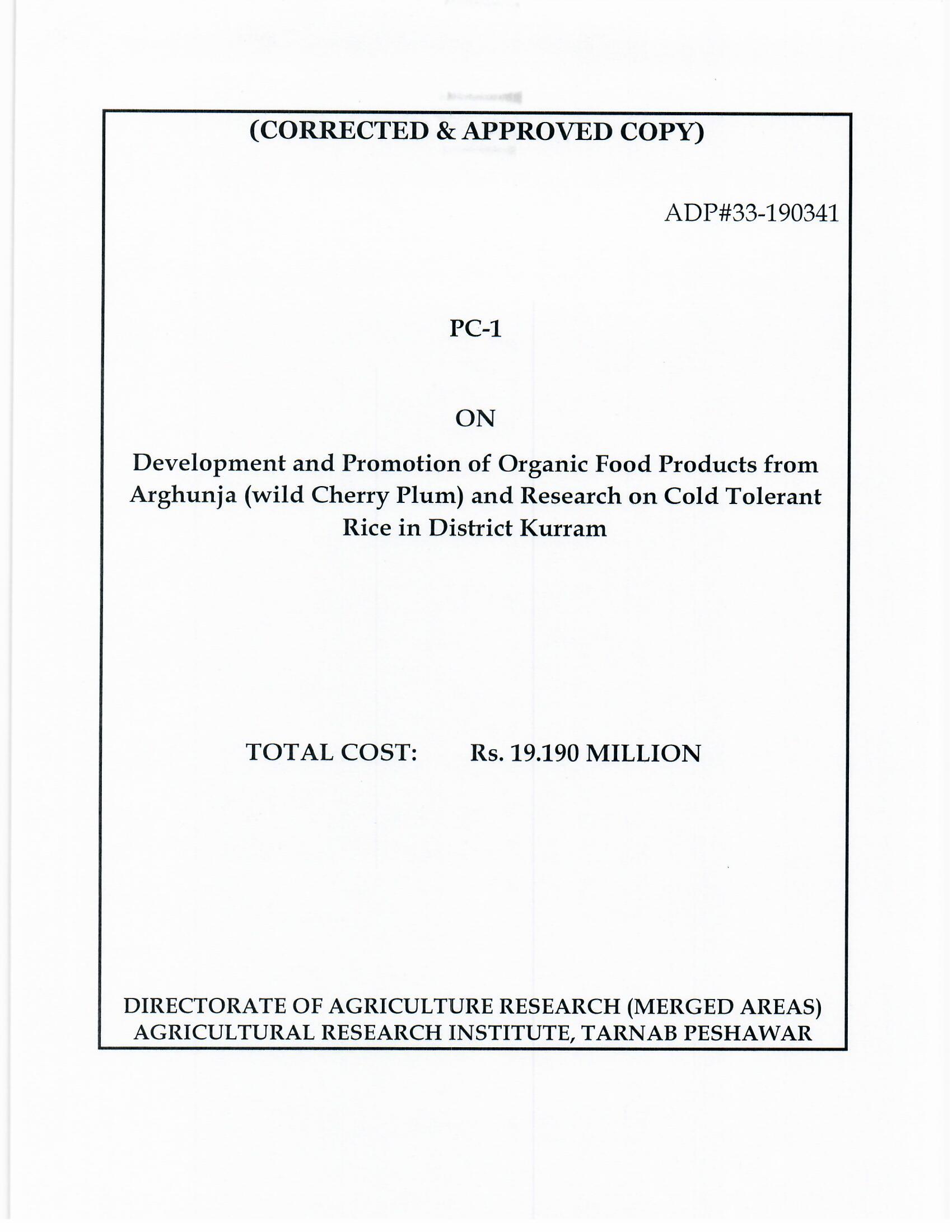
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**GOVERNMENT OF PAKISTAN**

