorities concerned.

Referring to the proverbial red-tapism in the bureaucracy, the PARC chairman says that it took their Trout Multiplication Centre around one year to get federal cabinet's nod for signing memorandum of understanding (MoU) with a Chinese university on yak and cold-water fresh fish project. The university sent its team of experts twice and the interior ministry allowed it to visit the proposed sites for the project in FATA only after repeated requests for months, he bemoans. "Govt needs to go fast, make regulations and enforce the same complying with world standards."

Dr Mahmood Ahmad, visiting Research Fellow of LUMS' Water, Informatics and Technology Centre, point out other weak areas of local agriculture that need immediate attention of the government to fully exploit the CPEC opportunity. Poor state of the seed industry, weak extension services and non-existent infrastructure for developing suitable agriculture machinery and equipment are the gaps trapping the sector, he says.

Referring to the value chains identified for various climatic zones of the country in the initial studies conducted by the Federal Minister of National Food Security and

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## Exploring the spectrum

Technology upgradation for the farming sector is essential.

BY AHMAD FRAZ KHAN

FARM mechanisation, despite lip service to the need and concept by successive governments, has remained an elusive target. There are reasons. Different and several reasons. To name a few, one can hold particular land-holding pattern, policy failures and almost a fixed cropping pattern as the prime culprits for the failure.

The land-holding pattern is such that it does not leave much space for technology. Around 55 per cent farmers own less than five acres of land. The number increases beyond 93pc if the land ceiling is taken to 12.50 acres. These farmers do not invest in any form of technology as it does not make any commercial sense for them.

To make matters worse, even these small land-holdings are continuously divided and sub-divided with every passing generation on account of inheritance. Land consolidation, which further compromises mechanisation, has never been a policy preference, which India did some six decades ago and is reaping huge benefits.

In the name of mechanisation, successive governments ran tractor subsidy schemes - leading to 'tractorialisation' of the sector, rather than mechanisation. Punjab, for example, now has more than 550,000 tractors for its 3.3 million acres of land: averaging about one tractor for over 60 acres - which is not at all bad.

After a bad patch for about four years, the tractor industry is again reporting 45pc increase in production, further consolidating the 'tractorialisation' of the sector. On the other hand, last major policy initiative for the combine harvesters was taken in the last century, 1980s, to be precise. It introduced machines to the sector and lost steam not much later. One still gets reports from the fields of some old machines working in the first quarter of every year when they reap wheat. This lopsided policy only hampered mechanisation rather than helping the cause. This is not to oppose the spread of tractors, but only to underline scarcity of other implements, equally, if not more, necessary for the sector. Almost fixed cropping pattern revolving around

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## Understanding the modern consumer

Digital age consumers are taking customisation to a new level and getting more involved in the production process.

BY MARIAM KHAN

WITH smartphone screens keeping the citizens' senses engaged, and disposable money in one's wallet, a text message pops up with nothing but a 'smart' deal. After a quick order placement on the phone's app, the doorbell rings in no less than an hour and one is ready to sate the hunger pang. But there are aplenty who prefer choosing their ingredients rather than going for ready-to-eat food, and preparing meals at home for the Fibit monitoring their fitness level, does not let them munch on the fast food junk, without making them hit the guilt road.

Go back a decade and these easy-to-order meals on doorsteps were mostly seen as mere acts on silver screens. Euromonitor International's Megatrend Analysis: Putting the Consumer at the Heart of Business says, "With consumer expenditure in

developed economies experiencing slow growth, and multinationals facing increasing competition from local business in emerging markets, harnessing megatrends and meeting the requirements of consumers is imperative to gaining market share and expanding the consumer base. Today, consumers are seeking to reassess their values and priorities and focus on obtaining the most out of life, whether this be prioritising experience over possessions, sharing over owning, or time over money. Technology enables new shopping behaviours, allowing consumers to deal directly with other consumers, compare prices and get the best deal at the touch of a button."

In an age where consumers are in contact with manufacturers in real time, is it the age of consumer boom? According to the State Bank of Pakistan's Consumer Confidence Index March 2018 report, "Overall CCI increased by 5.78% ... The

increase in CCI is attributed to both current economic conditions (CEC), which increased by 8.32 per cent, and expected economic conditions index (EECI) that recorded an increase of 3.11 per cent from its value in the previous survey" (conducted in January 2018). A small-scale survey was con-



ducted by this scribe to find out if the consumer is satisfied with the goods they are purchasing. Out of 20 respondents aged between 24-47 years, 60 per cent were middle class consumers; 55pc shopped at supermarkets once a month; 60pc spent less than Rs. 10,000 on processed food each month; and 35pc were

certain that sprawling supermarkets are what make them opt for packaged food.

Packaged food culture is now a norm amongst middle income households - with women in the work force, making time a limitation that lures many into buying processed food. Some 75pc of the respondents claimed readymade food is unhealthy, but not having the time to prepare home cooked meals, 25pc of those who participated in the survey, being working individuals went for readymade food offered in supermarkets.

With markets splurging with processed foods, is the consumer satisfied with what they are purchasing? Well, 35pc respondents stated their dissatisfaction, while another 45pc were not certain if their choice was up to standard or otherwise, and if the quality was satisfactory. But despite their reservations, is the consumer looking out for other safer, healthier alternatives? The survey suggested that 30pc

respondents had reverted to traditional, home-cooked meals. What is strange is, 35pc still stick to the hype of the retail age, and even though their share of discontent with packaged food is on the rise, they have not shifted to conventional food.

According to the Household Integrated Economic Survey (HIES) 2015-16, average monthly consumption expenditure per household in 2013-14 was Rs. 33,581 which rose to Rs. 41,529 in 2015-16 with the average monthly household income Rs. 38,923 which increased to Rs. 45,283 in 2015-16. The HIES also highlights the percentage of monthly expenditure on 20 major food items, under the consumption module for the first time and reported under 'Restaurants and Hotels' category, which included "the component of food taken away from home and readymade food taken at home were added in detail. The expenditure on

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# The first line of defence

BY AHMED AFFAN

**A** LOT of elements play vital roles in the development of a crop, but seed is an important determinant of yield and quality of crop production. The quality of seed, however, is a complex deal which is not only determined by the environmental conditions but genetic factors also. To overcome the uncertainty and have more control on the quality, scientists have worked hard to improve the seed quality.

They have combined their knowledge from studying plant's molecular biology and classical genetics with a variety of seed technologies to improve its overall physiological quality, vigour, synchronicity and other essential aspects to help the crop achieve optimum levels under diverse environmental conditions.

This seed technology employs seed biology to enhance the consistency of a crop's harvested yield and quality. Seed enhancement technologies are gaining attention to produce better, more disease-resistant seeds, improved seed vigour and modify the seed's development capabilities. The basic and applied seed research projects mostly concentrate on embryo growth and on the different seed covering layers which eventually determines the seed quality and enhance the biodiversity of seed structures.

Seed germination is controlled by the environmental factors such as temperature, quality of water and plant hormones. The application of plant hormones and inhibitors of their biosynthesis and action in seed treatment technologies affects seed germination, also providing molecular traits for seed quality and seedling performance.

The mechanical techniques designed to improve seed quality include polishing-off or rubbing-off the seed's coat,



commonly known as testa or pericarp, which is followed by sorting into defined seed size classes or sorting by seed density. Seed coating is another technological modification which refers to the application of coating materials to the seed's outer surface such as fungicides. In the recent past, film coating, in which the active ingredient is sprayed in a quick-drying polymer film around the seed's surface, has proven to be very successful.

A major benefit of film coating a seed is that it reduces loss of active materials like fungicides, nutrients, colorants or plant hormones from the seed during its transportation and handling. Seed pelleting technologies are applied to alter a seed's shape, its surface characteristics, density and size to enable more precise seed singulation and settlement in the planting tray or soil. The singulation process eliminates clustering of seed that leaves a balanced, uniformly

divided, space between plants within a row in a field. Seed pelleting processes are also used to incorporate a range of beneficial additives, including micronutrients and plant protection agents.

Seed priming is one of the most important seed enhancement methods done physiologically. Seed priming is a treatment involving hydration that allows controlled imbibition and induction of the pre-germinative activation in a seed. Priming is used to increase the germination rate and uniformity and overcome seed dormancy.

One of the most crucial outcomes of this process is that after seed priming the emergence of uniform seedlings is achieved which leads to better and higher yields. A practical drawback of primed seeds is often a decrease in storability and the need for cool storage temperatures.

Deciding whether or not to use seed treatments can be a challenge for a

farmer as there are multiple treatments available for a particular crop and variety of products to choose from. Having knowledge about seed treatments is the first step towards making the best decision for crops.

Seed treatments have become increasingly popular in commercial agriculture almost all around the globe. They are convenient methods to encounter early season insects, diseases and other factors affecting the crops. It not only provides a shield of protection but also promotes proper growth. Treated seeds are more advanced and not very expensive.

Depending on the conditions and type of treatments, treated seeds can help optimise yields by allowing the seeds to be more accurately placed, reducing the seed dormancy potential and helping seeds germinate more easily in unfriendly conditions. Growers can easily recover the cost of seed treatments

with increased yields from their crops and the reduction in costs.

Farmers who are reluctant to use huge quantities of chemicals on their crops can easily find solution in seed treatment. Chemical loading of pellets provides a way to treat seeds directly and eradicates the need to spray. Hence, the total amount of toxicants applied per acre decreased significantly which means fewer chemicals in the ground, the plants, and the environment.

The pros and cons of treated seed must be weighed wisely. Even though it is a very scientific process and is established after long researches, seed treatments cannot be considered as a one-size-fits-all solution for every problem. In some cases, it could be ineffective or targeted to the wrong problem, thereby costing money and time. In others, it could be effective but cost more money than the profits gained or is not applied correctly.

Organically grown seeds, harvested from plants that have been raised free of inorganic chemicals, is sought by traditionalists. There may be a slight difference between this seed and the seed of traditionally grown plants, but the increasing demand demonstrates the commitment of gardeners who desire untreated products.

Overall, the importance of seed treatment cannot be overlooked. Whether or not the use of a specific treatment on a particular seed for a specific crop in a certain environment will be profitable for a farmer depends on different variables.

The potential benefits offered by them are huge; hence the farmers need to consider all possible options and compare the outcomes to make a smart decision. Ignoring seed treatment as a viable option for better yield will only prove to be catastrophic in an age when large yields are necessary. Also, entirely organic supplies must be produced according to their specific requirements and segregated in the marketplace in order to receive premium prices. ■

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# Women of substance

BY MOHAMMAD SALEEM SHAHID

**W**OMEN play a vital role in social change; the girls secure top positions in educational institutions despite an environment that is less than conducive. They want their share in property, education and employment to enable them to gain control over their lives yet they are persistently denied such rights and opportunities.

Every year on October 15, the United Nations observes the International Day of Rural Women to recognise rural women's role in supporting their communities in enhancing agricultural and rural development worldwide, improving food security and eradicating rural poverty. Rural women make up more than one quarter of the total world population. Women perform over 50 per cent of the labour involved in intensive rice cultivation in Asia and 30pc of the agricultural work in industrialised countries.

Rural women are the backbone of the agro-based economy. They make up almost half of the world's farmers and over the last few decades, they have broadened their involvement in agriculture. The number of female-headed households has also increased as more men have migrated to cities. As the primary caregivers to families and communities, women provide food and nutrition; they are the human link between the farm and the table. Rural women in Pakistan play an equally important role in all productive and social spheres despite adverse circumstances and traditions. The women residing in cities are also playing an important role in the development of society and the government too is in favour of women's impressive role in the different sectors of life in spite of hindrances.

Rural women comprise a major chunk of the population and play a significant role in agriculture sector and rural development, but their contributions are not recognised at any levels. With the advent of latest technology in the agriculture sector, the involvement of women has not decreased and they still have to perform extensive agriculture work. A majority of women have to work on family farms particularly during sowing and harvesting periods. They generally look after livestock and poultry farms.

Women labour workers often lack finances and circumstances force them to borrow money from

time to time from private sources. Women agricultural workers suffer from severe working conditions and receive no weekly rest; they are hardly provided any housing facility, their wages are invariably delayed and, in some cases, defaulted. Issues of harassment and violence against women are quite common in rural areas as compared to urban areas.

In view of sharp increase in cost of living and frequent crop failures either due to ravaging floods or persistent drought-like conditions, rural women are gradually undertaking non-farming businesses like tailoring, fancy embroidery work, food/fruit



processing and also running grocery shops etc, for supplementing family income. There is a big women potential which simply needs due projection and support from the government, private sector and the society for promotion of women entrepreneurs especially from the rural areas of the country. As a step for empowering the rural women, the Federation of Pakistan Chambers of Commerce and Industries has been imparting short trainings on different trades and products to rural women so that they could promote their businesses and live their lives in a better way.

Although breaking with traditions is not easy, literacy has helped women to think about wider issues. It has given them a new insight to see and evaluate themselves and the social environment.

On the basis of that insight they get social, economic and political identity. In reality, over 60pc of the female population happens to be illiterate and over two-thirds of them live in rural areas. Forget about the previous generations, even girls of today are being deprived of education with most of the girls hailing from rural areas primarily. Women in rural socio-cultural panorama are confined to household chores and laborious work in the fields and do not have access to education and they are one of the most vulnerable and marginalised segments of the society despite their significant role in the rural economy. Women are also subjected to

violence, economic exploitation and lack of basic education and healthcare facilities.

It goes without saying that women's redemption and empowerment lie in their education. Being an inalienable right of every child, educating rural women is imperative to help them understand and face the diverse problems. Presently, male and female literacy rates stand at 70pc and 47pc. Ironically, Pakistan has the second largest number of out-of-school female students all over the world. The government must have to put equity and inclusion at the heart of every policy so that all girls, whatever their circumstances, go to school, stay in school and become empowered citizens.

Pakistan is the worst nation for newborn babies in the world and one of the worst for infants under

one-year-old as far as healthcare is concerned. Poor delivery care, non-availability of trained midwives, inaccessibility to health facilities, lack of sanitation and water all contribute to such dangerously high numbers for Pakistan. But the most prominent cause for higher deaths in babies and children remains the worsening health and nutrition of mothers. There is no doubt that malnutrition and food insecurity are prevalent across the country, but there are widening gaps in the same for rural and urban women.

Mostly women in rural areas continue to be married off at a very young age, have multiple pregnancies before their bodies are capable of bearing the burden; bring forth underweight and weak babies and despite medical advancement die in large numbers from treatable, pregnancy-related problems. Almost 90pc of the rural women continue to perform multiple, unpaid tasks besides labouring as mothers, wives and domestic workers, cattle-rearers, fuel and fodder collectors.

Policymakers should know that arranging mobile clinics or providing women with clean and sanitary healthcare facilities where trained practitioners or midwives are present and where nutritional supplements are readily available could substantially help in improving maternal health and child mortality. Some provincial or aid-based funds can be directed toward these areas, plus an overall focus on sanitation and access to water.

Women, in general, and rural women in particular, can only be empowered when they have full access to their. Having a right to land or other productive assets gives women a bargaining power and ability to assert themselves in various aspects of their life. For rural women's empowerment, it is essential to enhance their ability to claim and retain control over their rightful inheritance shares. Education is another coveted tool towards empowerment, which is directly linked with their ability to seek and get employment.

Employment, therefore, emerges as one of the key factors of importance for women. Their employment means an increasing rate of self-dependence and ultimately getting "respect" in the society. Once a woman's role in the household shifts from that of a "recipient" to one of a "provider", her decision-making function also stands to be recognised and consolidated thus empowering her in a major way. Empowering women is the key to social and economic development as well. ■

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# Struggling to survive

BY KHAWAJA AMER

In a truly agrarian country, the fertiliser sector tends to be the backbone of macroeconomic stability and sustainable economic growth. In Pakistan, as per some statistics, the agriculture sector accounts for over 24pc (nearly one-fourth) of the country's gross domestic product (GDP) and employs nearly 50pc of the employed labour force. With quite a significant growth rate of 3-4pc per annum, Pakistan's agriculture sector happens to be the largest source of foreign exchange earnings with almost 65pc share in exports.

