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# AGRI. BUSINESS SUPPLEMENT

Zarai Taraqiati Bank Limited

## Editorial Board



Planning & Research Department, ZTBL Head Office Islamabad, Phone No. 051-9252024

**Technology for Agriculture**

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# PORTABLE SOLAR PUMPING SYSTEM(PSPS)

***A Climate Smart Technology for replacing diesel tube wells in Shallow and Sweet groundwater water zones of Pakistan***

***Prepared by:***

- ***Muhammad Khalid Jamil, Scientific Officer, Climate Energy Water Research Institute (CEWRE), National Agricultural Research Center(NARC), Islamabad.***

Solar water pumping is becoming a popular choice in many regions worldwide where groundwater is utilized for agriculture. This technology has recently been widely adopted in India and Pakistan, where farmers use the freely available solar energy to irrigate their crops. However, despite its benefits, solar water pumping technology faces several limitations, including the high cost of solar panels and equipment, which can be a barrier to its adoption among farmers with low purchasing power and small landholdings. Furthermore, farmers in Pakistan own land in small, separate patches, making it more expensive to install separate solar pumping systems for each plot. In addition, solar pumping systems are often installed in areas without grid power, meaning that they are idle during periods of no irrigation, reducing their capacity factor to less than 20%.

To address these limitations, the Pakistan Agricultural Research Council (PARC) introduced a portable Solar pumping system (PSPS), also known as the "solar trolley," in 2017. This innovative system consists of a trolley that can be attached to a tractor for transportation and contains foldable solar panels, a variable frequency driver inverter, and a motor with a capacity of up to 10HP for groundwater pumping. Farmers can easily connect the motor to their boreholes and use the solar trolley for irrigation, powering high-efficiency systems such as drip or sprinklers. With the addition of a suitable inverter and battery, the solar trolley can also be used to power household appliances.

*Figure 1: PSPS operating sprinkler irrigation system at National Agricultural research centre, Islamabad.*

The solar trolley has been well received by farmers in the Thal region, which was once considered a desert but is now partially irrigated by canal systems from the Jinnah Barrage on the Indus River. With the availability of shallow and sweet groundwater, farming has become a viable option in this region, but the cost of pumping and energy has been a hindrance. The solar trolley has provided an affordable solution for farmers, with a recent survey by PARC revealing that farmers using this technology for sugarcane irrigation are getting 40 to 45% higher yields per unit area compared to those using conventional diesel pumps.

*Figure 2: Farmers irrigating Sugarcane crops by flood irrigation method in the Thal region using PSPS.*

The solar trolley's provision of free and prompt access to water has empowered farmers to allocate more resources towards crop nutrition, leading to significantly increased yields compared to those who rely on diesel pumps for irrigation.

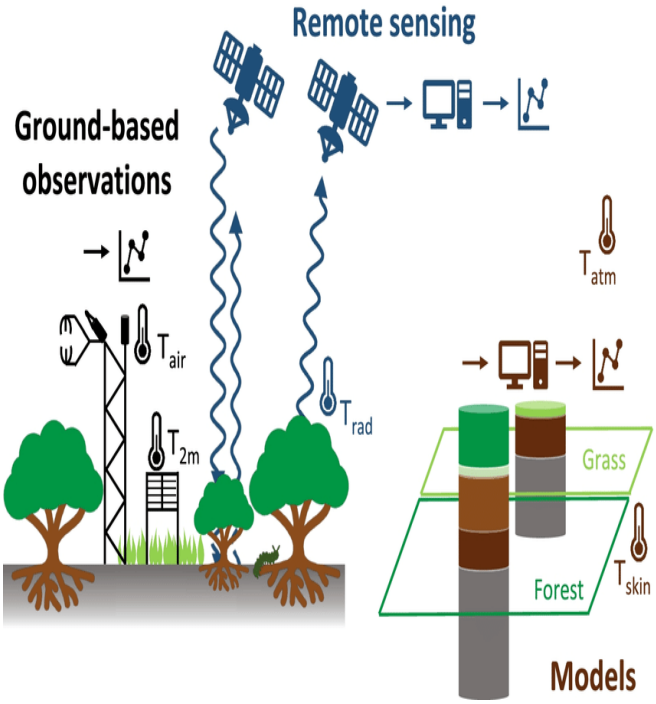
- Pakistan has several other regions with fresh and shallow groundwater, and the adoption of green technologies such as the solar trolley could significantly improve the cost-benefit ratio for farmers and mitigate the impact of climate change on the farming community's livelihood.
- In conclusion, the portable solar trolley has proven to be an effective solution for groundwater pumping and irrigation, overcoming many of the limitations faced by conventional solar pumping systems. With its cost-effectiveness and the ability to power household appliances, this technology has the potential to be a valuable tool for farmers in Pakistan and beyond.