**PLANNING COMMISSION**

**PC-1 FORM**

**(PRODUCTION SECTORS)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Name of the Project:** | | **ADP# 33-190341-Development and Promotion of Organic Food Products from Arghunja (wild Cherry Plum) and Research on Cold Tolerant Rice in District Kurram** |
|  | **Location:** | | The project head-office will be located at Directorate of Agricultural Research, Merged Areas at ARI Tarnab, Peshawar. This office will execute the project through staff of District Kurram. The SRO (Horticulture) will be overall incharge of the project activities and other officers will assist and coordinate with him according to instructions given by the Director. |
|  |  | | |
|  | **Authorities Responsible for:** | | |
|  | 1. **Sponsoring:** | | Government of Khyber Pakhtunkhwa through ADP (Agriculture Livestock, Fisheries & Cooperative Department |
|  | 1. **Execution:** | | Director General Agricultural Research, Khyber Pakhtunkhwa through Director Agriculture Research (Merged Areas) |
|  | 1. **Operation and Maintenance:** | | Director Agriculture Research (Merged Areas) ARI Tarnab, Peshawar will operate and maintain all the project activities through the staff at District Kurram |
|  | 1. **Concerned Federal Ministry:** | | NA |
|  | 1. **Plan Provision:** | |  |
|  | * **If the project is included in the medium term/ five year plan, specify actual allocation.** | | The project is not included in the five year plan, however, it is directly related to the objectives of the five year plan which emphasizes on increase in agricultural production through sustainable use of natural resources and increase in farm incomes through value additions. |
|  | * **If not included in the current Plan, what warrants its inclusion and how is it now proposed to be accommodated.** | | The overall goal of the project is to ensure sustainable management of the natural resources to foster economic, social and environmental wellbeing of the people of merged districts by ensuring sustainable livelihood and better utilization of the available resources.  The objectives of the project are in line with the objectives of the green sector as envisioned in the Vision 2030 document, merged areas Sustainable Return and Rehabilitation Strategy (FSRRS) 2015 and Sustainable Development Goals (SDGs). The objectives of the project are also in line with the Post-Crises Needs Assessment (PCNA) 2010 and the goals of the Sustainable Development Plan (2006-2015). In addition to the above the objectives are in line with the agreed vision of the Government of Pakistan for the future of FATA and strategic objectives of the peace building strategy discussed in the PCNA document. |
|  |  | |  |
|  | * **If the project is proposed to be financed out of block provision, indicate:** | | NA |
| |  |  |  |  | | --- | --- | --- | --- | | Total Block Provision | Amount already committed: | Amount Proposed for this Project: | Balance Available | | | | |
| Not applicable | | | |
|  | **b)Provision in the Current Year’s PSDP/ADP:** | | Rs. 10 million is allocated for CFY 2019-20 for this project in Merged Districts ADP 2019-20 under ADP# 32 while total project cost is reflected as Rs. 20 million. |
| **5** | **Project Objectives and its Relationship With Sector’s Objectives:** | | The overall goal of the project is to ensure sustainable management of the natural resources to foster economic, social and environmental wellbeing of the people of the Merged Tribal Districts by ensuring sustainable livelihood and better utilization of the available resources.  The objectives of the project are also in line with Sustainable Development Goals (SDGs) focusing on end to poverty in all its forms everywhere, end hunger, achieve food security and promote sustainable. The project is also in line with the agreed vision of the Government of Pakistan for the Development of Merged Areas and strategic objectives of the peace building strategy discussed in the PCNA document. The sector objectives (Vision-2025) for agriculture include:   * To bring about structural transformation of economy from low productivity to high productivity export oriented and globally competitive industry and services and from agriculture to diversification in agro based industry. * To transform agriculture and rural economy, ensure food and water security, value addition, research and modernization, promoting rural enterprises and best practices of water management. * To achieve an annual average growth rate of 7 to 8 percent that is inclusive and endogenous as well, by bringing about knowledge based science and technology driven and ICT intensive transformation, up scaling regional connectivity and intensifying entry into the global economy. * The project mainly aims to contribute to integrated multi nutritional strategy and protein intake in the food insecure districts of Kurram, North and South Waziristan. |
|  |  | | **Specific Objectives of the Project are:**   1. To collect local indigenous germplasm of cold tolerant rice through 10 field visits to different rice growing areas of the province. 2. Selection of best germplasm derived through 10 evaluation trials. 3. Characterization of selected germplasm for its registration with FSC&RD. 4. To promote the best selected cold tolerant varieties of rice in District Kurram through 200 adaptive research plots, 10 Nos. of trainings for adoption of technology and mass awareness. 5. R&D for preparation of four different food products from Arghunja (wild cherry plum). 6. Promotion of Arghunja products through 15 capacity building trainings of the 150 farmers. 7. Development of linkages with the market for the organic products of Arghunja (wild cherry plum) for making a regular source of income for the poor farm families. |
|  | * **Incase of revised project indicate objectives of the project if different form original PC-I** | | NA |
| **6** | **Description, Justification, Technical Parameters and Technology Transfer Aspects** | | |
|  |  | **6.1 Research and Development for Promotion of Rice in District Kurram:**  Rice is the third most important cereal crop of Khyber Pakhtunkhwa after wheat and maize. Rice is grown on an area of about 61,686 hectares with a total production of 128,293 tons annually. In Khyber Pakhtunkhwa 81% of the rice acreage lies in high altitudes. Rice is a staple food of the local population in the mountain valleys of the province and their economy largely depends on a good rice harvest. Rice is a major crop grown in District Kurram on both sides of the river Kurram from upper Kurram to lower Kurram. The farmers have no access to improved production technologies for cultivation of rice and cultivate local coarse rice varieties traditionally. The local types of rice are having special aroma and taste famous in the area. The local rice varieties fetch high price than the fine rice grains. Due to certain limiting factor like unawareness of farmers from the latest production technologies and unavailability of best yielding varieties posing a problem to the farmers in getting higher produce. The occurrence of low night temperatures during reproductive development in rice is one of the principal yield limiting factors of rice growing in the region. Yield losses occur when the temperature falls to 18° C and lower.  