Being the main economic driver, the sector forms the basis for more than 50pc of industrial production, accounting for the largest chunk of national economic output every year. Punjab takes the lead in terms of agrarian contributions to the national economy, followed by Sindh with a total cultivable area of nearly 14.5 million acres and with a sizable cropped area of 7.6 million acres in total.

Often referred to as an allied agricultural industry, Pakistan's fertiliser sector is one of the mainstay industries of the national economy, playing a pivotal role in keeping the economic wheels on the move. On an average, Pakistan's current fertiliser production capacity is more than 7.5 million tonnes per year, which is slightly over the national average demand. A total of nine companies operate in the country's fertiliser sector. Statistically speaking, the top two companies collectively enjoy almost 83pc share in the local urea market and account for over three-fourth of diammonium phosphate (DAP) market share in terms of value and volume.

Many studies show that the availability of cultivable land and net sown area has a direct relation with the demand of fertilisers. During 2010-14, for instance, a total cultivable area in Pakistan recorded a mere one per cent growth owing to uncontrolled soil salinity, erosion and land degradation, coupled with severe damages inflicted by frequent floods and water-logging as well as the large-scale inundation caused by heavy rainfall, particularly during the monsoon seasons.

In general, many factors drive the overall demand of fertiliser products such as sufficient availability of water, optimal utilisation of cultivable land, prices of fertiliser materials, government policies towards farmers' well-being and agricultural production in relation to the population's current growth rate, as well as ever-increasing consumption needs.

In addition, local farmers are facilitated through commodity support prices that are exclusively offered to farmers by the government on various occasions in order to help them have easy access to a complete range of fertiliser products and the rest of the agricultural essentials and accessories. Such incentives help farmers improve crop yield and achieve maximum production by using the recommended quantity of fertilisers. Particularly in the last few years, farmers have constantly been offered support prices to make the most of economically affordable fertilisers, moving the demand curve upward.



Furthermore, an increasing awareness among farmers is another factor behind the increasing use of fertilisers, manure and pesticides for sustainable farming.

On the other hand, an irregular supply of gas and insufficient gas pressure are among the leading concerns facing the fertiliser sector today. This mostly affects those fertiliser units that are connected to SNGPL network. However, the problem is expected to be fixed soon as the private sector is going to import LNG from Qatar. Approximately around 250 to 300 mmtcd gas would become surplus, and thus would be diverted to fertiliser and power sectors.

A continued reduction in fertiliser prices is another risk point which is severely affecting the business growth and profitability of fertiliser companies. A continued downward trend in international prices in relation to high level of inventories carried by local producers is a matter of concern for the fertiliser sector. A severe gas shortage in 2001 affected both domestic and industrial consumers, but the fertiliser sector topped the list of affected industries with over 55pc to 90pc gas curtailment.

Bearing the brunt of flawed gas-load management programme initiated by the government, the sector also suffered an unprecedented hike in feed-gas prices in the same period, while politically-motivated urea imports in the country upset a level playing field to make things worse for local manufacturers.

Besides shutting down fertiliser plants, regular gas outages caused serious damages to plant equipment, posing potential safety hazards in addition. An intermittent gas supply resulted in an increase in prices of locally produced urea, making urea import a less costly solution to the government, but at the expense of the country's fertiliser industry.

At the start of 2011, the government imported a total of 1.8 million tonnes of urea, resulting in a Forex outflow of \$924 million and expected subsidy of Rs. 48 billion. In 2012, excessive urea imports aggravated pressure on indigenous fertiliser producers who were already suffering from lower production and

higher running costs owing to regular gas curtailment.

The import of fertilisers at higher prices results in further deterioration of the agriculture sector. Due to ceaseless urea imports, the local fertiliser sector had to cope with an increased financial distress and undue warehousing cost on account of excessive imports, creating off-season surplus in the local market.

The plight of fertiliser sector can be best understood by the fact that it has been dependant on non-fertiliser industries (for instance CNG and textile sectors) to get its due gas share to get the wheel moving. For instance, textile industry is always looking for the highest share of gas supplies, despite having a number of energy alternatives available.

The fertiliser sector, in contrast, has no alternatives other than gas, the essential raw ingredient used in the manufacturing of urea and other fertilisers. Regular supply of gas is vital for the survival of fertiliser industry.

The textile sector, on the other hand, could not address the energy issues emanating from its own inefficiency and suffered repeated losses despite receiving gas supplies five days a week. There is definitely a much difference between careful energy utilisation and using a major portion of scarcely available resource with no particular consideration or with no real increase in production by relying on such alternative energy resources as hydro-power, coal gasification, biomass, solar energy, etc.

During the same period, the rise of the CNG sector at the cost of the country's fertiliser industry exposes the irrationality of government policies towards long-term economic development of the country. All industrial sectors in Pakistan play their part in the economic development of the country and they all need a required level of energy resources to keep the ball rolling.

For the industry, the current gas supply crisis bears a resemblance to those gas chambers that were widely used during World War II for mass killing of political prisoners and war captives. The same is now being done in Pakistan by depriving its

Though the fertiliser sector plays a pivotal role in keeping the wheels of economy moving, it is grappling to get its due share of gas supply to keep itself alive.

ers, the sector shares with them the benefits offered through occasional tax incentives and exemptions given by the government.

What makes the fertiliser industry stand out from the crowd is the fact that it has never been a purely profit-oriented sector since its inception and besides its sizable economic contributions to the national exchequer, it has been playing a major role in terms of CSR (corporate social responsibility) initiatives in education, vocational and capacity-building training for farmers, agricultural technology adoption, economic empowerment of farmers and farming communities and the like.

Looking beyond profitability, the fertiliser sector has taken a number of social development initiatives aimed at improving people's lives through education, engagement and empowerment. In addition to that, the industry takes charge in times of natural crises and disasters to provide a much-needed relief to affected communities scattered all over the place. To reduce energy crisis, leading fertiliser manufacturers have installed such various renewable power-generation capacities as hydro-power plants, solar and wind-power plants.

Pakistan is a food insecure country, says the World Food Programme (WFP). The same reality is affirmed by statistics shared by the Food Security Analysis (FSA) and the Economic Survey of Pakistan. Overall, agriculture generates almost one-fourth of total GDP output as well as 44pc of total employment, while over 66pc of the Pakistan's rural population is directly or indirectly linked with agriculture for their livelihood. Whatever happens to agriculture is bound to worsen the food security status of the country. Therefore, a robust fertiliser sector is needed to support the country's agro-based economy. ■



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# Missing the mark

BY AMJAD MAHMOOD

**P**AKISTAN is an agrarian economy as agriculture sector contributes over 19 per cent to the gross domestic product (GDP), provides food to the rapidly growing population and fibre to the industry. Besides, the sector is also a source of foreign exchange earnings. To maintain its share in the economy, keep the agro-industries running and make the country food secure it needs to improve per acre yield from its farms.

But the farming is facing challenges such as severe water scarcity (which is feared to go up to 50 per cent this Kharif season), changing climate patterns, land salinity and water-logging, soil erosion, and low crop yield due to limited use of farm technologies. Overcoming these challenges requires invest-

ment in research for developing new crop varieties that consume less water but give better yield, resist pest attacks and are more tolerant to climate change because the country has neither more cultivable lands nor water to irrigate them.

There are around 110 public-sector institutions, higher education entities, non-profit bodies, and businesses involved in agriculture research, both at federal and provincial level, in the country. Dozens of research projects are being undertaken by each of these institutions annually, though many of these are overlapping. But, ironically, most of the stakeholders in the sector are dissatisfied with the quality of research, saying none of the research projects has resulted in any substantial breakthrough in agriculture technology at least during the last two decades.



Growers' organisations are among those discontented with the research outcome. Farmers Associates Pakistan's Ebad Ahmad Khan laments that in the public sector most of the research projects

are not result-oriented and are being executed to justify scientists' jobs and win foreign tours. "Since early 1990s we're facing curl leaf virus attack (CLCV) on our cotton crop. Dozens of research projects have been undertaken since then to find a breakthrough against the disease but to no avail," he says.

Those at the helms of affairs are held responsible for the deteriorated conditions in the research sector as they are relying more on imports than achieving self-sufficiency in the agriculture sector. The sincerity of the policy-makers may be gauged from the fact that vast tracts of research institutions are being used for purposes other than farm research, while non-technical persons are being appointed to head technical posts.

Pakistan Kisan Irtehad President Khalid Mahmood Khokhar bemoans that a research institution's land in Multan was given to set up police offices, while in Rawalpindi, attempts were made to establish a housing society on a research farm and farmers have to protest on roads against the projects.

Ebad Khan points out that no bureaucrat familiar with the agriculture sector has ever been posted as secretary of the department as the officer is left to rely on briefings by the subordinates. And by the time a secretary gets field experience he is transferred never to be appointed again in the sector, he regrets.

Even the officialdom agrees that agriculture research has not been a serious task in the country as overlapping of work by different institutions has also been marring the sector. "What we've so far been doing is finding new crop varieties and that too from the genetic material supplied by the world food security agencies," while research on technology for efficient use of water, fertilisers, pesticides and farm machines has been missing," says Dr Anjum Ali Buttar, member plant sciences, Pakistan Agriculture Research Council (PARC). This resulted in selection breeding instead of "strategic" local breeding of various crop seeds.

We do produce new cotton varieties annually through selective work but none is lasting for more than two years, he says, referring to the poor characteristics of the varieties that fall in the test of changing climate and other harsh ground realities. This "directionless" research is also leading to overlapping of work. Dr Buttar points out that over 40 agencies are doing research on bio-tech with no tangible progress so far as the institutions have become "graveyards of machines" and funds worth billions of rupees are going wasted. Each university should be given a specific research target, while a national bio-tech forum should be established to streamline research on "world wonder" biotechnology, suggests the former director-general of Punjab agriculture extension.

Some quarters see absence of protection of plant breeders' rights as another major factor in curbing investment in the

research sector. India had promulgated a law to the effect back in 2001. Dr Buttar says the law to protect rights of plant breeders was passed in 2016, but rules under it have been framed only the

previous month. He hopes that the progress will lead to quality research with the advent of international companies in the field. Yet another negative aspect of research is that the share of agricultural research staff trained to PhD level is relatively low as compared with some South Asian neighbours. Deprived of promotions with low salary levels and few incentives, the qualified lot leaves their homeland in search of greener pastures abroad. And those who opt to stay back are mostly concentrated in urban centres here.

Dr Mahmood Ahmad of the Lahore University of Management Sciences says he could neither find any research work nor a researcher in and around the sugarcane fields during his recent extensive visits regarding a sugarcane-related research project. In India, he says, he personally experienced

PhD-level researchers working at village level while in Pakistan they are mostly confined to agencies at Faisalabad and Islamabad. Whereas from ecological point of view the federal capital is not an ideal place for agricultural research, he says. Dr Ahmad also talks of poor budgetary allocations for agriculture research and regrets that the funding ratio is much lower as compared with the world practice.

Punjab Agriculture Secretary Muhammad Mahmood admits that the sector remained neglected for a long time. But for the last two years, the situation has changed and from negative it has gone up to 3.8 per cent growth this year. Under a new agriculture sector reform initiative the research allocations will be increased from 0.1% to 0.4% of the agro-GDP within three years, promises Mr Mahmood. ■

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# The cotton dilemma

BY AHMED AFFAN

**C**OTTON is and has almost always been an important crop for numerous civilisations throughout mankind's stay on this big blue planet. It is believed with evidence to have existed and served different purposes since prehistoric times. A perennial shrub, cotton's furry fibres are spun and woven into yarn or textiles to be used in clothing and other household items – everything from socks to bed sheets and towels. Being both lightweight and absorbent, there are far more applications of cotton than any other fibre in the world and as a result of these properties it is consumed more than any other. All these applications give a high industrial value to this crop and great monetary rewards to the growers. Cotton is now not only grown in countries all around the world but it also plays a major part in the economies of most of these cotton producing countries. China, India, United States, Pakistan and Brazil are among the top producers of cotton. In terms of Pakistan, cotton is our cash crop and most of our country's exports depend on it.

When technology, in recent years, has become a part of almost every aspect of a man's lifestyle it has essentially become a part of everything that is at the core of that lifestyle – communication, safety, food and also cotton. Only a few years ago, transfer of genes from other species into cotton was honestly considered to be a science fiction. At present, transgenic cotton is almost conventional and is widely produced in many countries. *Bacillus Thuringiensis* is a naturally existing soil bacterium used by farmers over the years to keep Lepidopteran insects away because of a toxin it produces. With the aid of genetic engineering, scientists have hosted the gene responsible for making that toxin into a range of crops, mainly cotton. BT cotton expresses the qualities of the insecticidal gene throughout the growing cycle of the plant. Cotton crops are very susceptible to pest attacks and consume major share of the pesticide and insecticide market. Cotton possessing BT genes was introduced in the mid-90s. This wonder-cotton immediately impacted the issue of insect control and subsequently led to increased yields and reduced insect control costs. Transgenic



cottons have had very positive effects on cotton production, and promise to continue to provide positive impacts. Growers have been able to increase their farm size, while reducing their per unit production costs. The development of the targeted, more resilient transgenic cotton varieties eventually requires an operationally effective breeding programme for the cotton crop. Since it requires about a decade, from the time a breeder makes a cross until a variety from that cross is released, one can estimate the kind of cotton varieties that will be available in the next 10 years by merely examining the cotton breeding nurseries.

However, it won't be completely irrational to assume that the basic varieties of cotton will not change significantly in the next decade or so although, the genetic improvements are now being achieved with both transgenic and non-transgenic genetic factors using innovative selection tools and procedures. According to industry experts, genetics or DNA based technology is perhaps one of the tools that will make the most difference in the near future of world's cotton. As we move

ahead with the research in this particular area and better DNA markers are identified, the breeder can easily turn the odds in his favour by finding the complementary recombinants for traits that can potentially improve important aspects of the crop like lint yield and the overall fibre quality.

To effectively utilise the whole phenomenon to address a problem, a number of hurdles must be overcome in advance. First, the favourable gene must be identified and its function and possible interactions must be determined. Secondly, markers that are closely linked to the favourable gene must be identified. Thirdly, a method must be established to ensure that the favourable gene is selected and is functioning when the marker is selected. The industry leaders are confident that in near future a lot of progress will be made in this particular process. These critical developments in the cotton industry are the need of the hour for all the cotton producing countries and its growers. Cotton on its whole is under serious pressure for some time now from its competition, synthetic fibres. The race is getting more and more relentless every

Though cotton holds great significance in the agricultural landscape, there has been a steady decline in its production, and if that is not worrying, nothing is.

tributor in Pakistan's economy as it enables the country's largest industrial sector to compete on the global scale and to bring in the much important foreign exchange. Although cotton maintains its position of importance today but there has been a steady and undeniable decline in cotton produce. It is facing evident bumpy roads ahead. Rising temperatures, drought, limited freshwater and unpredictable rain patterns are expected to further alter cotton plants' ability to grow and produce.

Although cotton crop can grow and breed in hot weather but its capability to endure increase in temperature totally depends on the availability of water, lack of which is one of our most prevalent national issue. The industry and growers in Pakistan however disagree that the shift in climate and inconsistent rainfall can be blamed only for the cotton produce crisis we are in. While they seek better seeds and better price, they remain particularly hesitant about outdated and untested genetically modified seed that is available locally.

The governments have made a lot of promises to the farmers over the years and very few of them have actually materialised. The absence of support from the governing bodies is continuously pushing the farmers to use their irrigation land to grow other crops which has better odds of paying-off and for which the government is intervening and showing interest by ensuring fair returns to the growers. The cotton plantation areas in the country have been consistently shrinking for this sole reason; farmers have started reconsidering their preferred cotton crop and have started moving on to other crops. Negligence towards farmers and their cotton produce which being the most vital element of our country's mammoth textile industry is hurting the players involved throughout the process, from ginners to finished-goods sellers all are suffering and the country's economy is suffering with them. ■



Cotton and textiles go together. In the face of declining produce the industry suffered and with exports going down, the farmers seem to be moving on to other options. It's a vicious cycle. The earlier it ends, the better.