# Evaluation of Soil Moisture-Based Satellite Precipitation Products over Semi-Arid Climatic Region

***Prepared by:***

- ***Engr Muhammad Asif, Senior Engineer, Climate Energy Water Research Institute (CEWRE), National Agricultural Research Center(NARC), Islamabad.***

To keep the atmosphere in equilibrium, precipitation plays a crucial role. It is a fundamental part of the hydrological cycle on earth, which transports water from the atmosphere to the surface of the earth Precipitation is an integral part of many studies such as the study of climate trends, management of water resources, prediction of flood and drought, hydrological modeling, crop water requirement, and climate change. For precipitation studies, the most authentic source of precipitation data is weather radar and rain gauge. However, it is almost impossible to get reliable or accurate data in developing regions of the world because of uneven distribution and a weak relationship between precipitation intensity and topography. Various satellite-based precipitation products (SPPs) at different spatiotemporal scales have been developed in recent decades to overcome the problem of precipitation measurement. Furthermore, several reanalysis data sets have also been introduced for studies in order to improve the accuracy of climate variable measurement Precipitation data is important for reliable prediction to form hydro climatological studies. Therefore, validating SPPs accuracy is necessary before using them effectively in a variety of hydro-climatological analyses. On the other hand, SPPs can deliver constant information on precise spatial and temporal scales. It is very difficult to get accurate precipitation data on a fine spatiotemporal scale in the developing world because of uneven distribution of rain gauge networks. Currently, SPPs are using an advance precipitation estimation algorithm to provide consistent data on a fine spatiotemporal scale using signals from infrared (IR) and microwave (MW) sensors Because of the continuous involvement of science and technology, the SPPs were formed by using many techniques such as meteorological modeling, remote sensing, and ground measurement, to enhance the accuracy of the products.




For instance, several products rely on satellite-based soil moisture. These products were obtained from satellite soil moisture data through SM2Rain algorithm. It is observed that regional topography and climatology have a significant impact on SPPs product performance. Therefore, this study's goal is to describe, examine, and evaluate the efficiency of the most recent precipitation products (SM2Rain-CCI, SM2Rain-

ASCAT, GPM-SM2Rain, and SM2Rain) across a range of topography and metrological regimes in the semi-arid climatic zone of Pakistan.

As Pakistan is the 5$^{th}$ most vulnerable country to climate change as reported by inter-governmental panel on climate change (IPCC). Agriculture Sector in Pakistan is the most affected sector because of climate change, floods, heat waves, drought, irregular precipitation/rainfall are the main climatic factors affecting the crop production/ cropping cycle. Therefore, satellite measurements of soil moisture are very important under climate change scenario. In recent times, many satellite-based precipitation products were introduced to obtain reliable precipitation. Most of the precipitation satellites were assessed in the upper Indus region and some were evaluated in the mountainous region of Pakistan. However, the evaluation of soil moisture-based products over the whole country has not been carried out yet. Although satellite-based precipitation products can provide accurate and reliable information on suitable spatial and temporal scales, at the same time, the accuracy of SPPs is not reliable over the different topographical and climatic regions of Pakistan. Recently, the record-breaking monsoon precipitation led to severe floods in two main provinces of Pakistan (Baluchistan and Sindh). One of the main reasons for floods is the inadequate in-situ hydro climatic study presentations caused by the uneven distribution of metrological stations. Therefore, we need to explore and evaluate the different sources of precipitation data such as satellite-based precipitation data before their direct application. The performance evaluation of recent soil moisture-based precipitation over various topographical and climatic circumstances in Pakistan has not been conducted. Moreover, the issue of the lack of precipitation data is anticipated to be solved by SPPs. Therefore, this enforces us to evaluate the uncertainty analysis of the latest soil moisture-based products. The accuracy and reliability of these products are still unidentified because this will be the first time. Moreover, the government of Pakistan is planning to develop multiple multipurpose hydrological structures. Therefore, the significance of an assessment of satellite-based precipitation products will lead to improvements enormously. The results of this research will be very beneficial to SPPs' data users, meteorologists, hydrologists, water conservation practices, and policymakers in Pakistan.