In the cold mountain high altitude area, the available indigenous germplasm will be evaluated for cold tolerance and high yielding agronomic parameters. Improved package of technology will be developed for these varieties after testing on farmers' field. Moreover the available locally cultivated rice types are getting diminished with the passage of time, therefore, there is a dire need to preserve these race for future breeding programs by the KP-Agriculture Research System.  Owing to the above mentioned facts, there is a need to intensify work on the research, development and promotion of rice in District Kurram. The proposed project will go a long way in strengthening research on the selection of cold tolerant varieties and relevant production practices for the cooler regions.  **6.2 Promotion and Value Addition of Arghunja (wild cherry plum):**  The cherry plum tree (*Prunus cerasifera*), also known as the myrobalan plum and locally called Arghunja in District Kurram which is a tree related to plums, cherries, apricots and peaches and widely found in District Kurram. It is a highly prolific fruit bearer having small fruits of various colors and sizes with variety of tastes and an ornamental tree grows naturally and mostly used hedge around orchards as wind break and protection found throughout District Kurram. Fruit ripening starts in late May till end of July. Its fruit are consumed as fresh while local people make its jam and chattni in traditional way. Majority of its produce is wasted due to lack of proper value added techniques. As Arghunja fruit is produced organically and is free from residues of pesticides and chemical fertilizers, therefore, products prepared from Arghunja can safely be declared as organic products. Its fruits are an important source of pectin fiber and used to make jams, jellies, sweet and tart fruit sauces and squashes. Arghunja (wild cherry plum) boast a nutritional profile similar to that of plums and as for its health effects, the cherry plum has the following nutritional properties and health benefits:   1. **Good for constipation and hemorrhoids**. Cherry plums contain 1.4 g of dietary fiber/100 g of fruit. Most of the fiber is located in the skin of the fruit and is both soluble and insoluble. Cherry plums are a particularly good source of soluble fiber called pectin. In the digestive tract, pectin travels unchanged but absorbs water and becomes gel-like, which helps soften stools, helping relieve constipation. Soft stools that are easy to pass less strain during bowel movements and can improve hemorrhoids. 2. **Have natural prebiotic properties.** The pectin in cherry plums is a soluble fiber, indigestible plant material that remains unchanged by digestive enzymes. Pectin ferments in the colon, releasing beneficial compounds that feed the good bacteria there, meaning it has prebiotic properties. These properties help maintain the health of the colon lining, support populations of good bacteria that help absorb nutrients from food and inhibit the growth of pathogenic gut bacteria, contributing to digestive health. 3. **Low in calories for weight loss**. Cherry plums have approximately 40 kcal/100 g and less than 1% fat, making them great for weight loss. Moreover, they provide good amounts of dietary fiber which binds to some of the fat from the food we eat, preventing its absorption at the intestinal level and promoting weight loss naturally. 4. **Cardiovascular benefits**. As a source of fiber, cherry plums indirectly help lower LDL (bad) cholesterol levels, contributing to cardiovascular health. Moreover, they are an extremely rich source of antioxidants which combat lipid peroxidation and further reduce cardiovascular disease risks. 5. **Source of Vitamin C for immunity**. Ripe cherry plums provide anywhere between 10% and 20% of the RDI of Vitamin C, while the unripe fruit may contain up to several times the amount. Vitamin C has antioxidant benefits, reduces inflammation in the body and boosts immunity. Eating unripe cherry plums can help strengthen the immune system and combat respiratory infections. However, the unripe fruit is also a source of citric acid and can cause stomach upset and worsen an existing gastritis if eaten in large amounts. 6. **Rich in antioxidants**. Studies show cherry plums have high antioxidant content. The yellow varieties are sources of carotenes, while purple and red cherry plums have 4 to 6 different anthocyanin antioxidants (*Antioxidant Activities and Major Anthocyanins of Myrobalan Plum (Prunus cerasifera Ehrh.*) The peel is especially high in antioxidants. Overall, eating cherry plums can hold benefits for eyesight, memory and learning, exert an anti-diabetic, anti-inflammatory and even anti-anxiety action and contribute to a lower risk of chronic diseases such as cancer, obesity, diabetes, cardiovascular disease or degenerative diseases of the nervous system. 7. **Stimulates appetite and has tonic properties**. Cherry plums were traditionally eaten to help restore appetite and for their tonic, energizing effects. They contain over 10 g of natural sugars/100 g of fruit to boost energy levels and can have a mild laxative effect when eaten in large amounts, helping detoxify the body. Other nutrients in the fruit include provitamin A.   **6.3 Justification:**  The peculiar cooler climatic conditions of district Kurram include categorically low air and water temperature. Water temperature remains 18oC during the main growing seasons in the area. Owing to this reason, the direct use of modern high yielding and fine Basmati rice varieties has not been successful. Major impediments in obtaining higher rice yield are existing low temperature and sub-optimal cultural practices. Leaf yellowing, stunting in seedlings and early vegetative stage, delayed heading and sterility in the reproductive stage are common consequences of cold stress. These conditions dictate the selection of cold tolerant rice types among the locally adopted germplasm and other similar cold tolerant coarse rice type from different cold areas with appropriate production technologies for these cooler hilly areas. Mostly coarse varieties (Fakhre Malakand, JP5, Swat-1, Swat-2, Dil Rosh-97 and others) are grown in the cold climates. The use of area specific varieties along with appropriate production technologies under farmers' environment will stabilize rice production and expand area under rice cultivation, thereby raising the living standards of the farming community of the area  The selection of cold tolerant, high yielding rice varieties among the available indigenous germplasm of rice and similar landraces to be collected from similar cold areas in Khyber Pakhtunkhwa for these high altitudes, cooler areas will increase rice yield. The increase in yield will have certainly positive impact on the socio-economic conditions of the farming community of the area.  Keeping in view of the importance of agriculture this project is utmost important to address the actual problems of the farmers in production technology of crop cultivation in rice and to cope with the problem of cold tolerance which is major hindrance in low productivity of rice crop in colder areas located at higher altitudes and to equip the farmers with the innovative ideas of agriculture for getting higher returns out of their lands.  As for As the value addition of Arghunja fruit is concerned the fruit trees are found in abundance throughout District Kurram and could easily be exploited for fetching greater income to the people through value addition of the available Arghunja fruits for making organic products out of it and through capacity building trainings for awareness of the farmers for sustainable income source. The proposed project will focus on the value addition of Arghunja fruit for preparation of jam, jelly, squashes, sauces etc.  The proposed project will benefit the farmers of District Kurram by preservation of best germplasm of rice and getting higher yields of rice crop due to selection and introduction of best yielding, disease resistant and cold tolerant varieties on one hand and secondly the Arghunja fruit will be utilized for preparation of high value organic products. Thus the farmers’ income will be enhanced manifold. By this way an economic activity will be generated due to which more farmers will be involved in food processing and its marketing. | |