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# The farm and the farmer

BY MOHAMMAD SALEEM SHAHID

**M**ORE than half the country's population is directly or indirectly dependent on agriculture and it contributes a major share to the national exchequer. However, agriculture is today passing through a crucial phase because of the worsening plight of the farmers. Bureaucracy and political leaders, instead of preparing them to face the situation boldly, are creating unnecessary panic among the ignorant farming community.

Farmers' incomes are falling. Holdings are progressively getting smaller. Intensive agriculture is degrading natural resources. The availability of water is decreasing. Selective cultivation has narrowed down biodiversity. The tree population has gone down. Indiscriminate use of agro-chemicals has created serious problems. Many species of birds have vanished. Pesticides have contaminated water and soil. In essence, both food and nutritional security are threatened. The prescription that experts give to solve all these problems is aggressive diversification.

Diversification reflects a change in business activities based on the flexible and differentiated response to changing opportunities created by new production technology or markets signals. More specifically, diversification is defined as "change in product (or enterprise) choice and input use decisions based on market forces and the principles of profit maximisation." Hence, the first and foremost task for the government is to control inflation in order to make life easier for the poor and put the country back on track for growth. Most of the inflation in Pakistan is being contributed by high food costs.

Cumulative increases in some essential food items have been over 100 per cent. A major factor in controlling food inflation would be to enhance agricultural yields. All crops should have price floors and ceilings, bearing in mind

international subsidies and the prices of domestic agriculture inputs and outputs. Focus should be on value-added agriculture and farming, like fruits, vegetables, flowers and livestock. Research institutions should be developed in the agriculture and farming sector for crops, fruits, vegetables and livestock through public-private partnerships where state-of-the-art research should be pursued.

Support to the small farmers is essential, both financially and technologically. This can be accomplished through public-private partnerships providing services like seeds, fertiliser, rental tractors and bulldozers, and consultancy on modern agriculture techniques. But, the relevant authorities have failed. The government's claims of giving agriculture its due share in the economy have proved to be a tall talk.

Non-availability of credit facilities has ultimately ruined the farmers. Farmers are totally indifferent to agricultural costs. They neither have any cost-benefit analysis nor do they believe in keeping accounts. Whatever they get, they simply call it their fate. Owing to small land holdings they cannot derive the benefits of the economy of scale. Ego and pretensions of the farming community have also worsened their problems. In this scenario, it is important to analyse what agricultural costing and accounting can do for farmers.

Agriculture is still not being undertaken on commercial lines and prudent business principles. The reason is that the farmers neither keep accounts relating to agriculture nor do they apply any accounting techniques to control costs. Now agriculture is turning into an industry and a profession. That is why it becomes important to apply accounting techniques and principles just as they are applied in industries and businesses.

Account keeping will not only be helpful in determining exact costs, but also be instrumental in controlling the costs. The best crop cycle may be adopted by doing a cost-benefit analysis for each crop. A reserve may be created for the



replacement of fixed assets like tractor, tubewell, thresher, etc. However, it is important to note that a standardised accounting system to record agricultural transactions is yet to be developed in our country whereas in advanced countries even fully developed computer software are available for the purpose.

Since, most agricultural transactions are exchange transactions, such dealings have to be converted into money

value and then transferred to respective accounts. Self-produced goods are also valued likewise. Correct valuation of such transfers is also required. The produce used for personal use has also to be accounted for.

Budgeting may also be helpful for earning good profits in agriculture. After a survey of several small and big farmers in Islamabad and Rawalpindi rural areas, it was found that most of them were ignorant about agricultural costs and accounts. If a farmer was asked about his income from agriculture, his answer would be that he had a crop of Rs 50,000 implying that he treated the whole receipt from the sale of the produce as his income.

Another phenomenon is that at the time of sale of his produce a farmer clears his old debt and raises a new debt and feels satisfied that he has no outstanding dues of previous years. Generally a farmer never thinks about the expenses incurred on the crop, and if he does think it is only about the amount spent on seeds, pesticides, manures and electricity; he never thinks about the costs of land and self labour. The concept of depreciation remains totally outside his purview. He does not take into account the accounting assumptions and techniques relating to fixed assets.

Disguised unemployment is another factor that remains untouched because the whole family of a farmer works in the fields directly or indirectly, but he never evaluates this labour. If a thorough analysis of the matter is made, he will find some of the members as economic burden. It is a fact that efforts and outcome of farmers are generally disproportionate.

Furthermore, the government should devise genuine ways for improving the marketing system and price policy to proactively assist and protect farmers' interests especially of small and marginal farmers, who are facing financial crisis and whose land holdings are continuously getting fragmented, and thus are too small to be

sustainable. Such a system would not only add to the national kitty by helping farmers produce more and ensuring food and cash security but would also alleviate poverty in rural areas, where it is more threatening both in reach and wretchedness.

No distinction is generally made between the personal and agricultural transactions of a farmer. The produce consumed at home is also not accounted for. Whatever is paid to the workers in the form of produce is not valued in money terms and accounted for. A farmer considers it below his status to account for things used for domestic purpose. But this approach is against the concept of business, which states that the entity of the business and the businessman is different and all transactions are recorded accordingly. Such an approach is needed in agriculture too if it is to be carried on commercial lines.

In the beginning only such a system of accounting can be implemented as it is easy to understand and simple to adopt. A beginning in this direction can be made by preparing a simple cashbook account of each crop, livestock, expenses, net profit and loss and, finally, the balance sheet. Most agricultural transactions are cash based and the receipts and payments can be entered in the cashbook. Depreciation can be charged on farm machinery and building. Expenses incurred to make the land cultivable can be considered part of the costs of land.

The produce used at home and given to workers may be treated like business accounts. So the principles of a double entry system may be applied with a slight difference. It can be said without doubt that once our farmers take to account keeping and become cost conscious, they will become truly commercial and agriculture will become a lucrative business. The government should play an important role in this direction by providing relevant training to the farmers in order to be more advantageous to the country. The task ahead is daunting. The roadmap to progress and prosperity is clear. ■



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# The poultry enigma

BY KHAWAJA AMER

**R**EFERRED to as a sub-sector of the livestock industry, poultry constitutes a significant component of an agro-based economy. It contributes to food security of the nation, improves human nutritional status and happens to be a leading protein source consumed in the form of white meat and eggs.

Most importantly, the poultry sector earns a sizable share of foreign exchange to the national exchequer, eases pressure on demand for beef and mutton, and serves as a key supplement to income generated from crops, dairy cattle, dairy and animal products and the rest of livestock enterprise operating in agricultural settings. Poultry is also considered as the most economical, on-hand replacement for traditional commodities that are largely subject to intermittent price fluctuations, adding to food insecurity for the poorest segment of the population in particular.

This is mostly true for modern poultry farming that is quite an effortless and a relatively low-cost means compared to traditional farming methods since it plays a significant role in meeting the nutrition needs and raising the dietary standards of the large number of people belonging to low and middle income groups. Being one of the largest contributors to food production and food security, the role of the poultry industry plays in the socio-economic development of the country is the most vital, providing direct and indirect employment to millions of people, particularly those living in rural settings.

The poultry industry is divided into three sectors, namely hatchery sector, poultry farming sector and feed sector. Poultry, in terms of statistics, makes up over 20 per cent of the nation's meat consumption and the sector has approximately 1.1 per cent share in the country's GDP and accounts for 4.8 per cent of agriculture GDP growth rate. With a total investment of Rs.125 billion, the poultry sector in Pakistan has an annual turnover of Rs.750 billion, with an average growth rate between 10 to 12 per cent per annum, providing employment to some 1.5 million people both directly and indirectly.

Above all, it is pursued as a profitable business venture those with no education or skills can easily run and at the



same time, it tends to be an excellent source of low-priced food protein available in abundance all over the place. The poultry feed worth Rs.190 billion is being produced by home mixture as well as by commercial feed mills, mostly using agriculture produce and by-products of agriculture in the making of feed. Considered as a rural based industry, currently more than 15,000 small and large-scale poultry farms are operating in the country, with each farm having a capacity of 5,000 to 500,000 birds on an average.

In Pakistan, the commercial poultry sector accounts for around 40 to 45 per cent of the total meat production, while the rest of the meat is produced by domestic and rural-based poultry industry. Pakistan's poultry sector produces about 12,000 million table eggs per annum and around 2250 million kilograms of chicken meat (eviscerated weight) on an annual basis.

However, per capita consumption of poultry meat in Pakistan is around five kilograms per year, which is over half the per capita meat consumption of eight kilograms, according to the statistics shared by the Punjab Livestock and Dairy

Development Department and Pakistan Poultry Association (PPA). Similarly, per capita egg consumption in Pakistan is 65-70 eggs annually, which is low against the standard requirement of 250-300. In contrast, the world average meat consumption is around 40 kilograms, as well as per capita consumption of eggs over 300 per annum. It says every Pakistani consumes merely 17 grams of meat on a daily basis against the daily requirement of 27 grams per person as prescribed by the World Health Organisation (WHO).

This suggests the poultry sector in the country enjoys monopolised favours in business and trade, while the average consumer bears the brunt of unrestrained greed of unscrupulous businessmen and investors, making the most of a deregulated market that is shamelessly ruled by a cohort of poultry mafia and their associates holding a tight grip on price control policies.

Truly a private sector enterprise, the commercial poultry farming has an annual growth rate of 40 to 50 per cent and is supported through numerous incentives provided by the government in the forms of duty

free import of different feed additives and poultry vaccines. To facilitate local poultry industry and attract foreign investment, the government is also setting up designated poultry zones across the country.

For instance, a Thailand-based poultry company is going to establish feed mills and breeder farms, as a part of the government's poultry development initiative aimed at establishing a modern poultry infrastructure in the country. This will comprise a total of 19,154 poultry farms being set up across the country with the capacity of producing 100 million broilers per annum and will comprise more than 140 feed mills with an annual production capacity of 4.7 million tonnes of com-

mercial and rural sectors to enhance the overall food security situations in the country reeling at the bottom of the food security ladder despite being an agrarian economy. Since the development of the poultry sector expedites the pace of rural development, more investment into the sector results in uplift of rural economy, which impacts poverty alleviation and enhances socio-economic development as well.

The private sector must be incentivised to bring in more investment to the sector by establishing poultry farms and feed mills technologically equipped to produce feeds to meet the growing demand by both poultry and livestock farmers. As the next fiscal budget for the year 2018-19 is around the corner, the government should reduce the import duty on basic multiplication seed for poultry, comprising parent and grandparent stocks.

In addition to that, there is a dire need to reduce sales tax on poultry farming machinery to bring the levy at par with agriculture greenhouse tunnel farming, because the proposed reduction in the levy of sales tax will help in bringing the modernisation and technological advancement to the poultry sector and will ultimately help in further expansion of the industry.

Last but not least, the poultry sector also needs to go through some soul-searching to prioritise the consumers' interests and must act on its own to set its house in order. On the one hand, the poultry industry witnesses a phenomenal growth rate in its overall business operations and expansions, while on the other it has yet to pass any benefits to consumers who are provided with chicken meat contaminated with high levels of arsenic. Unfortunately, the country's poultry industry is not ready to give up its unhygienic rearing practices, while the lack of quality control measures, shoddy implementation and the involvement of shortcut methods in poultry production put the consumers at a greater risk. ■



From farm to the market, the poultry sector has a host of issues to deal with. Every now and then, rumours of one kind or the other add to worries of the investors.



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**Wheat Production and Enhancement Program for Pakistan**  
Supports research that leads to identification, adoption, and optimal agronomic management of new wheat varieties.



**U.S.-Pakistan Partnership for Access to Credit**  
through USAID's Development Credit Authority, USAID has teamed with Bank Alfalah Limited, JS Bank Limited, First Microfinance Bank of Pakistan Limited, and Khushali Bank Limited to provide up to \$60 million in formal financing mechanisms to help micro, small, and medium enterprises, including agribusinesses.

Through the **Pakistan Regional Economic Integration Activity**, USAID is enhancing Pakistan's regional economic connectivity with its neighbors.



**USAID Small and Medium Enterprise Activity** is helping to create jobs, foster entrepreneurship, and contribute to Pakistan's GDP by supporting the start-up and expansion of SMEs across the country.



**Pakistan Private Investment Initiative** has supported investment funds to inject capital into high-growth small and medium enterprises, providing a basis for the formation of a private equity industry in Pakistan.



**Pakistan Agricultural Technology Transfer Project** will increase smallholder farmers' access to affordable and effective agricultural technology and mobilize investment.



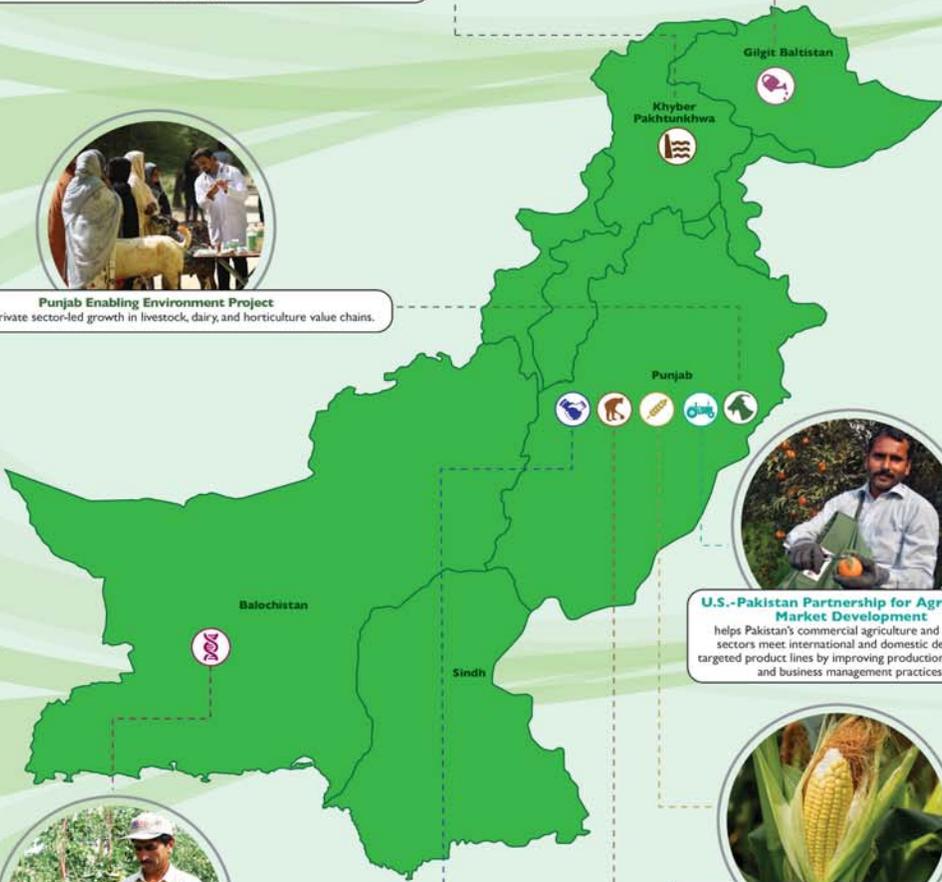
**Gomal Zam Dam Command Area Development Project**  
 helps the Khyber Pakhtunkhwa Department of Agriculture provide year-round irrigation water to 191,000 acres and technical support to farmers in high value agriculture production, processing and marketing in Tank and D.I.Khan districts of Khyber Pakhtunkhwa.



**Satpara Development Project**  
 has constructed on-farm irrigation systems for over 15,500 acres downstream from the Satpara Dam in Gilgit-Baltistan and trained farmers in production, processing and marketing of high value vegetables and fruits.  
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**Punjab Enabling Environment Project**  
 promotes private sector-led growth in livestock, dairy, and horticulture value chains.



**U.S.-Pakistan Partnership for Agricultural Market Development**  
 helps Pakistan's commercial agriculture and livestock sectors meet international and domestic demand in targeted product lines by improving production, marketing, and business management practices.



**International Wheat and Maize Improvement Center**  
 Plays a crucial role in catalyzing research on cereals using best agronomic practices.



**Center for Agriculture and Biosciences International**  
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**International Center for Agricultural Research in the Dry Areas**  
 promotes agricultural development in dry areas, with research and training activities that cover crop improvement, water and land management, and climate change adaptation.