# زرعی سفارشات برائے کسان

## گندم

☆ ریتلی زمینوں میں کاشت کی گئی فصل میں یوریا کھاد چار برابر اقساط میں ڈالیں۔

☆ پہلی آبپاشی کے بعد کھیت وتر حالت میں آنے پر دوہری بار ہیرو چلائیں۔

☆ جڑی بوٹی مارزہروں کے سپرے کے لیے 100 تا 120 لیٹر پانی فی ایکٹر استعمال کریں۔

☆ سپرے اس وقت کریں جب سورج پوری طرح چمک رہا ہو اور دھند یا شبنم کے اثرات فصل پر نہ ہوں۔

## سورج مکھی

☆ بھاری میرا زمین سورج مکھی کی کاشت کے لیے موزوں ہے۔ سیم زدہ اور بہت ریتلی زمین اس کے لیے موزوں نہیں ہے۔

☆ کاشت کے لیے ترقی دادہ/ہائبرڈ اقسام ہائی سن 33، ٹی۔40318، 1 گورا۔اے این جی سن۔5264 اور یو ایس 666 کاشت کریں۔

☆ جنوبی اضلاع میں یکم جنوری سے دس فروری تک اور وسطی وشمالی اضلاع میں آخری جنوری سے فروری تک کاشت مکمل کرلیں۔

☆ فصل کو قطاروں میں کاشت کریں۔ قطاروں کا درمیانی فاصلہ سوا دو تا اڑھائی فٹ اور پودوں کا درمیانی فاصلہ آبپاش علاقوں میں 9 انچ اور بارانی علاقوں میں 12 انچ رکھیں۔

☆ بوائی کے وقت پونے دو بوری ڈی اے پی + ایک بوری ایس او پی فی ایکڑ استعمال کریں۔

## کماد

### کماد کی برداشت

☆ گنا سطح زمین سے 1 تا 1/2 انچ گہرا کاٹا جائے اس سے زیر زمین پڑی آنکھیں زیادہ صحت مند ماحول میں پھوٹتی ہیں۔

☆ کماد کی کٹائی اقسام اور فصل کے پکنے کو مدنظر رکھ کر کریں۔ پہلے ستمبر کاشت مونڈھی اور پھر اگیتی پکنے والی اقسام اور آخر میں درمیانی اور دیر سے پکنے والی اقسام کی کٹائی کریں۔

### کماد کی بہاریہ کاشت

☆ کاشت کے لیے اچھی بھاری میرا اور اچھے نکاس والی زمین کا انتخاب کریں۔

☆ گنے کی کاشت کھیلیوں میں کرنے کے لیے ہموار زمین کو گہرا ہل چلائیں اور مناسب تیاری کے بعد سہاگہ دیں اور پھر رجر کے ذریعے 10 تا 12 انچ گہری کھیلیاں 4 فٹ کے فاصلے پر بنائیں۔

## سبزیات وباغات

☆ چھوٹے قطعات میں ایسی سبزیات کاشت کی جائیں جو کافی دیر تک پیداور دیتی رہیں۔ مثلاً پالک دھنیا میتھی وغیرہ، جبکہ 3 سے 5 مرلہ کے قطعہ میں ان سبزیات کے علاوہ گوبھی، ٹماٹر، شلجم اور مولی سمیت دیگر سبزیات بھی لگائی جاسکتی ہیں۔