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| **6.4 Provide Technical Parameters i.e. input and output of the project in quantitative terms. Also, discuss the technology aspects of the project:** | | |
| In order to fulfill the core objectives of this research project for introduction and selection of cold tolerant and high yielding varieties/lines of rice crop there is a need to re-orient the rice growers of District Kurram on the modern production technology for getting higher yields. For the purpose and achieving goals of the project the following measures will be taken during the project period.   1. **Research Activities for Selection Introduction and Promotion of Cold Tolerant Rice Varieties.**   Rice varieties known for cold tolerance will be collected from various locations of District Kurram, Malakand and Hazara Divisions and Gilgit Baltistan. Landraces will also be collected from these areas. The technical expertise for identification of these specific local varieties will be taken from the PGRI-PARC. Accessions of cold tolerant rice will also be collected from PGRI-PARC and IRRI (International Rice Research Institute Philippine) through PARC Islamabad. A total of 10 varieties/lines will be taken for evaluation at District Kurram along with local landraces of District Kurram.  A total of 20 Number of evaluation trials on twenty different locations at District Kurram will be conducted comprising of one kanal of farmers field for each trial. The farmer field will be hired on lease and all the expenditures incurred on inputs like seed, fertilizer, pesticides, daily paid laborers, lease and other necessary activities will be met out from the project.  On the basis of experimental data taken on agronomic parameters best suitable varieties in terms of cold tolerance, disease resistance and high yield will be selected and will be multiplied on the farmers’ field.  Farmers will be motivated and provided with technical guidance to further distribute the seed among the fellow growers and educate them. With this the rice growing area will substantially increase year after year.   1. **Capacity Building of the Farmers through Trainings:**   Twenty progressive rice growers will be identified in each of ten (10) valleys in the second and third year of the project period. A total of at least 400 farmers will be given capacity building trainings on the latest production technologies of rice cultivation. The trainings will be comprised of one full day with three sessions. The growers will be given trainings on different aspects of crop production like the use of a crop calendar, choose the best variety, use high quality seed**, p**repare and level the fields well, plant on time, weed early, use proper fertilizers to maximize returns, use water efficiently, control pests and diseases effectively, harvest on time, store safely, mill efficiently, understand the market along with nursery raising, transplantation, fertilization , general crop management, integrated pest management, harvesting and post-harvest handling.  Extensive visits will be paid to the farmers’ plot. The farmers will be trained how to rogue out unnecessary plants from their plots and maintain the seed in pure form.   1. **Plane of Activities for Promotion of Organic Products from Arghunja Fruit:**   About three hundred (150) progressive farmers will be selected throughout District Kurram who have Arghunja trees and produce will be selected for capacity building training. The progressive farmers will be clustered in groups comprised of thirty farmers each. Each group will be given practical trainings for preparation of organic products from Arghunja in the Food Technology Laboratory at ARI Tarnab Peshawar, or at Farm Services Center Parachinar District Kurram. Each year 5 trainings will be delivered to farmers on the production of organic products from Arghunja. The training period will consist of three days for each group. The farmers will be given practical training in the fruit processing steps for preparation of jam, jelly, sweet and spicy sauces and squashes in detail. For sale of such organic products by the farmers linkages will be developed locally and on national level with the market. | | |
|  | | |
| **S#** | **Input** | **Output** |
|  | Field visits/survey for collection of germplasm of rice | 10 Nos. of field visits/survey for collection of germplasm of rice from different rice growing areas and PGRI-PARC Islamabad. After doing the survey best cold tolerant germplasm fit for cultivation in cold areas of District Kurram will be identified and collected. Survey for collection of germplasm of rice will be carried out for further evaluation of the material in the field for getting high yielding and cold tolerant varieties for District Kurram. |
|  | Evaluation trials at farmers’ fields | 20 Nos. of evaluation trials will be conducted on the farmers’ field at different locations at the District Kurram to evaluate the performance of collected available germplasm for different desirable traits. Best performing germplasm will be selected for further multiplication on the farmer field through adaptive research plots. |
|  | Selection of germplasm of rice. | At least 2 Nos. of best yielding and cold tolerant germplasm will be selected. |
|  | Adaptive research plots. | 200 acre of cultivated best fit for rice cultivation will be selected from District Kurram for which necessary inputs will be provided with best selected germplasm. More farmers will be benefited in terms of provision of high yielding and cold resistant germplasm for deriving more income by the farmers. |
|  | Capacity building trainings on rice | A total of 10 Nos. of capacity building trainings to the farmers will be arranged at ARI Swat. The farmers will be equipped with knowledge and skills of latest production technology for getting high yield of their farms |
|  | Selection of 150 progressive farmers of Arghunja fruit. | 150 Nos. of farmers will be selected for training in food processing and value addition for organic products from Arghunja fruit. The Arghunja fruit will be exploited for raising the living standard of farmers through development of organic products and promoting local industry of food preservation. |
|  | Publication of pamphlets | 600 pamphlets on four topics will be distributed in the area and those farmers who are not covered under the project directly will be made aware of the technology developed. |
|  | Distribution of kits | 200 agriculture implement kits will also be distributed to the selected rice farmers while 150 value addition kits will be distributed among the selected Arghunja farmers. |