**Agricultural Innovation Program**  
 supports research to help farmers produce more and higher quality cereal, vegetables, fruits, and livestock products.  
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## Understanding the modern consumer

Continued from Page 1

food and soft drinks acquired from hotel and restaurants during marriages/births/other occasions is also reported in 'Restaurants and Hotels' group. A rise from 5.16% in 2013-14 to 6.87% in 2015-16 was recorded under 'Restaurants and Hotels.'

Consumer 2020, a Deloitte report, states, "The sheer impact of almost 2 billion new middle class consum-

ers by 2030 will mean a reshaping of product portfolios globally to fill this requirement across emerging and established markets."

Further, the report mentions, "With more than 800 million new middle class consumers expected to enter the global markets by 2020, the significant pressure on crop yields and meat production globally will continue to keep food prices high. Higher food prices will redefine consumer values. In order to make ends meet, many consumers, in both developed and emerging economies, will have to be more cautious and selective in what they buy, if they aren't already. Consumers will not be able to spend as large a share of their total food budget on food services such as restaurants, and they might have to simply purchase ingredients for meal preparation. Many

will be incentivised to buy cheaper local products and seasonal produce rather than high-priced imported foods, specialty foods, organic foods, and store-prepared meals. The higher prices will make food a larger share of total consumer expenditure, leaving less disposable income to spend on non-food items."

Going back to the centre of the retail apocalypse, the sole consumer for whom all the cycles of selling revolve around, and them still consuming ready-made food, when asked what can be done to improve the quality of processed food, Sheeba, a 40-year-old, who buys ready-made food for its convenience, says, "The quality of ready-made food can be improved by the manufacturers by shortening the expiry date and not adding preservatives."

Further, *Global Consumer Trends for 2018* report suggests that with "a stronger global economy, in 2018 consumer expenditure is expected to grow at its strongest rate since 2011. Yet shifting consumer attitudes and behaviours will continue to cause disruption for business in 2018, with mobile technology and internet accessibility playing a key role in shaping these changes ... The desire for uniqueness and true authenticity is driving customisation to a new level, with consumers becoming the creators in 2018, feeding into the design of products and becoming involved in the production process."

What is yet to get fine-tuned is the role of the smart consumer in an evolving retail world. With each one chasing time, it is yet to be seen if the buyer opts for convenience or goes with healthier options. ■

## Exploring the spectrum

Continued from Page 1

wheat, rice, sugarcane, maize and cotton also contributed to the failure of mechanisation. The farmers have been sowing these crops for centuries in this part of the world and have grown used to them and their simple management to a level that they now resist any other innovation. This is precisely why the country has over two years of wheat stocks and one year of sugar stocks, but the farmers are still persisting with these crops - despite the price crash and inability to sell them in the market.

Mechanisation, as concept, comes from two sources: innovation in, and development of, land usage and cropping requirement. Both these factors have been without any challenges in Pakistan. New crops are hard to come by and old crops are sown in a way that does not need new machines. This is the context under which farm mechanisation has failed in the past and could succeed in future if these factors are dealt with properly.

Despite these structural issues, the trouble, however, is that Pakistan can neither enhance farm productivity nor keep the sector locally and internationally competitive and ensure food security in the country without addressing them.

One way of doing so is to deal with landholding patterns. Most of the agriculture experts agree that the only way to deal with the issue is to enrol them in some kind of community farming. Only then they would be able to benefit from technology and better implements. For that, Pakistan may need a two-pronged policy: make them join hands in cooperatives, and start packaging technology for these cooperatives through subsidy and policy incentives. These small farmers also provide most comforting nest for poverty in rural areas. If their lot improves, they would help alleviate poverty massively. Once such cooperatives are formed, the government cannot only prepare some subsidy package for the farm machinery for them but also establish farm machinery centres at union council level, where all such implements can be hired for the whole spectrum of agricultural activity.

Unless this approach is adopted, the government would only strengthen the hands of big farmers in the name of productivity enhancement, rendering these small farmers non-competitive, pushing them out of the market and condemning them to poverty.

Tinkering with farming model (consolidation of lands) would create market for machines, which would transform farming and social realities in the country side. The government has successfully helped transfer technology for cotton ginners, oil spellers and textile millers through a set of policy incentives. On the same pattern, it could encourage technology upgradation for farming and help create space for entire spectrum of technology instead of promoting any one machine at the cost of others.

These centres would then provide an enabling environment to any policy initiative to succeed. Of late, some kind of increase has been reported in the import of agriculture machinery. According to the Pakistan Bureau of Statistics, it increased by 31.98% during the first quarter of current fiscal (July-September) compared to the corresponding period last year.

According to the PBS data, agricultural machinery worth \$42.733 was imported during the first quarter compared to \$32.378 last year. Most of this machinery was imported by big farmers for personal usage. However, such centres, spread across the country, could multiply the imports quickly and lift the entire sector. They, in turn, could also become training centres for farmers for productivity enhancement for usual crops but also awareness for new ones - leading the sector to spread to new, and better paying, crops as well.

Once in place, these cooperatives and service centres could educate farmer better into new crops like fruits and vegetables and how to keep soil healthy. Over 50 per cent lands in the Punjab developed hard pan because deep ploughing machines have not been in use. The health of these lands has been deteriorating fast and impacting their yield. Machines are costly and individual farmers avoid them for economic reasons.

All these factors lead us to three conclusions. Firstly, the government should lend a helping hand in land consolidation as the current pattern was pushing the technology out and further fragmentation was only making things difficult. Secondly, it must put some money in farmers' pockets - may be through cheap banking finance - for the purchase of whole range of farm machinery. Thirdly, a good and elaborate awareness programme should follow for spreading crops because traditional ones.

Another overarching effort should be launched to develop markets for agriculture commodities and link them to the world markets. Otherwise, neither mechanisation would take off nor could it be sustained for longer period even if it succeeds in the first place. ■

Continued from Page 1

Research, and PARC, in the CPEC context, he says what is lacking is ranking of the crops and value chains based on estimated local cost analysis and estimated demand for each commodity in each ecological zone.

These zones for which value chains have also been identified are Northern Dry Mountains (Gilgit-Baltistan), Dry Western Plateau (Balochistan, Khyber Pakhtunkhwa and FATA), Dry Western Mountains (Balochistan), Western Mountains, Barani, Sulamans Pediment, Northern Irrigated Plain, Southern Irrigated Plain, Indus Delta, and Sad Dry Desert.

Agriculture authorities in Punjab are ahead of their counterparts in other provinces as they have carried out studies and identified seven areas along western route of CPEC in the province for growing specific crops and fruits, and setting up agro-industries for export purposes. Even infrastructure is also being laid to meet water, energy and other needs of the identified zones. But, they fail to conduct comparative cost and demand analyses.

Dr Ahmad suggests that keeping in view the huge investment planned under CPEC, detailed studies should be undertaken in all the four federating units to identify the strategic crops that are economically viable, technically sound, environmentally and socially acceptable, as well as determining competitive advantage, especially seasonal opportunities, of each crop both in the domestic and export markets.

Dr Zafar says they had raised the issue of comparative analysis studies in a federal cabinet meeting and sought funds for carrying out such a comparative study. The authorities promised but didn't release the funding, he says, adding that they have now been given a 'jollipop' of Rs59 million in the next year (2018-19) budget. He also stresses on preparing the local agro-industry by putting in place adequate food safety standards, overcoming erratic supply of farm inputs, producing skilled artisans, making good technical choices, promoting good quality packaging and introducing innovations in the processed commodities meant for export.

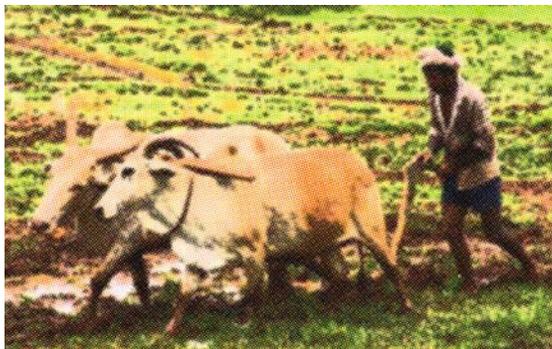
Farmers often ask how can they comply with the standards and introduce good agriculture practices when they are never taken onboard by the policymakers while making decisions about farm exports to and imports from neighbouring countries.

An office-bearer of the Farmers Associates Pakistan (FAP) says that unlike us both China and India have done a lot of work on safeguarding their local agriculture and agribusinesses. "We should study and at least copy their tariff and non-tariff safeguards if we couldn't develop our own," Ibadur Rehman says, arguing that the country does have experts and professionals but lacks good negotiators.

"The task of negotiations here is left to the poorly-prepared bureaucrats whose performance we're witnessing in dialogues on water disputes with India." Sharing his memories about agriculture sector talks with India in the past, he says people as old as 70 and above would represent the Indian side while Pakistani team would comprise younger officials and experts who lacked personal technical experience and skills an agriculturist should have been armed with for holding talks with a shrewd and hostile rival.

The government circles see the talk of safe-

## A knock on the door



guards as premature. "The issue of seeking safeguards for our agriculture sector and agro-industries will arise only when we have identified the areas where we are going to allow the Chinese the go for joint ventures and/or do their direct foreign investment," Mr Niazi says.

But Mr Rehman rejects the argument and regrets that since signing of the World Trade Organisation (WTO) agreement in 1995 the authorities have neither conducted any research on what crops the country should sow and what not to remain competitive and relevant in the post-WTO regime nor educated the local farmer and industrialist for the competition. "And it's for this reason that we're continuing to produce costlier sugar while our competitors are getting the commodity cheaper and as a by-product."

Minister Ahsan Iqbal says they have written to provinces to send their nominations selecting people both from public and private sectors representing all the stakeholders so that their proposals could be elicited about the likely CPEC projects and their concerns addressed in the JWP. He asserts that if the things continue to flow at the present pace and political stability remains in the country, the JWP will form its recommendations within six to eight months.

Ironically, no potential project is under consideration of the livestock departments for seeking Chinese cooperation or estimating the sector's potential for exports to China under the CPEC unlike the agriculture department.

Only the Punjab Halal Development Authority (PHDA) is working to win meat export orders for Chinese market but its job too is not CPEC-specific because it has been working for the goal even before the corridor project had been inked.

Some political and social quarters fear that under CPEC, Islamabad may offer vast swathes of countryside to Beijing for growing crops of their choice to feed their people. A similar move

of buying or at least getting on lease local lands by wealthy Gulf countries has also backed during Musharraf regime due to local political opposition.

However, professionals like Dr Zafar see no harm in giving lands to farmers for agriculture purposes. Pointing out that China is the fifth largest landholder in Australia, he says when foreigners could get on lease lands for mining and oil exploration purposes why they cannot for agriculture and livestock rearing purposes.

The Punjab Agriculture Commission, however, recommends that a legal framework should be in place to address concerns of local farmers before entry of the technologically and financially more strong Chinese in the agriculture sector. It also suggests comprehensive market reforms to gain from regional opportunities offered by CPEC but calls for caution while deliberating on what agricultural projects under CPEC are offered to the country. It advocates for official technical and financial support for local producers to be able to compete with the Chinese farm imports.

Dr Mahmood argues for local ownership of the projects by setting them up in joint ventures of Chinese investors and local residents of each province in agri-business parks, on the lines of industrial parks, linked to CPEC. He stresses that the government in each province should incentivise such medium and small entrepreneurs.

Almost all stakeholders emphasise on ensuring a peaceful atmosphere to reap fruits of the potential development. They say Gilgit-Baltistan and Balochistan are important regions in the backdrop of CPEC as being entry and exit points but, unfortunately, both are neglected areas in terms of development and law and order. They say political and economic stability in this region is essential for the overall success of CPEC and for optimally realising benefits of the likely huge investments. ■

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Australian Trade Commission foresees a growth across the Pakistan agriculture sector and will be focusing on developing further business linkages to improve the trade in the market.

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# The blue revolution

BY MOHAMMAD SALEEM SHAHID

**A**FTER the green and white revolutions, now the hope lies in the blue revolution to contribute its bit to solve the problem of malnutrition by developing aquaculture. Aquaculture has been identified as one of the most important and integral components of the farming system the world over so as to get the maximum output of the farm produce in a given space and time.

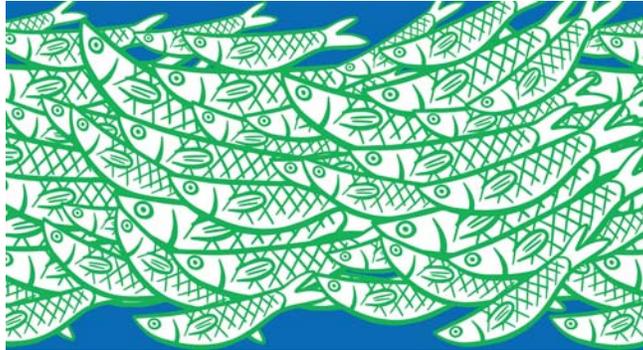
Innovation has shown the way to the country in the field of agriculture (green revolution), dairy farming (white revolution) and fisheries (blue revolution). If Pakistan has to be self-reliant in food production, it will have to adopt innovative farming techniques being a motivating factor for farmers across the country. Fish is considered the best source of animal protein, but per capita fish consumption is currently very low in the country; around two kilograms against the world average of about 20kg.

Hence, there is a need to create awareness about the benefits of fish as food to increase its consumption in Pakistan. Although the federal and the provincial governments have taken several steps for promotion of fisheries sector including provision of soft loans to fish farmers yet there is a greater room for increasing fish production by using latest technologies. In spite of the fact that the fish farming is a recent phenomenon in the country, its contribution to national economy is encouraging which needed to be further enhanced.

Wheat cultivation in arid and rain-fed Potohar plateau is increasingly becoming unfeasible for small farmers owing to rising costs of seed, fertilisers and implements. According to a recent study on agriculture, wheat farming does not always remain a profitable venture for small farmers especially considering the increase in farm input costs has not been offset by the increase in wheat support price.

It has been further observed in the report that per-acre yield of small farmers has taken a massive hit resulting in from a high of 40 maunds to below 28 maunds per acre. Soil fertility is continuously depleting due to mining of essential plant nutrients from the soils under intensive cultivation. Wheat cultivation has not remained a profitable earning activity for small farmers.

Resultantly, keeping in view production value, more and more small farmers in the Potohar plateau are opting for fish farming thus turning their farms into hatcheries. Fish farming is not very expensive business to begin with and an average the initial capital required for this business is not more than hundred thousand rupees per acre. However, experts lay down certain conditions for proper fish farming that include soil quality, water availability, topographic characteristics of land and proper drainage channel. Experts at the National Agriculture Research



Council (NARC) are of the view that the government should patronise this industry as it can play a major role in increase in GDP by declaring it as tax free to generate a lot of revenue from this sector.

Hence, the blue revolution, or fish farming, is slowly but steadily gaining ground in the Potohar plateau areas starting from Jhelum to Attock districts. Fisheries are the new way to prosperity and the province can earn good revenue per annum if the ventures succeed in using the available resources for fish farming. Interestingly, there

The fishing industry needs official support to go beyond mere survival. Also, there is a need to educate the masses about the benefits of fish consumption.

have been very few efforts on the part of the Punjab authorities to promote fish farming in the province apart from the federal government granted incentives in the 2016-17 budget to promote fish farming in the country.

The federal government reduced customs duty on import of fish feed pellet machines and water-aerators from 5pc to 2pc; fish feed subjected to 10pc customs duty whereas shrimp feed was at 20pc; the duty on import of fish and shrimp feed was exempted and customs duty on live baby fish that was subjected to 10pc was removed. Taking

Fisheries Department has been setting up a hatchery in Chakwal for ensuring immediate provision of fish seed to private fish farmers and small dams situated in Potohar region. The hatchery will produce two million fish seed annually. After setting up of new hatchery at Kalar Kahar, the fish farmers will not have to travel a long journey for getting fish seed. The work on reservoir fisheries management is continuing for getting fish on permanent basis so that the fish of big size could be produced from fish farms and the small fish after passing through breeding process of big fish.