☆ کورے سے بچانے کے لیے مندرجہ ذیل سفارشات پر عمل کریں۔

- سبزیوں کی پنیری کو پلاسٹک شیٹ سے ڈھانپ کر رکھیں تاکہ موسم کے اثرات سے بچا جاسکے۔
- پودوں کے تنوں پر بورڈو مکسچر کی سفیدی کی جائے۔
- کوراپڑنے پر کھیتوں میں پانی لگائیں۔
- پھلدار پودوں پر پوٹاشیم نائٹریٹ بحساب ایک فصید سپرے کرنے سے بھی پودوں کو کورے سے کافی حد تک بچا جاسکتا ہے۔

**Agro Advisory for Farmers 1.1.2023 ,**

# SBP UPDATES

*Prepared by: Miss. Humma Nisar, (OG-II, P&RD)*

**Import of Goods-Cases at Port or in Transit**

In order to facilitate businesses, State Bank of Pakistan withdrew the requirement of prior approval of imports (falling under HS code Chapters, 84, 85 and certain items under HS code Chapter 87) and instead gave a general guidance to the banks to prioritize import of certain essential items like food, pharmaceutical, energy, etc. The business community, including various trade bodies and chambers of commerce, have highlighted that a large number of shipping containers carrying imported goods are stuck up at the ports, due to delays in release of the shipping documents by the banks. Accordingly, SBP has advised banks to provide a one-time facilitation to all those importers who could either extend their payment terms to 180 days (or beyond) or arrange funds from abroad to settle their pending import payments.

https://www.sbp.org.pk/press/2023/Pr-23-Jan-2023.pdf

**Workers' Remittances in December 2022**

Workers' remittances recorded an inflow of US$2.0 billion during Dec 22. During Dec 2022, remittances decreased by 3.2 percent on m/m and by 19.0 percent on y/y basis. With cumulative inflow of US$ 14.1 billion during H1FY23, the remittances decreased by 11.1 percent as compared to the same period last year. Remittances inflows during Dec 2022 were mainly sourced from Saudi Arabia ($516.3 million), United Arab Emirates ($328.7 million), United Kingdom ($314.2 million) and United States of America ($230.5 million).

https://www.sbp.org.pk/press/2023/Pr-13-Jan-2023.pdf

**SBP issues NOCs for establishing Digital Banks**

State Bank of Pakistan (SBP) has issued no objection certificates to the following five (05) applicants for establishing digital banks: (i) Easy Paisa DB (Telenor Pakistan B.V & Ali Pay Holding Ltd.) (ii) Hugo Bank (Getz Bros & Co., Atlas Consolidated Pte. Ltd. and M & P Pakistan Pvt. Ltd.); (iii) KT Bank (Kuda Technologies Ltd., Fatima Fertilizer Ltd. and City School Pvt. Ltd.); (iv) Mashreq Bank (Mashreq Bank UAE); (v) Raqami (Kuwait Investment Authority through – PKIC and Enertech Holding Co.). In January 2022, SBP introduced a Licensing and Regulatory Framework for Digital Banks in line with international best practices and decided to issue up to five (05) digital banks' licenses. The Framework was the first step towards introducing full-fledged digital banks in Pakistan.

https://www.sbp.org.pk/press/2023/Pr1-13-Jan-2023.pdf

**The Last Date for Encashment of Withdrawn Prize Bonds Extended**

The Federal Government has given another opportunity to the public to get the withdrawn prize bonds of Rs.7500, 15,000, 25,000 and Rs. 40,000 redeemed/encashed by June 30, 2023. The prize bonds can be redeemed from SBP Banking Services Corporation office and branches of commercial banks across the country till 30th June 2023.

https://www.sbp.org.pk/press/2023/Pr-16-Jan-2023.pdf

# MANAGEMENT TIPS

Effective managers remain flexible and receptive to new leadership styles and ideas. There are a variety of ways management can improve the productivity and efficiency of a workplace. Here are some valuable management tips that prove successful in supporting the development of successful leaders:

**1. Delegate responsibilities**

Successful managers often identify positive traits in individual team members and delegate duties to them that draw upon their strengths. It's important to develop a balanced task plan that keeps each team member equally involved and actively engaged throughout the day.