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|  | * 1. **Provide details of civil works, equipment, machinery and other physical facilities required for the project:**   No civil work and recruitment is proposed for this project. All efforts will be made to execute the project through existing staff and facilities.   * 1. **List of Value Addition Kits for 150 Arghunja Farmers:**   **(One Set per Farmer)**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **S#** | **Name of Item** | **Specifications** | **Qty** | **Estimated Cost (Rs.)** | |  | Stainless steel knives | Sharp Stainless steel Medium size | 6 | 1,000 | |  | Juicer or Blender | Malaysia/Japan 2 in 1 Original, Juicer & Blender, 2 Speed + Pulse and new button switch, Detachable Container Base, Patented Cell Ventilating Inner Cap, Pit-in Glass Holder, Safety Switch Lock Holder, Leak Prevention 4 Sealing Lips, Stainless Steel Spinner, 1000 ml Clear Glass Container, Speed Cleaning Brush | 1 | 20,000 | |  | Kitchen Balance | 100% Accurate Result, 1 gram To 10 kg Capacity, Support Kg + Grams + Oz, 0.6" Inch Digital LCD Display, Automatic Zero Resetting, Automatic Switch Off, 1 gram Sensitivity, Low Power Indicator, Auto Power ON/Off, Over Load Indicator | 1 | 2,000 | |  | Plastic tubs | HDPE food grade, capacity 30 kg | 3 | 4,000 | |  | Plastic Cans | HDPE food grade, white colour, with lid, capacity 25 Kg | 10 | 10,000 | |  | Plastic bags | Polyethylene transparent bags having 50 Lit/Kg capacity | 2 kg | 1,000 | |  | Thermometer Digital | 0oC- 100oC, Digital for cooking | 5 | 1,000 | |  | Hand Refractometer | 0 -90 degree Brix | 1 | 6,500 | | **Total:** | | | | **45,500** |  * 1. **List of Agriculture Implement Kits for 200 Rice Growers:**  |  |  |  |  |  | | --- | --- | --- | --- | --- | | **S#** | **Name of Item** | **Unit Price (Rs.)** | **Total Kits** | **Amount**  **(Rs. in million)** | | 1 | One Set Per Grower:  Agriculture Implement Kit Set for growers (one wheel barrow, two spades, two kudali, two sickles, one Panjghakhy, one spray pump) | 22,500/- | 200 | 4.500 |   **6.8 List of Office Automation Equipment:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **S#** | **Name of Item** | **Qty** | **Specifications** | **Unit Cost (Rs.)** | | 1 | Computer | 1 | Core i7 10th Generation | 140,000 | | 2 | Printer | 1 | Laserjet | 60,000 | | 3 | Digital Camera | 1 | With GPS | 100,000 | | **Total:** | | | | **300,000** | | |
|  |  | |
| **7.** | **Capital Cost Estimates:** | |
|  | * 1. **Cost Estimates/Annual Phasing Physical and Financial:**   + **Indicate date of estimation of project cost estimates:** | October 2019 |
|  | * + **Basis of determining the capital cost be provided. It includes market survey, schedule rates, estimation on the basis of previous work done etc:** | The cost estimates are based on prevailing market rates, schedule rates and on the basis of previous work done by this department. |