Potohar plateau is rich of fish resources and 55 small dams exist at around 8800 acres land in this area whereas seven more dams are being constructed. In addition to these small dams, Department for Soil Conservation and Agency for Barani Areas Development have constructed 900 mini-dams and 100 farms are working for the promotion of fish. Out of 900 mini-dams, 500 dams are being utilised for fish breeding.

The demand of high quality fish seed has reached up to eight million in the area which is being provided to fish farms set up at private sector through hatcheries and nurseries of the Fisheries Department. Fisheries Department releases fish seed in rivers, lakes and other waters every year under a coordinated programme so that the breed of local fish could be preserved.

No doubt fish farming is gaining popularity and generating employment opportunities in the Potohar region, fish farming is the best use of wasteland as well as the pond which adds cleanliness of water besides earning handsome income to the old and young alike. However, this does not mean that the efforts are trouble-free. Small fish farmers have their own problems. To get a loan from the bank or any other financial institution is not so easy for small farmers. In fact, loans are meant for resourceful people.

There are many cases where ordinary fish farmers had to close down their entities because of paucity of funds. Besides, in the absence of marketing infrastructure, the fish farmers have to sell their stocks at throw-away prices. And, finally, the input cost has increased many times but there is hardly a rise of 10 per cent in the price of fish as during the summer, the farmers incur heavy losses because of lack of storage and proper transport facility.

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SPL# 646

# Extending the shelf life

BY AHMED AFFAN

**W**ALK into any grocery store, go up and down the aisles filled with food products and try to find one thing that is common among most, if not all, of those thousands of SKUs of food. Let me save you the hassle and reveal the secret ... all of them at some point, by some method were processed. Don't even trust the fresh fruits and vegetables; even most of those that find their way into your shopping carts have undergone processing before being put on sale.

There are many links in the chain that runs from food production to consumption. Generally in the past, the primary concern was to make food easier to store; after all harvests from crops depend on natural factors and have corresponded completely with the seasons, for at least most of the human history. To provide enough amount of good quality food during other times of the year as well, a variety of techniques were developed to extend food's shelf life such as salting, smoking, drying and then eventually cooling and freezing.

While most of these preservation techniques are centuries old and low-tech, advanced technological progress has considerably expanded them over the last half century. The food industry has gained substantially from the technology of food processing, by removing toxins and by making long-term storage of food products possible which facilitates the task of marketing and distribution as well as ensures the stability of the food market.

Furthermore, the increased year-round availability of many products which originally was unobtainable is possible now. Food processing has also helped in transporting perishable goods to distant regions through pre-industrial processing which incapacitates pathogens present in them. The treatment also helps reduce cases of food poisoning. Raw foods such as fresh vegeta-



bles and raw meat are more likely to be the source of pathogens like Salmonella, which may become the cause of serious diseases.

Food processing techniques provides the ability for producers to ensure food safety and remove or prevent hazardous toxins. For instance during milk pasteurisation, it removes harmful bacteria from raw milk making it more suitable for human consumption. Food processing methods that remove water, such as drying and smoking, reduce or limit the possibility of bacterial growth because the bacteria rely on the water to grow and multiply. Without the technology of processing and preparation of food,

modern supermarkets would not exist and prolonged transportation would be impossible.

The diet these days mostly in the urban areas of our society is pretty extensive and it is only made possible because of the food processing technology. It has not just made transportation and availability of exotic and in-demand food items possible but has substantially reduced the costs in mass production of food rather than individually produced food. Food processing enables manufacturers maintain consistency in their products. Processing also allows for quicker and easier consumption. Eating a pre-made and processed meal, for example,

Food processing, by increasing the shelf life of products and removing toxins from them, has helped the food industry grow substantially.

structure, fixtures and machines.

Insects when they get nested in stored product can contaminate or completely soil the food item during transport and storage. Investing in the correct solution for pest control monitoring and detection can benefit in preventing the pests from entering a food processing facility, supporting in ensuring food safety. Other methods like proper waste management in and around food processing facility can not only help in keeping the bugs and rodents away but can also prevent piling-up of waste and reducing the risk of contamination of ingredients, equipment and products.

Food processing, if done right, seems to be the likely way of the future. People worldwide stopped living solely on fresh food a long time ago. The modern food processing technology makes it possible to store supplies, it allows for better taste or nutritional quality by adding or mixing various ingredients which wasn't possible earlier; processing increases shelf life, and the production of ready-to-eat meals increases convenience at a large scale.

The food processing industry is in a cycle of continuous improvement, which is obviously a good thing. In each cycle, the answers to the challenges are improved and ultimately the industry is capable of providing better and safer products to its consumers. ■

allows the consumer to spend much less time in preparation and cooking.

Advancement in technology over the time has helped food processing industry expand production while keeping quality of the food intact and the future seems to be brighter. Among other trends, automation and robotics are expected to gain mass adoption in many food processing plants to help reach optimum operational efficiencies and customer order fulfillment as well as to increase output and quality of the product.

Due to more consumption in this particular well-to-do industry the food robotics market is projected to witness an incredible growth worth billions of dollars. Apart from these, another forecast by the industry experts is a considerable rise in products which can perform as dairy alternatives owing to the evident growth in consumption of already present regular milk alternatives which are based on ingredients like almond, coconut, soy, hemp milk and oat.

Food safety concerns are on the rise globally. Due to more epidemics of food-borne illnesses world over, there is now a more upgraded and dedicated enforcement of rigorous food safety regulations and the development of advanced technologies for swift testing. The modern consumers want their food products to be free from harmful contaminants that could lead to illness.

Growers, shippers, retailers, wholesalers, and restaurants are all required to ensure there are no food processing safety mistakes. Not just the effect on public health, food-borne illness is tremendously costly to the food industry itself. Therefore, it is critical to eliminate any food safety issues from the processing industry. Pest control is one of the most essential means to ensure food safety. Trouble causing creepy-crawlies like cockroaches and flies can easily spread food-borne diseases by polluting the food at

any stage of production. Rodents and vermin also spread some potentially lethal diseases as well as are equally capable of causing damage to building



Consumer is the king -- and the queen, if you will -- behind the entire spectrum of the food industry. The widening array of choices now available, both local and imported, means more power in royal hands.



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### ON SECOND DAY

Through Newspapers and Magazines.

### ON WEEKLY BASIS

Through Radio programs and PTV network.

### ON FORTNIGHTLY BASIS

Through Ziratnama.

### EVERY SEASON

Through Agricultural Publications.

### EVERY TIME

- Punjab Agricultural Helpline 0800-15000 & 0800-29000 (08:00 am To 08:00 pm)
- Facebook page of Agriculture Department
- www.facebook.com/AgriDepartment
- Website: www.agripunjab.gov.pk

SMALL  
IN SIZE

BIG  
IN ROLE

# Fire and fury

BY KHAWAJA AMER

**T**HERE was a time when Chinese buyers used to travel to Kunri, a town located in the Umarkot district of Sindh, to buy red chillies for their well-known chilli sauce. Being the red chilli capital of Asia, Kunri has always attracted local as well as international buyers but due to lack of required government support and uncompromising attitude of the local administration, things are changing for the worse.

Kunri is known as the biggest red chilli market in Pakistan, but the yield of its popular red chilli crop has decreased drastically over the years. There are a number of reasons which include mal-cultural practices, diseases during post-harvest stages, non availability of standard seeds etc.

One of the critical problems is the level of aflatoxin (poisonous carcinogens that are produced by certain molds which grow in soil, decaying vegetation, hay, and grains) in the red chilli crop of Pakistan which has resulted in its entry ban in the EU and has affected its position in the international market severely. But all is not lost. Introducing innovative techniques to improve per acre yield of the chilli crop and preventing aflatoxin contamination can help Kunri regain its status in the international market.

According to reports, Sindh Board of Investment (SBI) has prepared a plan to attract local as well as foreign investors.



Let's hope it works out. SBI offers pre-feasibility study reports for the prospective investors which aims at providing critical information on business viability of putting up a red chilli de-hydration Plant in Sindh.

Among other things, nature of the opportunity, ideal location for setting up the facility, estimated costs, potential returns, and availability of human resource are presented in an objective manner. The information contained in this study provides a sound base for interested investors to build upon it a more detailed and comprehensive business plan. Above all, the immediate measures are also needed to save the economy of this town which is mostly based on crop of red chillies, planted in approx. 88,000 acres and still considered to sustain the financial structure of the town which has a population of about 100,000 people.

Though red chillies are believed to have been originated from South America, Pakistani chillies are one of the largest traded spices in the international market. The total current production of red chilli in Pakistan is 90,000 tonnes. In Sindh, chillies are grown on an area of 38.4 thousand hectares with production of 53.7 thousand tonnes. The average yield of 1.7 tons per hectare contributes 1.5 per cent of the country's GDP. The three major types of chillies grown in Kunri are: Maxi, Desi and Nageena.

The spice is known for its medicinal and health benefiting properties and is used for commercial, nutritional and medicinal purposes. It is used for preparation of oleoresin (a natural or artificial mixture of essential oils and a resin, e.g. balsam) that has great export potential and demand in the world market.

Chillies are excellent source of Vitamin, A, B, C and E with minerals like molybdenum, manganese, foliate, potassium, thiamin, and copper. In addition, it is medically used as pain killer, antibiotic as well as included in Ayurvedic medicines. The medicinal properties

Despite being offered at competitive prices, Pakistani chillies are losing their place in the international market. Negligence is said to be a critical factor in this regard.

(irradiation).

The humid climate of Kunri is not particularly suitable for shade-drying and results in low-quality products. Drying machines would greatly improve the quality of dried chillies, and disease-free red chilli has huge potential in the international market.

Chilli is considered one of the commercial spice crops. It is the most widely used universal spice, named as wonder spice. It is considered for two commercial qualities namely, its colour and strong flavour. It's hot, pungent taste is because of the presence of capsi-cum, a chemical substance that also quickens digestive process and possesses great medicinal value.

Apart from this, red chillies are also a very good source of vitamins A, B, C, and contain high quantities of magnesium, potassium, and iron. Red chillies are used primarily as a spice in foods and beverages in whole form or in powdered form. Different varieties are cultivated for various uses like vegetable, pickles, spice, chutneys, sauces, vinegars, ketch-ups, curries and condiments.

In daily life, chillies are the most important ingredient in many different cuisines around the world as it adds pungency, taste, flavour and colour to the dishes.

Pakistan faces competition mainly from India and China, although it offers chillies at low prices in international markets compared to India. Imports of whole chillies have fallen in the world market as exports of chilli powder and oleoresin have grown.

There are a number of factories in Pakistan, China, India and other exporting countries set up in collaboration with multinational spice companies, which are now able to produce chilli powder to meet EC and ASTA hygiene standards. A number of Pakistan companies are involved in producing packed red chilli powder which is popular in international market also. ■



Red hot chillies are not getting converted into red hot cash for the producers anymore. There are reasons that can be taken care of but the process has to first begin which has not been the case thus far.



in chillies help to combat various disease like cancer, heart attack and lung diseases. Chillies are a warm-climate crop; most chillies grow well in areas where the average temperature is 30°C for at least four to five months of the year.

The optimal temperature is between 24°C and 32°C. At lower temperature growth becomes progressively poorer and despite being a warm season crop, at temperatures above 35°C coupled with dry winds, excessive flower drop may also become a problem.

Unfortunately, a large proportion of chilli production is lost post-harvesting, owing to a number of problems such as rotting

sprouting and weight loss. This is the result of poor genetic material used and the inability to invest in drying technology.

The first priority of the government, therefore, should be to resolve the problem of post-harvest losses by constructing yards for drying, storage infrastructure and strengthening the warehousing facility in all chillies growing areas. This will also facilitate price stabilisation besides restricting post harvest losses. A loss of 15-20 per cent occurs on various accounts during processing and processing activity ranges from the very basic (e.g. shade drying on farms) to very capital intensive processes (e.g. milling,

## IMPORTANT MESSAGE FOR COTTON GROWERS

**Recommended BT cotton cultivars, sowing time and suitable districts**

Recommended BT Cultivars	Suitable Districts	Sowing Time
■ FH 142 ■ IUB 13 ■ MNH 988 ■ CIM 600 ■ CIM 598 ■ CYTO 178 ■ CYTO 179 ■ AGC 999 ■ AGC 777	Multan	upto 31 <sup>st</sup> May
■ MNH 886 ■ VH 305 ■ FH 142 ■ IUB 13 ■ MNH 988 ■ CIM 600 ■ CIM 598 ■ CYTO 178 ■ CYTO 179 ■ AGC 999 ■ AGC 777	Khanewal	upto 31 <sup>st</sup> May
■ FH 142 ■ VH 259 ■ NIAB 878 ■ VH 305 ■ CMB 33 ■ CIM 598 ■ SITARA 11 ■ IUB 13	Vehari	upto 31 <sup>st</sup> May
■ CYTO 178 ■ CYTO 179 ■ FH 142 ■ BH 178 ■ CIM 602 ■ AGC 999	Lothran	upto 31 <sup>st</sup> May
■ MNH 886 ■ FH 142 ■ TARZAN 3 ■ AGC 999 ■ NIAB 878 ■ CIM 602	Dera Ghazi Khan	upto 31 <sup>st</sup> May
■ IUB 13 ■ SITARA 11 ■ FH 142 ■ CYTO 179	Muzaffargarh	upto 31 <sup>st</sup> May
■ MNH 886 ■ CYTO 179 ■ IUB 13 ■ FH 142 ■ VH 305 ■ AGC 999 ■ SITARA 11	Layyah	upto 31 <sup>st</sup> May
■ MNH 886 ■ FH 142 ■ TARZAN 3 ■ AGC 999 ■ NIAB 878 ■ CIM 602	Rajapur	upto 31 <sup>st</sup> May
■ FH 142 ■ MNH 886 ■ BH 178 ■ IUB 13 ■ CIM 600 ■ CIM 602 ■ FH LALAZAR ■ VH 305 ■ CYTO 178	Bahawalpur	upto 31 <sup>st</sup> May
■ MNH 886 ■ FH 142 ■ FH 114 ■ AGC 999 ■ CIM 598 ■ UGC 09 ■ BH 178	Rahim Yar Khan	upto 31 <sup>st</sup> May
■ FH LALAZAR ■ FH 142 ■ MNH 886 ■ AGC 999 ■ BH CYTO 179	Bahawalnagar	upto 31 <sup>st</sup> May
■ IUB 13 ■ FH 142 ■ CYTO 179 ■ MNH 886 ■ NIAB 878 ■ TARZAN 3	Sahawal	upto 31 <sup>st</sup> May
■ FH LALAZAR ■ FH 142 ■ NIAB 878	Faisalabad, Jhang, Toba Tek Singh	upto 31 <sup>st</sup> May

**Please Remember!** It is important to cultivate conventional (Non BT cotton cultivars) along with BT cotton cultivars on 10 to 20% area of total cultivated cotton crop to prevent resistance of cotton bollworm and other pest insects to avoid immunity against BT cultivars.

For more information and guidance: Punjab Agricultural Helpline 0800-15000 0800-29000 8am to 8pm

Agriculture Department Government of the Punjab  
 Directorate of Agricultural Information www.facebook.com/AgriDepartment

# The subsidy war

BY KHALID HASNAIN

**A**GRICULTURE sector in Punjab is full of open wounds, as it has world's best alluvial soils, diversified weather conditions, world's largest controlled irrigation system, economical labour, dedicated high-end proximity to high-end market in the Middle East and Central Asian states.

While offering a number of subsidies to the farmers, Punjab desires to develop science-based, vibrant and internationally-linked agriculture sector that can not only meet the food security challenges but also compete in domestic as well as international markets.

The provincial government claims that the introduction of several subsidies, particularly in extension and water management, enabled it to show a remarkable agriculture growth rate of 3.46pc in 2016-17 that was just 0.27pc in 2015-16. Since the current growth rate is reportedly at 5.75pc, the government expects 6pc by end of this year.

The government offers as many as eight subsidies to farmers under On-Farm Water Management. These include High Efficiency Irrigation System (HEIS) under which the Agriculture department subsidises 60pc of the total system cost for installation of HEIS on up to 15 acres while the remaining costs are contributed by the beneficiary farmers.