**2. Encourage open communication**

Team members thrive under management that welcomes discussion. Strong managers know how to connect with team members on an individual level and open productive dialogues. Open communication allows team members to voice their concerns, providing managers with valuable insights on how to improve operations.

**3. Focus on achievable goals**

Inform the team of a clear and concise measurement of success. By providing a goal-oriented framework for the team, managers can ensure individual efforts contribute to a greater shared objective. Effective managers work to identify short-term benchmarks that support the long-term mission of the team, recognizing key victories along the way and celebrating successes that exceed expectations.

**4. Be decisive**

Decisive managers are those who carefully and thoroughly execute plans promptly. The ability to make tough decisions quickly is a key characteristic of strong leadership. Decisiveness demonstrates a willingness to take an initiative that will help to inspire the confidence of others.

**5. Offer career guidance**

Managers may offer professional development options to foster the professional growth of each team member. Schedule one-on-one sessions with team members to get an idea of their career aspirations and offer guidance that may help them achieve those goals. If possible, assign responsibilities that would best equip them with the experience needed to move forward in their career.

**6. Foster a collaborative environment**

Team members can effectively develop plans to overcome obstacles in the workplace and achieve positive results. Effective management requires the participation of the whole team, with each team member contributing in a meaningful way to an overarching mission.

**7. Develop an organized approach to reviewing performance**

Accurately assessing the progress of team member development is essential for management to be able to track shortcomings and growth within a company. Performance reviews remind team members that their work is important and that their employer recognizes their dedication.

**8. Demonstrate strong leadership traits and habits**

Respected managers lead by example. Confidence, integrity and a willingness to take on tough responsibilities are all characteristics of respectable leaders. Team members are more inclined to follow and emulate managers who demonstrate these positive traits.

***Source:*** *https://www.indeed.com/*

# NATIONAL NEWS

*Prepared by: Miss. Humma Nisar, (OG-II, P&RD)*

**Farmers' body demands agri-emergency**

In view of the ongoing wheat crisis, Pakistan Kissan Ittehad (PKI) urged the government to impose an agricultural emergency in the country. There is a dire need that Government may review its policies and boost domestic wheat production. Farmers are reluctant to increase the area under wheat cultivation because of the delay in the announcement of support price by Punjab and KP provinces. There are fertilizer shortages in the market, demanding immediate action from the government. Compared to the previous Rabi sowing season, the price of a DAP (di-ammonium) bag has increased from Rs6,000 to Rs14,000. Resultantly, farmers had to reduce DAP use for the wheat crop. Despite the rising cost of DAP, the government must give any support to the farmers.

**KP invites Saudis to invest in agriculture sector**

An important meeting was held at the Saudi Royal Embassy to invest in the agricultural sector. During the meeting, the commercial attaché and other officials were briefed in detail about the production capacity of the province related to agriculture, especially saffron, olive and plum honey, and the opportunities for investors were highlighted. According to Secretary Agriculture, the provincial government is paying attention to agriculture and saffron was cultivated experimentally two years ago in different districts of KP from which many encouraging results have been obtained. The provincial government has also approved a special plan for the development and promotion of saffron. Regarding olives, the secretary agriculture said that the climate of KP is about 80 percent suitable for this crop and high-quality oil can be obtained from it.

**Project to harvest water from fog in the offing**

The Punjab Forest Department plans to work on a project to convert fog into water in hilly, desert and other suitable areas for drinking and horticulture needs. Officials said that many countries had been working on the 'fog collector' method for the past 30 years. The countries were not only watering plants but also getting drinking water from fog collectors. The trial would be the first of its kind in Pakistan. It will be started as a pilot project and around 100 saplings will be planted. This method is successful in areas where the amount of water in fog is high, particularly in hilly areas. The vapours in the air take the form of water droplets and this phenomenon is most observable on thin, flat, exposed objects, including plant leaves and grass blades.