* + **Provide year-wise estimation of physical activities as per following:**

**Component Wise/Year Wise Physical Phasing:**

| **S#** | **Particulars** | **Unit** | **2019-20** | **2020-21** | **2021-22** | **Total** |
| --- | --- | --- | --- | --- | --- | --- |
|  | Field visits/survey for collection of germplasm of rice | Nos. | 10 | -- | -- | 10 |
|  | Evaluation trials at farmers’ fields | Nos. | -- | 20 | -- | 20 |
|  | Selection of germplasm of rice. | Nos. | -- | -- | 10 | 10 |
|  | Adaptive research plots. | Nos. | -- | 100 | 100 | 200 |
|  | Distribution of Agri. Implements Kits | Set | -- | 100 | 100 | 200 |
|  | Trainings on rice (20 farmers per Training) | Nos. | -- | 05 | 05 | 10 |
|  | Training on Cherry Plum (10 farmers per training) | Nos. | 05 | 05 | 05 | 15 |
|  | Publication of pamphlets | Nos. | -- | 600 | -- | 600 |
|  | Distribution of Value Addition kits for Arghunja Processing | Set | 50 | 50 | 50 | 150 |

* + **Component Wise/Year Wise Financial Phasing**

**(Rupees in million)**

| **S#** | **Description** | **2019-20** | **2020-21** | **2021-22** | **Total** |
| --- | --- | --- | --- | --- | --- |
| **A.** | **Operating Expenses** | **1.031** | **3.277** | **2.882** | **7.190** |
| 1 | Skilled Labors on Daily Paid Basis | 0.140 | 0.380 | 0.380 | **0.900** |
| 2 | Engagement of Internees | 0.150 | 0.220 | 0.230 | **0.600** |
| 3 | POL | 0.100 | 0.200 | 0.200 | **0.500** |
| 4 | TA/DA | 0.050 | 0.075 | 0.075 | **0.200** |
| 5 | Stationery | 0.035 | 0.035 | 0.020 | **0.090** |
| 6 | Printing & Publications | 0.000 | 0.100 | 0.000 | **0.100** |
| 7 | Evaluation Trial Charges (Annexure-1) | 0.000 | 0.300 | 0.000 | **0.300** |
| 8 | Adaptive Research Trial Charges (Annexure-2) | 0.000 | 0.400 | 0.400 | **0.800** |
| 9 | Training on Rice Annexure-3 | 0.000 | 1.000 | 1.000 | **2.000** |
| 10 | Training on Cherry Plum (Annexure-4) | 0.506 | 0.507 | 0.507 | **1.520** |
| 11 | Cost of other stores | 0.050 | 0.060 | 0.070 | **0.180** |
| **B.** | **Purchases** | **4.060** | **3.770** | **3.770** | **11.600** |
| 1 | Value addition kits | 2.260 | 2.270 | 2.270 | **6.800** |
| 2 | Agricultural tool kits | 1.500 | 1.500 | 1.500 | **4.500** |
| 3 | Office Equipment/Automation | 0.300 | 0.000 | 0.000 | **0.300** |
| **C.** | **Repair and Maintenance** | **0.200** | **0.100** | **0.100** | **0.400** |
| 1 | Vehicles Repair | 0.200 | 0.100 | 0.100 | **0.400** |
|  | **Grand Total** | **5.291** | **7.147** | **6.752** | **19.190** |
|  |  |  |  |  |  |
| **Summary of the Project Cost** | | | | | |
| **S#** | **Description** | **2019-20** | **2020-21** | **2021-22** | **Total** |
| A. | Operating Expenses | 1.031 | 3.277 | 2.882 | **7.190** |
| B. | Purchases | 4.060 | 3.770 | 3.770 | **11.600** |
| C. | Repair and Maintenance | 0.200 | 0.100 | 0.100 | **0.400** |
|  | **Grand Total:** | **5.291** | **7.147** | **6.752** | **19.190** |

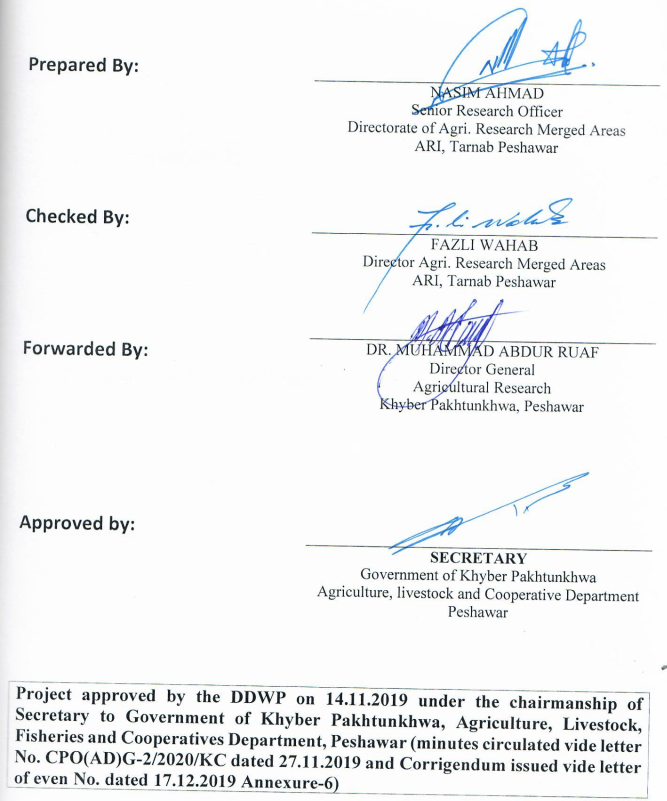
***(Concurrence of the Finance Department vide letter No. SO(Dev) 5-10/2019-20/ Con.-Agri. Res.2290 dated 24.12.2019 is attached at Annexure-5)***