In addition, the government also provides 60pc subsidy for construction of water storage ponds, if needed, on the basis of site-specific technical requirements. It is providing laser land levelling units to the farmers - one-time financial assistance of Rs225,000 per unit to the growers/service providers.

Under the watercourse improvement project, the government is providing entire cost of construction material besides technical guidance while the beneficiary farmers contribute the entire labour costs for improvement of unimproved watercourses as well as completion of improvement works on partially improved watercourses. While subsidising 80pc of the total system cost for installation of solar system which is prerequisite to the installation of drip/sprinkler irrigation system, it is also helping the farmers in the construction of rainwater har-

vesting ponds by subsidising 50pc of the total cost for construction.

For developing sunken fields located at lower end of cotton fields on cotton growing farms to collect excess rainwater, a subsidy of 50pc of the total cost is being provided to farmers. It has further subsidised 50pc of total cost for the provision of portable water pumping system to cotton growers for removing excess standing water from cotton fields and its collection in water storage ponds for irrigation and other purposes subsequently.

"The on-farm management interventions and several other

each farmer on the procurement of tractor. The fiscal year 2015-16, according to the department, was worst for the agriculture, as it faced a lot of crisis due to the prevailing international scenario and adverse weather conditions. It led to squeezing the growth rate to 0.27pc, forcing the government to take immediate steps to save the sector. Keeping in view the situation, the government announced Khadim-e-Punjab Kissan Package worth Rs212 billion to save the sinking boat of the agriculture sector. Under this package, the government initiated a variety of programmes, including Rs100 bil-

lion interest-free loans for 600,000 farmers through E-Credit Scheme, Rs39 billion subsidy on DAP fertilisers, Rs500 million for cultivation of oilseed crop (canola and sunflower), contribution of Rs4 billion each year on GST, promotion of mechanised farming, provision of 9,000 laser land levellers on subsidised rates, transforming the Potolab region into an olive valley for Rs2 billion and distribution of two million high quality olive plants to promote high yielding varieties of olive oil. Similarly, the federal govern-

ment too reduced tariff from Rs8.85 to Rs5.35 per unit for tube-well consumers. Moreover, the government provided Rs5 billion for the conversion of 39,320 acres into HEIS, Rs640.20 million for making barren land of 38,000 acres cultivatable besides establishing 72 High Tech Mechanisation Centres to facilitate farmers regarding provision of hi-tech machinery.

Despite these initiatives, the growers seem to be unhappy, as they consider them nothing for an agro-based economy. "They (the government) are just paying Rs150 subsidy on each bag of DAP

beggars. We don't want the discount for which we have to spend a lot of time and energy," he mourns, adding that during 2008-10, there was a considerable subsidy with zero GST on DAP fertilisers, but today the subsidy has been squeezed to Rs150 (per bag) with GST.

He also opposes the Punjab government scheme of giving mobile phones (for day-to-day information related to their land, cultivation methods, crop sowing, knowing weather, department's advisory services etc) to growers.

"Why are they (the government) spending about Rs5.5 bil-

ions and not the big ones. We have spent all the funds on the subsidy on fertilisers. Even now we are receiving requests from the farmers through the easy paisa system regarding transfer of Rs150 subsidy per bag," says Zafar Yab, Director-General, Agriculture Department.

He says several subsidies provided to farmers by the department had caused increase in the cotton bales up to two million besides enhancing production of rice, maize, tomato etc. He adds that a huge number of farmers have registered themselves with the department for getting smart phones since they regard it as a



initiatives have really left a very positive and tangible impact on our agriculture sector, as overall economic internal rate of return (EIRR) has touched a figure of 35pc that is highest ever in the history of Pakistan," claims Akram Malik, Punjab's Water Management Director-General. "While Pakistan has entered in the list of water-stressed countries, we, through these interventions, have saved 120 acre-feet of water besides increasing yield up to 25pc," he adds.

In 2008-09 and 2011-12, Punjab provided Rs200,000 subsidy to

lion interest-free loans for 600,000 farmers through E-Credit Scheme, Rs39 billion subsidy on DAP fertilisers, Rs500 million for cultivation of oilseed crop (canola and sunflower), contribution of Rs4 billion each year on GST, promotion of mechanised farming, provision of 9,000 laser land levellers on subsidised rates, transforming the Potolab region into an olive valley for Rs2 billion and distribution of two million high quality olive plants to promote high yielding varieties of olive oil. Similarly, the federal govern-

(up to 20 bags) fertiliser worth Rs3,200 or so. And the procedure to get subsidy is really pathetic; the farmers need to first get a token (Rs150) present in each bag, scratch the code number, send it to another number and get the amount through easy paisa. In several cases, the growers don't receive message in response to the message they send to the system. Now you tell me how a farmer would bother to collect money the government pledged as subsidy," argues Khokhar.

"With such minor subsidy, the government has really made us

lion to provide smart phones to the growers as they already own cell phones besides having other sources of information such as electronic media, radio, newspapers etc?" He urges the government to better divert this huge money towards facilitating farmers in buying fertilisers so as to reduce the cost of production.

On its part, the government rejects the farmers' stance, claiming that whatever is being done has never been done in the history of Pakistan. "Our subsidies in agriculture sector are primarily focussing the small grow-

good intervention for their uplift. "Since the smart phones have several features /information such as total land, its situation, production, cost of production, weather, crops sowing period, market situation etc, why not a farmer would prefer to use this technology for his/her benefit," he wonders.

He terms water scarcity a major threat to the country's agriculture sector and urges the government to fulfil the need through construction of major dams - such as Bhasha, Mohmand and others. ■

# Dairy in a spin

BY AMJAD MAHMOOD

**M**ILK is essential for humans as it strengthens our bones by providing us calcium while key vitamins included in it improve our general health. A favourite food of Pakistanis, milk is consumed in fresh, boiled, powdered as well as in processed forms like lassi, ghee, butter, yogurt, ice-cream, cheese, sweet dishes and confectionaries. With an annual production of more than 45.227 million tonnes, according to the Economic Survey of Pakistan 2016-17, Pakistan is among the top five producers of milk in the world. There are 45 plants of various capacities in the country producing packed milk after ultra high temperature (UHT) treatment or pasteurisation, but their market share is around eight per cent as most of the commodity is sold through the conventional outlets.

Dairy sector's contribution to the Gross Domestic Product (GDP) may be gauged from the fact that it alone exceeds the combined value of all major cash crops in the country. At least eight million families are engaged in rearing livestock and getting 35pc of their income from the sector which means it is helping in alleviating poverty and generating employment by absorbing 40pc of the rural workforce.

However, the sector is encountering multiple issues both at local and policy levels. Small uneconomic herds with low genetic potential for producing milk, insufficient channels for marketing the produce, lack of technically strong manpower unaware of hygiene requirements, inefficient management practices, and absence of commercial feed are the problems commonly witnessed in the countryside where the livestock rearing is going on in an unplanned manner since centuries.

The sector, which was attracting huge investment during 2003-13, started showing declining trend ever since. The major challenges that caused the decline scaring away investors included large-scale import of milk and whey powder because of low custom duty and low milk powder prices in the international market. It led the local milk trader, processors as well as confectioners, to shift to the cheap imported powder instead of fresh milk to the loss of the farmers, says Dr M. Asif of the Livestock and Dairy Development (L&DD) Department.

According to him, the import of milk powder, which stood at around 28,000 tonnes in 2011, jumped up to over 43,000 tonnes in 2016 as local milk-sellers also began following the trend and the country had to arrange \$85 million more foreign

exchange to pay for the milk import bill of \$175 million. A new trend of using cost-effective tea whiteners and dairy liquids instead of milk further damaged the demand for fresh milk and deprived farmers of a better price for their commodity. Health of consumers has also been compromised in the process.

Instead of offering livestock subsidies like relief in electricity tariffs, exemption of duties on import of machinery, zero-rated sales tax, and reduced or no income tax, which were available to other agriculture sub-sectors, the government robbed the sector of zero-rated sales tax status that had been enabling the stakeholders to claim refund for the sales tax paid on the inputs.

Capping of raw milk prices to benefit the urban citizenry at the cost of the rural with no check on the prices of dairy farm inputs has been identified as yet another challenge for the sector. An official of the L&DD says it is one of the few sectors in the country where market forces of demand and supply are not being allowed to play their role in stabilising the situation. "The policy is discouraging investment and improving quality of the sector," he regrets. De-capping of milk prices, offering the incentives and benefits available to the agriculture sector, abolishing duties on dairy machinery and

feed, imposing 100pc duty on import of milk and whey powder are some of the steps that may push the sector out of the gloom it is in right now, he argues.

So far, government policies have led to increase in the herd size, and thus bringing no relief in terms of expenses to the farmers in the process, instead of productivity, he says. He points out the breeding of animals with low genetic potential for milk, malnutrition of animals because their owners are either landless or small landholders, health and husbandry management as the factors behind low productivity and higher production costs.

As far as breeding is concerned, official reproduction services cover less than 10pc of buffalo and 26pc cattle. The rest is left to private bulls with unknown parentage which pollutes the genetic line and hinders productivity that a milk-yielding animal with pure lineage may give. A similarly gloomy picture is seen on the health issue because only 16pc animals are vaccinated and other stock is left to the curative system. Their poor health affects not only quantity but also the quality of milk.

The quality is further damaged with unhygienic practices by farmers and traders in the business of loose milk in the wake of absence of a strong

national hygiene regulatory framework in the dairy supply chain. Dr Junaid of the University of Veterinary and Animal Sciences (UVAS), says the hygiene issue starts right from the milking of the animal. When personal hygienic habits will be missing and udder of the animals will not be cleaned as well before milk extraction, many harmful microbes will contaminate the commodity, he says. He points out that the milk extracted from diseased animals is also mixed with the milk obtained from healthy animals, contaminating the entire produce.

The problem multiplies at the collection and transportation stages when un-cleaned and/or injurious to health plastic cans are used to carry the commodity from farmers to chillers. And as there are no prescribed standards for how much fat it should include and how it should be preserved before being supplied to the end-consumer, preservatives and caustic soda are added to it in a bid to increase shelf-life of milk, he says. Additives like vegetable oil and urea are also used to improve gravity of or protein level in milk at the cost of the health of consumers. More impurities become a part of it when the commodity reaches the dirty shops in towns where milk-handlers also don't observe personal hygiene.

To set things right, the livestock official suggests that the government should put a strict regulatory regime prescribing standards for each stage of the dairy chain. It should increase duty on milk and whey powder imports at least up to 100pc to discourage the imports for the benefit of the poor local farmer. It should also encourage forming some kind of cooperatives as large farmer groups will be enjoying a better bargaining power vis-à-vis the industry in deciding the raw milk price, otherwise small farmers spread far and wide in the countryside will continue to be blackmailed at the hands of the resourceful industry.

He also calls for arranging trainings of farmers or generating awareness among them about how to increase the milk yield by changing feeding habits of the animals. He says that by making water available to the stock round the clock and feeding them thrice a day their productivity can be increased by one litre daily. But our farmers in the countryside would offer water to animals once a day and make available fodder 24 hours a day.

Besides a stringent quality control the consumers should also be given the awareness to go for quality food items while the government should encourage and promote local dairy processing and value-addition instead of allowing imports of value-added products. ■



The facilitated import of milk powder and the trend of using tea whiteners have together left livestock breeders wondering about future.

# Partners in progress



Ivan Ivanissevich  
H.E. Ambassador of Argentina

"I CONGRATULATE ARPACO (Argentina Pakistan Silobag Company) for its objective to further contribute to strengthening bilateral business links between Argentina and Pakistan. Until the 1990s Argentine farmers faced the same challenges as Pakistan farmers: lack of efficient storage for their grains and silages. Then they found the concept of silobags as an affordable and flexible way of storing almost any product, from dry grains to fodder and even pulses. Argentina now stores 40 million tons of grain in silobags. Seventy per cent of our silage is also bagged. I am sure that ARPACO can significantly contribute to overcoming the current storage deficit of Pakistan farmers."



Sajid Ahmad Bodla  
C.E.O

"I BELIEVE there is great opportunity for us to modernize our dairy and agricultural practices and this is not possible without the availability of right technology to gain more productivity and efficiency. Our aim is to provide modern agricultural and dairy technology to the framers in Pakistan as per international standards and at the same time make them affordable for farmers. We are hoping to contribute positively in eliminating the existing dairy and agri problems and to uplift this sector in Pakistan with the joint ventures of developed countries around us. Furthermore, we will continue to seek guidance from farmers in Pakistan who are always an inspiration for me and we will continue to work closely for all the stakeholders in the industry in order to play our role to bring prosperity to our country."  
Pakistan Zindabad!



Benjamin Gavina  
Managing Director

ARGENTINE businessman specializing in silage, grain storage and silobag operations with multiple farming operations in Argentina, focussed on cattle breeding and feed-lot fattening. Mr. Gavina has been doing business in Pakistan since 2013. "From milk to cereals, opportunities in Pakistan arise every day. We want to help dairy farms to increase their silage capacity without investing in a new bunker silo where more than 20% of silage spoils each year. Farmers can now store their production on farm at minimum cost."

## Argentina Pakistan Silobag Company

THE Argentina Pakistan Silobag Company was recently inscribed in Pakistan as a Private Limited company, with the aim to provide best in class storage solutions for agricultural products.

Keeping in mind grain and silage storage limitations within the country, Argentine and Pakistani partners decided to introduce the fastest

growing storage system in the world, used by farmers, millers, traders and many more.

Argentina develops the latest technology in silobags, being the largest producer and consumer at the same time. ARPACO brings the finest technology and knowhow to Pakistan, combined with a deep understanding of local agriculture dynamics.

ARPACO's contracting services suit any part of the farming industry: their team will fill silobags in any desired location, providing supervision and consultancy, and setting-up operational units as well.

## Store all crops in one bag

- Dry grains: wheat, corn, rice, sorghum and more.
- Wet grains: cracked corn, sorghum, earlage and wheat.
- Silage: corn, sugarcane, sorghum, wheat, haylage, fodders.
- By-products: beet pulp, citrus pulp, cottonseed and more.
- Hays, seeds, sand and any kind of pellet.



### KEY FEATURES OF ARPACO SILOBAGS

- Waterproof and air-tight
- Protection from insects and fungus
- Moisture maintained hermetically
- Grain quality unharmed
- Silage nutrients kept undamaged

### WHAT ARE ARPACO SILOBAGS?

High quality Polyethylene bags with 3 plastic layers of ultraviolet filter: black inside, white outside. Designed to perfectly protect the agri products under all weather conditions.

### ARPACO BAGGING MACHINES

We use best in class machines imported from Argentina. Arpaco Grain & Silage bagging machines compress the material inside the bag, forcing oxygen out and ensuring a safe storage.

## Get less waste and better feed at lower cost

Store at variable moisture levels, with a much wider range of acceptable weather conditions for harvest. Fermentation, respiration and seepage losses will be minimized. ARPACO puts unlimited, low-cost storage capacity where you need it. Feed can be removed from bags, eliminating spoilage created by poor face management.



## AJITCL

ANHUI Jietai Intelligent Technology Co., Ltd. (AJITCL), originated from Thailand in southeast Asia, a highly technology developed grain processing industry, has nearly 20 years of experience of using grain processing machinery, colour sorter production, research design and installation.

The branch company-AMD Technology Co., Ltd located in Bangkok city, the capital of Thailand, is a high-tech enterprise engaged in professional colour sorter research, production, sale and service.

Address of company: The Cross of Yulan Avenue and Tangkou Road, High-Tech Zone, Hefei City, Anhui Province, China. Zip Code: 230000. Telephone Number: +86-551-68121778. Fax Number: +86-551-68121787. Website: [www.ahjietai.com](http://www.ahjietai.com). Email Address: [sales@ahjietai.com](mailto:sales@ahjietai.com). Products Services: colour sorter, Contact Person/ Position: Mr. Zhengxiang Xu / Sales Manager.