**Minimum Price for Sugarcane Fixed by Sindh**

Sindh cabinet has fixed Rs.302 per 40kg of sugarcane as the minimum price for crop 2022-2023 and quality premium rate at Rs. 0.50 (50 paisa) per 40 kg as approved by the federal government in 1989-99. The cabinet approved the procurement of 300,000 tons of wheat from PASCO so that the wheat requirement of the province could be met.

***Source: Business Recorder***

# ZTBL NEWS

**LAUNCHING OF INNOVATIVE LENDING PRODUCTS BY THE BANK**

The Bank has launched following new schemes for the betterment of farming community of Pakistan specially Gilgit Baltistan;

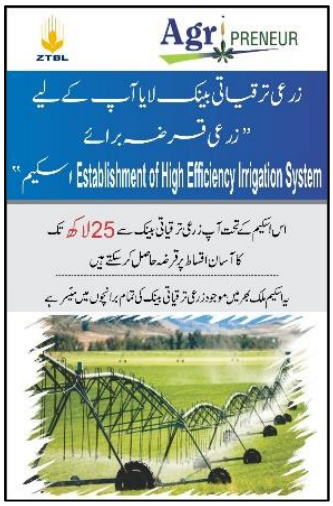
1. **Digital Kissan Karobar Scheme (DKKS)**


In order to provide business and employment opportunities in far flung villages of Gilgit-Baltistan by marketing their fresh/dry fruits by establishing virtual online shops, a financing product with title of "Digital Kissan Karobar Scheme (DKKS)" has been introduced by the Bank. The scheme will be applicable in all branches falling under ZTBL Gilgit-Baltistan Zone.

2. **Financing for Electric Chakki for Making Masalajaat (Chilli, Dhanya, Zeera etc.)**


Spices/condiments are a daily need of households in Pakistan. There is a huge demand of different Masalajat like Chilli, Dhanya, Zeera etc. for daily use. The scheme is developed to fulfill daily requirement of these Masalajat in ground form by providing grounding units to needy persons living near the market. The scheme would help the farmers to have easy access towards credit and to facilitate the farmers for enhancement of agri. productivity in the country. The scheme will be applicable across the country.

3. **Financing for "Establishment of High Efficiency Irrigation System"**




There are around 2.5 million farmers in the country that depends upon the supply of ground water extracted through tube wells for their crop water needs. Through connecting high efficiency irrigation systems with solar energy systems, farmers can achieve high water use efficiency, energy efficiency and most important to the farmer, cost-efficiency.

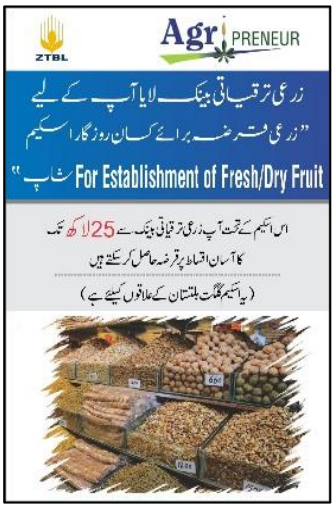
The scheme would be applicable across the country. However, financing may be provided on priority basis to farmers living in underserved areas.

4. **Financing Product for Fruits & Vegetable Saver**

Fruit and vegetable dryers are available for batch drying application. The drying cycles are extremely flexible. Time, temperature and air volume can be adjusted within a given cycle to meet precise

product specifications. This makes the tray dryers ideal for operations that require drying a wide variety of fruit & vegetables products, particularly those with long retention times. The scheme will be applicable in all branches of ZTBL where fruits & vegetables are grown.


**5. Kissan Rozgar Scheme (KRS) (Financing for Establishment of Fresh/Dry Fruit Shop)**




Gilgit-Baltistan has been blessed with world top class delicious fruits like Cherry, Apricot, Apple, Pear, Almond etc. However, due to its geographical locality and perishability in nature, their shelf life is minimal and most of the fruits are marketed after dehydration process. Every year millions of tourists around the globe & domestic vicinities of Pakistan visit Gilgit-Baltistan and if farmers are encouraged to establish their own fresh/dry fruit shops in every nook & corner of the villages of Gilgit-Baltistan, this will lead to increase in their agriculture income. Keeping in view of the above, the subject scheme has been introduced by the Bank. The scheme will be applicable in all branches falling under ZTBL Gilgit-Baltistan Zone.