|  |  |  |
| --- | --- | --- |
| **8.** | **Annual operating and maintenance Cost after completion of the Project:** | NA |
| **9.** | **9.1 Description of product/services:** | Presently the farmers of District Kurram cultivate their own local coarse landraces of rice and the farmers are unaware of the latest production technologies. Most of the local/indigenous germplasm of rice are low yielding and needs to be screened. This project will focus on the germplasm of rice to be collected within the District and from among the cold areas like Swat, Dir, Chitral and Hazara Division. Landraces and lines/varieties known for cold tolerance and high yield will be collected from PGAR-PARC and IRRI Philippine through PARC for further screening and evaluation at District Kurram. The best selected germplasm of Rice will then be multiplied throughout the District through establishment of Adaptive Research Trials. The farmers will also be trained with the latest production technologies for rice cultivation.  Likewise Arghunja (wild Cherry Plum) is widely grown in District Kurram, farmers prepare certain products from these naturally grown fruit. However, these products are not of standard quality. Farmers will be trained to prepare standard food products from Arghunja and they will be linked to markets for fetching higher prices. |
|  | **9.2 Demand and Supply Analysis:** | The average yields of every crop in the area are far below the national and provincial yields. Major impediments are old varieties, lack of knowledge of modern agricultural practices and lack of data about effects of climate change on cropping pattern and crop species. The project will be instrumental in bridging the yield gap in rice cultivation in District Kurram.  The skills of the local growers will be enhanced to prepare standard food products from Arghunja which will provide off-farm income to the growers besides broadening the base of their income sources. |
|  | **9.3 Current Demand/Supply of the Product:** | With the strengthening of the existing capacity of the farmers, the farm income will be increased. New varieties of crops will be introduced in the area and cropping intensity will be improved. Likewise climate change resilience in the area will be enhanced. |
|  | **9.4 Projected Demand/Supply after the completion of the Project:** | It is expected that demand for cultivation of high yielding rice cultivars will be increased as the growers will witness the enhanced yield of the improved varieties.  Likewise, the demand for standard products made from Arghunja will be created as these products will be developed from fruits of naturally produced Arghunja. |
|  | **9.5 Proposed Marketing Plan:** | Agriculture products with competitive edge over rest of the country will be promoted. Post-harvest losses in crops will be minimized. Thus the marketing of the agriculture produce from proposed area will be improved. |
| **10.** | **Financial Plan:** |  |
|  | **Sources of Financing:** | ADP 2019-2020 (Merged Areas of KP) |
|  | **Total Cost of the Project:** | Rs. 19.190 Million |
|  | **Provincial Government through Merged Areas ADP:** | Rs. 19.190 Million |
|  | **Donors/Others:** | Nil |
|  | **Community Share:** | Nil |
| **11.** | **Project Benefits and Analysis:** |  |
|  | **11.1 Financial:** | There are no direct financial benefits however, with the adoption of new varieties of crops and modern crop production technology, farm incomes will be enhanced. With the increase of quality production in the area, seasonal jobs will be created throughout the value chain. These jobs will generate financial benefits for the dwellers of the area. |
|  | **11.2 Economic:** | With the adoption of new crop varieties in remote Districts and modern crop production technology, farm output will be enhanced. As agriculture development has the potential to create jobs for the youth in Merged Areas the younger population of Merged Areas will have opportunities for engagements in the shape of farm and ex-farm labour apart from entrepreneurship which will have economic opportunities for the people of District Kurram. |
|  | **11.3 Social** | The farm output will be enhanced having widespread social benefits for the people of District Kurram in the shape of higher returns from farm which in turn will be utilized in health and education. The social status of the farming communities and allied businesses will be upgraded. |
|  |  |
|  | **11.4 Environmental:** | The project will have positive impact on the environment as it will utilize the natural resources in an efficient manner besides contributing to reduction in the green houses gases in the shape of carbon sequestration |
|  | **11.5 Impact of Delay in Project:** | The current yield rice is very low resulting in subsistence agriculture, if steps for increasing farm production are not taken on time, the farmers will be |
| **12.** | **Implementation of the Project** |  |
|  | **12.1 Implementation Schedule:** | Start Date: October 2019.  End Date: June 30, 2022.  Total Duration: 3 Years |

**12.2 Results Based Monitoring (RBM) Indicators:**

| **S#** | **Input** | **Out put** | **Outcome** | | **Targeted impact** |
| --- | --- | --- | --- | --- | --- |
| **Baseline Indicator** | **Targets after Completion of Project** |
| 1 | Field visits/Survey for Collection of Germplasm of Rice | 10 Nos. of Field visits/Survey for Collection of Germplasm of Rice from different Rice growing areas and PGRI-PARC Islamabad After doing the survey best cold tolerant germplasm fit for cultivation in in cold areas of District Kurram will be identified and collected. | Presently the the Rice Growers in District Kurram are relying on their local Rice varieties and the farmers are unaware of the modern and innovative production technologies. | The visits will be made and germplasm of rice will be collected. | Collection of local Germplasm will lead to Selection of best suited varieties for the farmers of District Kurram and will adopt the innovative production technology and will get high returns |
| 2 | Evaluation trials at farmers’ fields | 20 No Evaluation trials will be conducted on the farmers field at different locations in the district Kurram to evaluate the performance of collected available germplasm for different desirable traits. Best performing germplasm will be selected for further multiplication on the farmer field through adaptive research plots. | Farmers are doing agriculture activities on traditional technologies and do not know the science behind it thereby facing with low production and low returns. | By doing evaluation trials on the farmers field the farmers will get convinced and will encourage to use and adopt the innovative technologies for increasing their production. | 20 Nos. of trials on the farmers field will directly benefit farmers and thousands of their fellow farmers will witness the impact of best selected Germplasm of Rice. Best selected germplasm will lead to maximum production of Rice in the area. |
| 3 | Adaptive research plots. | 200 acre of cultivated best fit for Rice cultivation will be selected from District Kurram for which necessary inputs will be provided with best selected germplasm. More farmers will be benefited in terms of provision of high yielding and cold resistant germplasm for deriving more income by the farmers. | Production of the local germplasm as very low with the old practices of local farmers | 300 acres of land will be covered in the project period which will benefit the farmers directly . | 300 Nos. of selected farmers will witness impact of higher yield with new production technologies. Thousands of fellow farmers will be engaged in the production of improved varieties and of selected local germplasm |
| 4 | Capacity building trainings and 10 Nos of field days on the farmers field. | A total of 20 Nos of capacity building trainings to the farmers will be given at ARI Tarnab Peshawar. The farmers will be equipped with more knowledge of latest production technology for getting high yield of their farms. | the poor farmer are illiterate mostly and are unaware of the basic principles of crop production , fertilization and other crop management techniques. | The farmers will be educated in the basic principles of crop production, disease management, irrigation and fertilization tehcniques and will be practically trained in the field. | The farmers once get aware of the modern production technology will adopt and will practice which will increase his per unit production and high returns |
| 5 | Publication of pamphlets | 600 pamphlets on four topics will be distributed in the area and those farmers who are not covered under the project directly will be made aware of the technology developed. | Those who can not attend training/exposure visits will benefited through this literature. | The message of best agriculture practices and growing of selected germplasm of Rice and its production technology as well as information on the processing of Arghunja fruit will reach to thousands of farmers of the area | The old low yielding germplasm of Rice will be replaced with selected high yielding varieties.. |
| 6 | Distribution of Kits | 150 Value addition kits will be distributed among the selected farmers and 150 agriculture implement kits will aslo be distributed to the farmers. | The farmers who are trained will do the organic products preparation by their own. | The farmers will be able to process the extra fruit for organic products preparation and will increase their net income. | The farmers will be encouraged and will be able to locally prepare the products and market the organic product on high price thus improving their capacity to move toward sustainable economic stability and alleviating poverty. |