## AYEMTCL

ANHUI Yongcheng Electronic and Mechanical Technology Co., Ltd. (AYEMTCL) (hereinafter 'Yongcheng company') is a professional manufacturer engaged in the R&D of weighing devices, fully automatic packing machines, robot palletizer and other equipment. The company has over 200 staff and a professional team engaged in R&D manufacturing, sales and service.

Our main products are QZB series fully automatic quantitative packing line, DCS series electronic quantitative packing scale, fully automatic packing machine, robot palletizer and DCS-ZK series shaping vacuum packing machine widely used in quantitative packaging of rice, feed, flour, grains, seeds, corn and other granular or powdery material.

Address of company: Gaocheng East Road, Economic Development Zone, Lu'an City, Anhui Province, China. Zip Code: 237461. Telephone number: +86-564-3847777. Fax Number: +86-564-3847333. Website: [www.yongcheng.com](http://www.yongcheng.com). Email address: [chenk@yongcheng.com](mailto:chenk@yongcheng.com). Products / Services: packing scale. Contact Person / Position: MR. Chen Kun / SALES MANAGER.

## AICL

ASIA Insurance Company Limited (AICL) is one of the fastest-growing insurance companies of Pakistan. Rated 'A' by the Pakistan Credit Rating Agency (PACRA), Asia offers various risk management solutions which are inclusive, economical and tailored for its valued clients. The company's aim is to provide a steady hand, helping people to stand back onto their feet when they experience a mishap while prudently managing risks.

Through its Window Takaful operations, Asia offers Short-term credit risk coverage across all lines of business.

A leader in agriculture & livestock insurance: For the past six years, Asia Insurance has been a leading insurance coverage provider against losses arising from natural calamities, including floods, to farmers and land owners all across Pakistan. Through a nationwide network of branches, camp offices and field workers, Asia has provided insurance coverage to more than 100,000 farmers for loans they have taken out, thus providing critical support to get them back on their feet at times of utter distress.

Asia Insurance presently provides risk coverage in the form of more than 10 banks and financial institutions, and deploys its expertise in underwriting, risk assessment and claims handling to help growers of all kinds of crops, and owners of all types of livestock, from Arid and Kashmir, KPK and all the way down to Sindh.

Foreign investment & expertise: Asia Insurance has won the confidence of German development bank KfW, whose investment through Resilience Investment Fund (Rated AAA by Fitch, AA+ by Standard & Poor's) and managed by Swiss based manager BlueOrchard Finance, has invested Rs. 350 Million for taking 25.4 per cent shareholding in Asia Insurance Company Ltd. Increasing the company's total equity to over Rs. 1 billion. Asia Insurance now leverages the global know-how of KfW and BlueOrchard to develop insurance products that are the first of their kind in Pakistan.

Other coverage provided by Asia Insurance: Fire & Allied Perils; Motor; Marine; Travel; Engineering Projects; Electrical Equipment; Machinery; Health and Personal Accident (Group and Individually). Miscellaneous insurance (Cash in safe, Cash in Transit etc.).

Website: [www.asiainsurance.com.pk](http://www.asiainsurance.com.pk). [www.asiatakaful.com.pk](http://www.asiatakaful.com.pk)

## Australian Trade &amp; Investment Commission

PAKISTAN with its mineral rich soils of Punjab and Indus basin region is yet to exploit its full resources! Challenges are there of course but heads to various Pakistani farms from soil which was once considered the food basket of Indian Subcontinent. Yet there is strong demand for agricultural technology to help it remain a key supplier of produce to India, Afghanistan and Middle-east & South Co Australia, wider region. It is one of the few steady markets that had experienced continued growth over the last three years.

Pakistan is an emerging market! The country has a great potential to grow its

# Partners in progress

agriculture and manufacturing sector. With a population of 200 million, it has largely an underdeveloped agriculture sector. Whilst challenging for world experts, the country's economic and security issues yet the Pakistan market presents opportunities.

According to most data available on internet, Pakistan is considered the 5th largest producer of milk with a herd size of 50 million. Yet it imports milk and milk products to meet its growing demands.

An estimated eight million farmers in Pakistan own a small herd of cattle/per person and compare this with Australia which has only 40000 farmers with 1.4 million dairy cattle. Australian herd milking average is 5600 litre/per lactation as compare to Pakistan's less than 1000 litre/per lactation.

There are several factors which lead to this situation. In order to broaden the domain of our services, we have established Farm Solutions Pvt. Ltd (FSPL) with a vision to provide one window solutions for dairy farming needs with this level of commitment to quality and customer service.

In this new formation, we have teamed up with both national and international top dairy professionals and manufacturers. We are adding a variety of services in our portfolio including pre-feasibility studies, farm management consultancy and support, live cattle import from Holland and Australia, nutritional products and farm machinery supply.

Barkat Feed is one of the leading companies in composite feed industry. Barkat feed is producing a quality approved milk with a deep understanding of the nutritional requirements. Products are made from high-quality ingredients that are tested for their nutrient values and the process is monitored throughout.

In Pakistan, FSPL is working with Wellington Livestock for cattle import from Australia and working with Heemskerk BV for cattle import from Holland. Our cattle are sourced from the registered cattle vendors, using our expert procuring team, which includes experienced veterinary doctor, cattle and herd management team and export marketing team to suit the customer requirement.

FSPL is working with Intraco Belgium to provide quality nutritional products to dairy farms in Pakistan. Recently, FSPL has introduced agriculture and dairy machineries to their customers.

FSPL has an expert technical and quality team that is supporting dairy farmers for their farm operations to increase their farm profitability.

"Our key focus is Customers Satisfaction & Animal Welfare".

are always available to support you and your farm operations through our expert technical support without any cost. We have in-depth knowledge and expertise of dairy farm setup, dairy cows order processing, dairy cows transport to your farm from Karachi Port.

We focus on animal welfare practices and our operations have zero tolerance on animal welfare related issues. We deliver what we commit and we support your farm all the way to make it a success.

FSPL BARKAT Dairy and Livestock Feed has been providing quality feeds and nutritional products to Pakistan's dairy industry and has achieved a decent standing by exhibiting evident improvements in animal health, production and reproduction. In order to broaden the domain of our services, we have established Farm Solutions Pvt. Ltd (FSPL) with a vision to provide one window solutions for dairy farming needs with this level of commitment to quality and customer service.

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## Greenland Zone

AGRICULTURE is the backbone of Pakistan's economy; however, it has enormous challenges at the same time. In recent times, world advancing on technology spectrum, advanced and reliable farmer centric solutions are getting traction and Greenland Zone holds the vision for same. Its "Grass to Glass" vision embraces the challenges faced by farmers and convert them in to opportunities.

Greenland zone has well demonstrated breakthrough achievements for farmers in a very short time since company was established in 2016. With the industry in Pakistan has seen considerable investment in the last 10 years. Productivity at some farms has enhanced due to better animal nutrition and with the availability of quality forage seeds from Australia.

Genetic and herd improvement: In Australia, dairy industry has witnessed a substantial increase in dairy farm profitability by taking full advantage of the benefits of herd improvement. Quality of proven genetics had resulted in increased milk yield and better results for future genetic gains. Pakistan dairy herd can improve by learning from Australian experience in genetic and herd improvement. - *By Imran Saeed Khan, Australian Trade & Investment Commission, Lahore.*

## DairyCare Pakistan

DAIRYCARE Pakistan is the largest and most reliable dairy cattle supplier in Pakistan. In partnership with Harmony Agriculture & Food Co Australia and Breedex Australia, DairyCare Pakistan strives to supply Pure Holstein Friesian, Crossbred Jersey and Holstein Friesian and Pure Jersey Dairy Cows to Pakistani farms.

We have large scale capacity of supplying dairy cows that are pregnant through AI using sexed semen. Harmony Agriculture & Food Co Australia owns feedlots, grazing and breeding farms in Australia with its own state-of-the-art cattle ships. These are unique operations that no other Australian livestock exporter to Pakistan owns in Australia. DairyCare has supplied more than 15000 dairy cows to various Pakistani dairy farms over the last seven years.

Our supplied cows are known for high milk production and longest lactation years at farms in Pakistani climate.

In partnership with Harmony Agriculture & Food Co Australia, we welcome all the existing and future dairy farm owners to take advantage of our operations and become profitable in shortest span of time. Our team and representatives in Pakistan and Australia

are always available to support you and your farm operations through our expert technical support without any cost. We have in-depth knowledge and expertise of dairy farm setup, dairy cows order processing, dairy cows transport to your farm from Karachi Port.

We focus on animal welfare practices and our operations have zero tolerance on animal welfare related issues. We deliver what we commit and we support your farm all the way to make it a success.

pump, diesel engine parts and accessories trans planter.

Booth Number: 37. Address of company: No.28 Jinsheng East Road, Jintan. Zip Code: 213200. Telephone Number: 86-519-82337288. Fax Number: 86-519-82313355. Website: [www.jssemi.com](http://www.jssemi.com). Email Address: [jane@jtdc.cn](mailto:jane@jtdc.cn). Products / Services: Diesel Engine. Contact Person / Position: Jane / Sales Manager.

## JXDECL

JIANGSU Xinland Diesel Engine Co., Ltd. (JXDECL) is a professional manufacturer of new generation diesel engine in China, and it is the industrial base of the small diesel engines in Jiangsu province. The main products are 2-35 hp air and water cooled diesel engines as well as some modification models for different applications, which are ideal power units for small generating sets, walking tractors, three wheeled vehicles, sprinklers, farm boats, pumps, threshers, tillers and so on.

Address of company: Xingyang North Road Huiyang Town, Jintan, Jiangsu Country: China. Zip Code: 213215. Telephone Number: +86-519-82610888. Fax Number: +86-519-82616945. Website: [www.jtxinland.com](http://www.jtxinland.com). Email address: [xintian@jtxinland.com](mailto:xintian@jtxinland.com). Product / Services: single cylinder diesel engine/generator. Contact Person / Position: Mr. Xu / Sales Manager.

## MDF

MARKET Development Facility (MDF) is a multi-country private sector development programme funded by the Australian government. It operates in five countries, including Pakistan. In Pakistan, MDF partners with local businesses in the management of areas of dairy, meat, leather, horticulture and sustainable technology, to encourage business innovation and entrepreneurship and create additional income and employment for poor men and women in rural and urban locations. To date, MDF has 50 partnerships with local businesses across Pakistan.

In dairy, MDF supports companies to provide improved access to better inputs, services and information to a large number of smaller farmers so that the required quality and quantities of milk and livestock can be supplied to the importing formal and domestic markets.

Other initiatives in these areas are aimed at providing nutritious fodder, information and agricultural inputs for farmers to increase their animals' productivity and health. MDF's partnership with Pioneer has been pivotal in increasing the production of using small bales of silage (a nutritious fodder) amongst small farmers. Partnerships with silage entrepreneurs in South Punjab, Sindh, Khyber Pakhtunkhwa and Azad Kashmir made silage more readily available across the country.

In horticulture, MDF works with a range of agricultural input companies to encourage them to provide seeds, pesticides, and nutrients, as well as other services and information to a large number of small fruit and vegetable farmers. MDF's partnership in this area, for example with Vital Agri Nutrients, will work in the production of bio products to improve soil fertility and uptake of phosphorus by plants.

MDF is particularly interested in developing sustainable businesses that include women as entrepreneurs, employees or producers to increase women's economic empowerment, for sustainable and inclusive growth.

## MTL

MILLAT Tractors Limited (MTL), an ISO 9001:2008 certified company is Pakistan's leading engineering concern in the automobile sector engaged in the manufacturing and marketing of the world renowned Massey Ferguson (MF) tractors under licensing agreement with AGCO Ltd. UK; Forklift under license from Anhui Forklift Trucks, China; diesel engines; diesel generating sets and a range of allied agricultural and industrial implements.

Millat Tractors has played a pivotal role in transfer of technology and transformation of fledgling local light engineering sector into a robust, vibrant, quality conscious Auto Vending Industry. The company is regarded as pioneers in setting up country's automotive vendor base. Today, a local content of more than 90% has been achieved in Massey Ferguson tractors. The company offers eight tractor models in the range of 50 hp -100 hp, diesel generating sets of capacities 2.5kVA to 150 kVA and a 3-ton forklift truck.

Millat Tractors has been recognised internationally by Plimsoll-UK which has nominated MTL as 16<sup>th</sup> largest company with exceptional performance in Global Trade Index by International Forbes Global magazine has included MTL in "Asia's 2007 Best Under a Billion Dollar Companies".

MTL is continuously striving not only to delight its customers but also to fulfil its social and corporate responsibilities.

## Pioneer Seeds

By the year 2050, it's predicted that the world's population will exceed nine

billion people. That is 150,000 new mouths to feed every single day. To address that, we need to double our food production in the next 32 years. No company is more uniquely qualified to meet this complex challenge than DuPont with its portfolio of business products and services that span the food value chain.

DuPont Pioneer is the world's leading developer and supplier of advanced plant genetics, agronomic support and services to farmers. Pioneer is focused on delivering integrated seed solutions that include elite genetics, native and biotech traits, and seed treatment options, coupled with agronomic advice and services, to help farmers manage their production risks and plant the right product on the right acre or hectare.

We are proud of our people, our history, our innovations and our successful customers across the more than 90 countries we serve. We are getting closer to meeting the challenge of achieving global food security. Pioneer is striving to increase per-acre yield, while decreasing the overall impact of farming on the environment and society. We are actively developing products and traits that enable more efficient fertilizer and water use and the reduction of pesticides and fossil fuels. And we work with governments, local organizations and business communities around the world to develop local and sustainable agriculture skills and knowledge for growers of all ages.

## UMT

SINCE its inception in 1990, the University of Management and Technology (UMT) is evolving and capturing new realities in an incessant attempt to help individuals discover their God-given potential to achieve the ultimate success actualising the highest standards of efficiency, effectiveness, excellence, equity, trustworthiness and sustainable development of global human society. This outstanding track record has been achieved on account of UMT's visionary approach in terms of launching innovative and market driven degree programmes. At present, 135+ accredited programmes are being offered in its 13 schools and five institutes. UMT is helping the nation to make a transition towards knowledge based economy by producing graduates who are leaders and entrepreneurs in diverse fields. To date, over 17,000 UMT alumni are serving nationally and globally in leading organisations.

UMT hosts students from 18 countries across the globe; the campus is the hub of a thriving multicultural community engaged in learning and research. With 600+ faculty members including 135+ PhDs and 20+1 student faculty ratio, UMT can rightly lay claim to being one of the few universities in the region that has the most highly qualified faculty members; graduated from top universities of the world with vast experience of the corporate and business sector.

The university has state-of-the-art science, engineering, textile laboratories. The Information Processing Center (IPC) at UMT facilitates students through the use of highly advanced IT equipment. The well-stocked Library and Learning Resource Center (LLRC) has over 100,000 books, 18 online books and journals databases, plus 75 foreign and local journals to facilitate learning and research. UMT acknowledges talented and hardworking students and respects them generously. More than 1.5 billion rupees worth of financial aid has been provided to students so far. This journey of excellence is on to keep our tradition of leading and learning.

## University of Agriculture Faisalabad

THE University of Agriculture Faisalabad has emerged first-ever seat of higher learning in the country which is ranked among top 100 universities of the globe in every credible ranking system including Times Ranking, QS World University Ranking, Shanghai Ranking, National Taiwan University Ranking, US Bricks Ranking, Green Metric Ranking, Informatics Technology University Ranking in any of the subject category.

Being the mother of all agricultural institutions in sub-continent, it has spawned many institutions including UAF in transfer of technology and transformation of fledgling local light engineering sector into a robust, vibrant, quality conscious Auto Vending Industry. The company is regarded as pioneers in setting up country's automotive vendor base. Today, a local content of more than 90% has been achieved in Massey Ferguson tractors. The company offers eight tractor models in the range of 50 hp -100 hp, diesel generating sets of capacities 2.5kVA to 150 kVA and a 3-ton forklift truck.

Under the leadership of Vice-Chancellor Dr Muhammad Iqbal Zafar, the university is running research and development projects worth Rs 2.5 billion which is the highest expenditure in the history of the country. Out of 32 HPC technology Development Fund Projects, UAF has won 11 projects whereas, out of 10 most productive scientists, four belong to UAF.