**6. Financing Product for Potato Grader**


Small units for Potato Packaging will increase the export as it will add value to the product of small farmers. Packaging Machines are easily available and accessible. Financing for installation of these small units will improve the profitability, sustainability and income of farmers as Pakistan earned over Rs. 300 M last year on potato export. The scheme would help the farmers to have easy access towards credit and to facilitate the farmers for enhancement of their agricultural productivity by adopting mechanization practices. The scheme will be applicable throughout the country.

**MEMORANDUM OF UNDERSTANDING (MOU) BETWEEN PARC AND ZTBL**

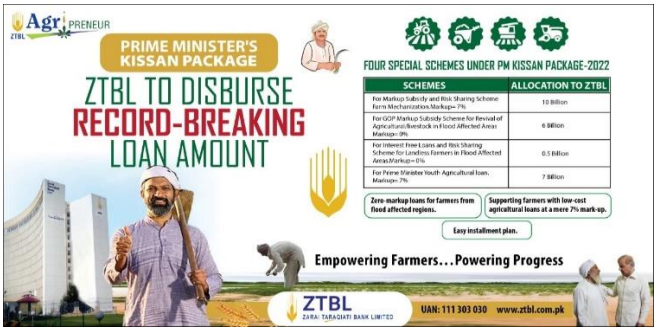

An MoU signing ceremony was held on January 5,

2023 between Pakistan Agriculture Research Council and Zarai Taraqiati Bank Ltd.


The purpose of MoU is to establish a collaborative relationship in promoting and adapting to latest/novel agricultural technologies, practices, techniques and Agri mechanization for improving Farm efficiency and for the benefits of farming community. After the MoU signing ceremony, Board of Directors of ZTBL visited National Institute of Genomics & advanced Bio-technology (NIGAB), Aeroponic Green Houses and Farm Machinery Institute.


Chairman PARC briefed the Members of Board of Directors of ZTBL about ongoing research activities at NARC. All Members of Board of Directors commended the efforts of PARC in revolutionizing the agriculture sector. Finally, Chairman PARC Dr. Ghulam Muhammad Ali thanked Mr. Asad Ullah Habib, President/CEO, ZTBL and hoped that both the parties will collaborate for promotion of agriculture sector of the country and enhancing the income of farmers.

**PM KISSAN PACKAGE 2022**




The Bank has launched following four special schemes under PM Kissan Package 2022;

1) **Prime Minister's Youth Business & Agriculture Loan Scheme (PMYB&ALS)**

**Objective:** Extension of credit facilities to youth for setting-up their agriculture business on low markup rates to be subsidized by the Government of Pakistan.

2) **Markup Subsidy and Risk Sharing Scheme for Farm Mechanization (MSRSSFM)**

**Objective:** To enhance the agriculture production by the use of improved farm mechanization practices. Loans will be provided for the purchase of new/used Tractor, Thresher, Harvester, Planters, Mobile Grain Dryer and Solar Tube-wells. List of machinery manufacturers or vendors who are manufacturing/supplying the machinery required under the scheme will be provided by the General Services Department, Services Division.

3) **GOP Markup Subsidy Scheme (GMSS) for Revival of Agriculture / Livestock Sectors in Flood Affected Areas**

**Objective:** To facilitate farmers of recent rain/flood affected areas by providing agriculture financing in farm and non-farm sectors.

4) **Interest Free Loans and Risk Sharing Scheme for Landless Farmers (IF&RSLF) in Flood Affected Areas**

**Objective:** To provide financing for the revival of agriculture including farm and non-farm sectors in the rain/flood affected areas. Production/working capital loans for purchase of input supplies, rental farm implements etc. in a crop and non-crop sectors.

**KITCHEN GARDENING ACTIVITY**

One-day event on Kitchen Gardening was organized at Islamabad Club by ZTBL in collaboration with Pir Meher Ali Shah Barani Agricultural University Rawalpindi.