It offers degree programmes in 175 disciplines and produced 86,000 graduates so far including 1607 PhDs. It houses Chinese Confucius Institute to give training to students about Chinese language and culture. Besides crafting MIT for professional Agriculture policy, UAF is a proud partner of the Punjab Government in its fight against dengue and also providing consultancy on balanced fertilizer to overcome cotton crisis.

## USAID

The US government is building on America's historic partnership with Pakistan to support the agricultural engine which powers Pakistan's economy, accounting for 20 per cent of the total GDP and employing more than 40 per cent of the labour force. Together, we are boosting incomes, creating jobs, nurturing competitive small and medium enterprises, expanding trade and investment, unlocking more rewarding business opportunities, building on-farm irrigation infrastructure, and introducing new technologies and management practices.

The United States and Pakistan have a long and distinguished record in partnering to support farmers and produce progressive agricultural research dating back to the Green Revolution of the 1950s and 1960s. Through this collaboration, we have boosted agricultural productivity by developing new crop varieties, promoting a culture of applied research and policy reform, and helping small and medium-sized agricultural businesses access finance and tap into more lucrative markets. The US government continues to work closely with Pakistan to advance agricultural research, introduce new techniques and technologies, improve watershed conservation and water management, and increase cross-border trade, including expanding access to lucrative Malaysian and Indonesian markets for Pakistani meat and horticulture. Improving packaging and cost-efficient logistics solutions alone has resulted in significant savings for Pakistani exporters. Promoting essential policy reforms, such as USAID's assistance to the Government of Pakistan in enacting an amendment to the Seed Law in 2015 has sown new opportunities for competition and foreign investment.

USAID is also partnering with the Government of Pakistan and private sector entities to make business easier, simpler, and faster. In the last decade, USAID has helped over one million households, improved the productivity of over 528,000 acres of land, and trained over 313,000 farmers in the use of new technologies and management practices. During that time period, USAID programmes have helped generate over \$200 million in donations, increased exports by \$92 million, leveraged over \$312 million in private sector investment, and created more than 43,000 new jobs.

Water is the economic fuel propelling job creation and business formation in agriculture. It is also becoming scarcer day by day due to obsolete practices and inefficient management. The US government is helping Pakistani farmers to apply the most efficient methods to safeguard this precious resource. Techniques such as laser levelling, the introduction of high efficiency irrigation systems, and the use of cover crops are saving millions of gallons of water from wasteful runoff. Over the past five years, USAID and the Water and Power Development Authority (WAPDA) have constructed canals in the GomalZam command area which have helped to irrigate thousands of acres in Khyber Pakhtunkhwa. These newly replenished tracts will grow high value crops, boosting the incomes of area farmers.

USAID has opened new markets for Pakistan's agricultural wealth and increased the quality and quantity of produce exported to international destinations by improving post-harvest handling, packing, and shipping, enhancing the shelf life of produce and boosting the profit margins for farmers and exporters by up to one dollar per kilo.

The US government will continue to partner with the Government of Pakistan, the private sector, and farmers so that the next time an international consumer purchases a Pakistani kinnow, cucumber, or steak, he or she will know they are buying some of the best produce in the world. USAID and its partners will build on past achievements while focussing on new product lines, establishing new market systems, boosting quality standards, and strengthening ties between Pakistani and US growers, agribusinesses and importers. As the Dawn Agriculture and Food Expo celebrates its seventh consecutive year, let us celebrate what we have achieved, and the prosperous future we will continue to cultivate, together.

**Current initiatives:**  
**The US-Pakistan Partnership for Agricultural Market Development (AMD)** helps Pakistan's commercial agriculture and livestock sectors meet international and domestic demand in targeted product lines by improving production, marketing, and business management practices. AMD has facilitated the participation of Pakistani companies in various food and agricultural expos around the region, linking them with international buyers and boosting exports.

## Partners in progress

**The Pakistan Agriculture Technology Transfer Activity (PATAA)** is identifying, supporting, and bringing to scale private sector solutions to improve agricultural productivity in Pakistan. PATAA is partnering with agricultural technology related companies to commercialise products and services that can increase the productivity and competitiveness of smallholder farmers. PATAA's partnerships will give smallholder farmers broader access to affordable technologies to increase productivity, build resilience to climate change, and reduce post-harvest losses.

**The Punjab Enabling Environment Project (PEEP)** promotes private sector-led growth in the agribusiness sector. The activities focus on policy reforms, capacity building of sector associations, and investments in Punjab to support the government, private sector, and civil society organisations in improving livestock, dairy, and horticulture value chains.

**The Satpara Development Project (SDP)** in partnership with the Agha Khan Foundation has constructed on-farm irrigation systems for thousands of acres downstream from the Satpara Dam in Gilgit-Baltistan. The project is improving the supply of irrigation water by lining water courses with concrete to keep water from seeping into the ground and thus ensuring efficient water use. The project enhanced productivity, introduced high value crops, helped producers process the surplus produce of fruits, and establish local and national market linkages to sell the produce.

**The Agricultural Innovation Program (AIP)**, implemented by the International Maize and Wheat Improvement Center (CIMMYT), supports research aimed at improving Pakistan's agricultural productivity. AIP has introduced dozens of new varieties of maize that are drought-resistant, heat-resistant, and have enhanced nutritional quality. They also have increased tolerance to insect attacks and low soil nitrogen. These hybrid maize seeds have the potential to reduce the amount of money Pakistani farmers spend on imported seeds.

**The GomalZam Dam Command Area Development Project (GZD-CADP)** is part of the GomalZam Dam and Irrigation System. The command area, located in the districts of D. I. Khan and Tank, includes 69 villages in the three Tehsils (Tank, D. I. Khan and Kulachi). The total cultivating command area is over 191,000 acres, including 94,000 acres in Tank, 87,230 acres in Kulachi and 9,770 acres in D. I. Khan. The development of the command area is planned under an approved PC-1 from the Government of Khyber Pakhtunkhwa (GoKP) and the federal government. USAID and the GoKP signed the Activity Agreement on March 18, 2015. The project will be completed in December 2019.

**The US Department of Agriculture (USDA)** helps strengthen the capacity of public and private institutions through exchange opportunities, sharing advanced technologies, and staff training. These activities focus on animal and plant health, increasing dairy production, improving soil fertility and soil health, along with demonstration and dissemination of technological information to improve water use efficiency in irrigation. All of these initiatives are designed to share our collective knowledge and increase agricultural production.

**The Small and Medium Enterprises Activity (SMEA)** works to enhance the competitiveness of Pakistan's small and medium-sized enterprises (SMEs). SMEA focusses on improving the business enabling environment by building GOP capacity to reform laws, policies, and regulations with increased private sector engagement; and improving SMEs economic performance through enhanced technological readiness, innovation, access to markets, and finance. SMEA will improve women's capacity in business ownership and management.

## Trade and Finance Projects

**The Pakistan Regional Economic Integration Activity (PREIA)** is enhancing Pakistan's regional economic integration with its neighbours by increasing Pakistani businesses' access to international markets. Through trade policy reform and streamlined trade procedures, PREIA aims to improve the bilateral and international trade environment resulting in increased trade and transit volumes. This new project has four planned PREIA's focus areas which include improving the GOP's ability to develop and implement reforms to trade-related policies; strengthening public

and private sector engagement in trade policy-making, improving regional trade and transit facilitation by Pakistan Customs; and improving regional business-to-business linkages.

**The US-Pakistan Partnership for Access to Credit (JCA)**, through USAID's Development Credit Authority, has teamed with Bank Alfalah Limited, JSBank Limited, FirstMicroFinanceBank of Pakistan Limited, and Khushali Bank Limited to provide up to \$60 million in formal financing mechanisms to help micro, small, and medium enterprises, including agribusinesses, further develop their companies.

**Pakistan Private Investment Initiative (PPII)** is a private sector solution to sustainable job creation. PPII is creating investment funds to inject capital into high-growth small and medium enterprises (SMEs), providing a basis for the formation of a private equity industry in Pakistan. Targeting lower-risk expansion stage SMEs, including agribusinesses, the PPII investment strategy focusses on high growth potential investments with development impact.

**US Department of Commerce (DOC)** is making efforts to further business opportunities between Pakistan and the United States by providing technical assistance to the public and private sector in legal and regulatory frameworks, as well as assisting companies improve their trading capabilities. More information can be found at [www.export.gov/pakistan](http://www.export.gov/pakistan).

For more information on United States Government agriculture programmes please visit USAID Pakistan at [www.fas.usda.gov/regions/pakistan](http://www.fas.usda.gov/regions/pakistan), and USAID Pakistan at [www.usaid.gov/pakistan](http://www.usaid.gov/pakistan) and [infopakistan@usaid.gov](mailto:infopakistan@usaid.gov).

## YCRO, Islamabad

**YUNNAN Commercial Representative Office (YCRO) in Islamabad** is bringing a new, soul-refreshing 'tea lifestyle' to Pakistan: From the gorgeously-scenic southwest province of China, the birth place and 'heart of real tea' - Yunnan - we bring to you the uniqueness of *Pu Er* tea, the sweetness of *Dianhong* and the fragrance of *Dianlu*. It is the time for the Pakistani people to try a whole new 'tea lifestyle' - a shift to a simple but pure, a move to 'less sweet but genuine' taste, aroma and feeling - not just a of a drink, but of life.

*Pu Er* Tea is one of the most fascinating of all teas. Besides its peculiar taste, researches have proved that *Pu Er* has positive effects for weight management and control of fats. Theobromine, an effective abstract of *Pu Er* tea, also called concentrated *Pu Er* tea, has proved to be very helpful for health and fitness.

*Dianhong*, the most famous Chinese black tea, is a high-end Chinese black tea which, due to the amount of fine leaf buds, or "golden tips," present in the dried tea, produces a brew that is brassy-golden orange in colour with a sweet, gentle aroma and no astringency. *Dianhong* tea could also be used in tea blends. *Dianhong* tea has been exported to America and Europe ever since its founding in 1939.

*Dianlu*, or Yunnan Green tea, can give the drinker a clear mind, and can magically be infused about 10 times before losing its original taste.

Yunnan Tea is very precious as it is not something to stuff the stomach, but something to rejuvenate the soul, mood and spirits. We drink this kind of tea not because we are hungry or thirsty, but because we feel restless in the chaos of life.

Yunnan Commercial representative office in Islamabad, Pakistan, as an overseas representative office of Department of Commerce of Yunnan province, China, aims to bring what we have but miss in Pakistan, and to start a new tea era in the country.

## ZRCICL

**ZOUPING Sunzi Chemical Industry Co., Ltd. (ZRCICL)** has been dedicatedly dealing in soluble fertilizers since its establishment in 2010. Our major products are high-quality soluble NPK fertilizers, Ammonium Sulphate (AS fertilizer), Potassium Sulphate (SOP fertilizer), Zinc Sulphate, Magnesium Sulphate, EDDHA-Fe. Our products have been introduced to Pakistan market since 2011 and enjoy good reputation.

Address of company: Nanwang village, Changshan Town, Zouping, Shandong, China. Zip Code: 256200. Telephone Number: +86-543-4304059. Fax Number: +86-543-4850288. Website: [www.zunzichem.cn](http://www.zunzichem.cn). Email Address: [weiqiwong@zunzichem.cn](mailto:weiqiwong@zunzichem.cn). Products/Services: Ammonium

Sulphate (AS Fertilizer), Potassium Sulphate (SOP Fertilizer), Soluble NPK Fertilizers, Zinc Sulphate, EDDHA-Fe. Contact Person/Position: Mr. Weiqi Wong/Manager.

## National Bank of Pakistan

NBP was incorporated in Pakistan under the National Bank of Pakistan Ordinance, 1949. It is involved in commercial banking and related services in Pakistan and abroad, with one of the largest domestic branch networks (consisting of 1448 branches) across Pakistan as well as 21 overseas branches and various representative offices worldwide.

Agriculture is the backbone of Pakistan's economy as it contributes 19% of Pakistan's GDP and directly supports three-quarters of the country's population, employs half of the labor force and contributes a large share of foreign exchange. Pakistan has one of the world's largest irrigation system. Pakistan is the 4th largest producer of cotton, 3rd largest herder of stock and is the 5th largest producer of milk, 5th largest in sugarcane production and dates and 6th largest producer of mangoes and the largest producer of kinnows and also has sizable ranking as rice exporter.

Due to its national importance and significance, National Bank always gives special emphasis to agriculture financing business and at present, NBP enjoys a significant lead over all peer commercial banks in Agricultural Financing. During 2016-17, NBP was the largest provider of Agriculture Credit amongst all commercial banks and it surpassed the Annual Disbursement Target assigned by the Central Bank. During 2016-17, NBP disbursed Rs.107 billion, mostly to small farmers. As of 31st December, 2017 NBP's outstanding Agri Finance portfolio stood at approximately Rs 47 billion distributed amongst approx. 250,000+ farmers across the country.

Out of total 1,448 domestic online branches, 875 are involved in catering to the needs of farmers. There are 200+ active field officers, loaded with knowledge of most modern agricultural techniques and trained in the art of outreaching and coaching farmers. These field officers are strategically positioned to handhold and support small farmers and impart on-field training.

NBP also offers a complete range of farm and non-farm credit solutions for farmers and agriculturists. From financing production input needs such as seeds, fertilizers, pesticides to financing land development and improvement, building of silos, purchasing tractors, tube wells and other farm machinery agri implements. It also finances Tunnel farming, horticulture, and development of orchards. NBP is the largest commercial bank in small scale dairy and livestock farming including poultry and in-land fish farms.

Besides this, the bank also provides financing for Non-Farm sector. The financing to non-farm sector deals in financing for livestock, dairy, poultry, fisheries, orchards and forestry.

Not only agriculture and SME sector, NBP also progressed in many areas as National Bank of Pakistan has converted its entire network of 1448 branches online. National Bank of Pakistan has widely penetrated branch network in the country and its services are available to Pakistanis living in far flung and most difficult to reach areas. People living in such remote areas will benefit the most from this development. Through online facility, NBP customers holding an account at any online branch can deposit and withdraw cash from any of the 1448 online branches through inter branch transactions (IBT); Debit / ATM Card can be issued to all customers of online branches; centralized account opening; Know Your Customer (KYC) and better control and compliance.

National Bank of Pakistan is a diversified, dynamic and largest bank institution of the country. It services are available to individuals, corporate entities and government. It continues to act as trustee of public funds and as the agent to the Central Bank, the State Bank of Pakistan (in places where SBP does not have presence).

NBP is the pioneer in Pakistan in developing a wide range of consumer products, to enhance business and cater to the different segments of society. Some schemes are specifically designed for all the income segments of population. These include NBP Advance Salary, NBP Saibaan, NBP Kissan Dost, and NBP Cash n Gold. NBP has implemented special credit schemes like small finance for agriculture, business and industries. NBP through concerted efforts managed growth in all spheres especially in low risk consumer finance (Cash n Gold) and deposits with record growth. SME & agriculture sectors have been its focus, as these are main pillars for generating economic activities in the country and offer lucrative opportunities for effective diversification and optimum returns. ■

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- Wide range of financing schemes for farmers.
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- Loan facility on revolving basis for three years (renewable on yearly basis without obtaining fresh documentation and approval).

NBP قومی کا اپنا بینک ہونے کی حیثیت سے دے رہا ہے  
ملک کے محنت کش کسانوں کے لیے آسان شرائط پر قرضے  
تا کہ کسان رہیں خوشحال اور ہر بھرار ہے ہمارا پاکستان...

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**PERPETUAL**  
MULTI PURPOSE  
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ANTI-GERM  
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ANTI-GERM  
ADIROX CL

GERMICIDAN  
BLUE

ANTI-GERM  
TRAYOR



DISC MOWER



FINGER RACKS



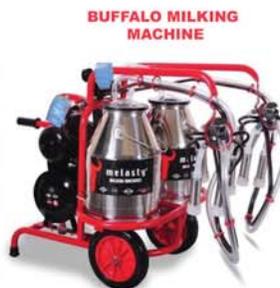
WIND ROWER



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MOBILE MILKING MACHINE



**BUFFALO MILKING  
MACHINE**



BUCKET MILKING SYSTEM



MILKING PARLOR