|  |  |  |
| --- | --- | --- |
| **13** | **Management Structure and Manpower Requirements:** | Director Agricultural Research Merged Districts based at ARI Tarnab, Peshawar will be the overall in-charge of the project. He will execute the project through subordinate officers at district Kurram. The Director General office at Peshawar will monitor and evaluate the project during its implementation stage.  **Monitoring & Evaluations:**   1. The Director Agricultural Research Merged Districts based at ARI Tarnab will regularly monitor the execution and targets through visits, evaluation reports and internal meetings. 2. The Director General office at Peshawar will monitor and evaluate the project through different committees formed for this purpose during its implementation stage. 3. The monitoring committees formed at secretariat level will also monitor the project activities.   **Procurement Committee:**  The Director General Agricultural Research will notify the purchase committee with following composition.   * 1. Senior Research Officer (Ento.) Directorate of Agricultural Research, Merged Districts at ARI Tarnab, Peshawar (Chairman)   2. Deputy Director Planning, DGAR office.   3. One Technical Expert to be nominated by the DGAR.   4. One Office Assistant from Accounts Section, DGAR Office. |
| **14.** | **Additional projects/ decisions required to maximize socio-economic benefits from the proposed project:** | NA |
| **15.** | ***Certified that the project proposal has been prepared on the basis of instructions provided by the Planning Commission for the preparation of PC-I for production sector projects*** | |



**Annexure-1**

**Unit Cost of Evaluation Trials on Rice (Per Jarib)**

|  |  |  |
| --- | --- | --- |
| **S#** | **Head of Account** | **Amount (Rs.)** |
| 1 | Cost of fertilizer | 4,000 |
| 2 | Cost of herbicide/ fungicide/ pesticide | 1,500 |
| 4 | Land Preparation/ Operations | 3,000 |
| 5 | Land Lease | 5,000 |
| 6 | Others | 1,500 |
|  | **Total:** | **15,000** |
|  |  |  |
|  |  |  |
|  | Total Nos. of Trials: | 20 |
|  | Total Cost of Trials (20 x 15,000)= | 300,000 |

**Evaluation Trial on Rice Design:**

Nos. of Germplasm: 20

Nos. of Replications: 03

Design: RCBD (One Factor)

Total Nos. of Sub-Plots: 60

Sub-Plot Size: 272 sq ft

**Annexure-2**

**Unit Cost of Adaptive Research Trials on Rice (Per Acre)**

|  |  |  |
| --- | --- | --- |
| **S#** | **Head of Account** | **Amount (Rs.)** |
| 1 | Cost of fertilizer for one plot | 6,200 |
| 2 | Cost of herbicide/ fungicide/ pesticide | 3,500 |
| 3 | Cost of tractor operations | 3,350 |
| 4 | Land Preparation/ Operations | 15,520 |
|  | **Total:** | **28,570** |
|  |  |  |
|  | **Budget Requirement:** | **(Rs. in million)** |
|  | Year-1 | 0 |
|  | Year-2 (28,570 x 14=399,980) | 0.400 |
|  | Year-3 (28,570 x 14=399,980) | 0.400 |
|  | **Total:** | **0.800** |

**Annexure-3**

**Detail of Trainings on Rice**

**Unit Cost for One Day Training on Rice at Kurram:**

|  |  |  |
| --- | --- | --- |
| **S#** | **Item** | **Amount**  **(Rs. in million** |
| 1 | Banner 3-4 colors Size 15 sq feet | 0.200 |
| 2 | Hiring of vehicle (Pick & Drop) |
| 3 | Food Charges |
| 4 | Honoraria to 20 participants @ 500/- per participant per day |
| 5 | Resource Person fee @ 5000/- per lecture (4 lectures/day) |
| 6 | Stationery charges |
| 7 | Training facilities charges |
| 8 | Payment to facilitators/attendants |
| 9 | Materials for Demonstrations |
| 10 | Other unforeseen |

**Expenditure Requirements for training components.**

1. **Budget requirements for 2019-20 = 0.000 million**
2. **Budget requirements for 2020-21 = 1.000 million**
3. **Budget requirements for 2021-22 = 1.000 million**

**Total: = 2.000 million**

**Annexure-4**

**Detail of Training on Cherry Plum (Arghunja)**

**Unit Cost for One Day Training on Arghunja Products Preparation Kurram:**

|  |  |  |
| --- | --- | --- |
| **S#** | **Item** | **Amount**  **(Rs. in million** |
| 1 | Banner 3-4 colors Size 15 sq feet | 0.101 |
| 2 | Hiring of vehicle (Pick & Drop) |
| 3 | Food Charges |
| 4 | Honoraria to 10 participants @ 500/- per participant per day |
| 5 | Resource Person fee @ 5000/- per lecture (4 lectures/day) |
| 6 | Stationery charges |
| 7 | Training facilities charges |
| 8 | Payment to facilitators/attendants |
| 9 | Materials for Demonstrations |
| 10 | Other unforeseen |

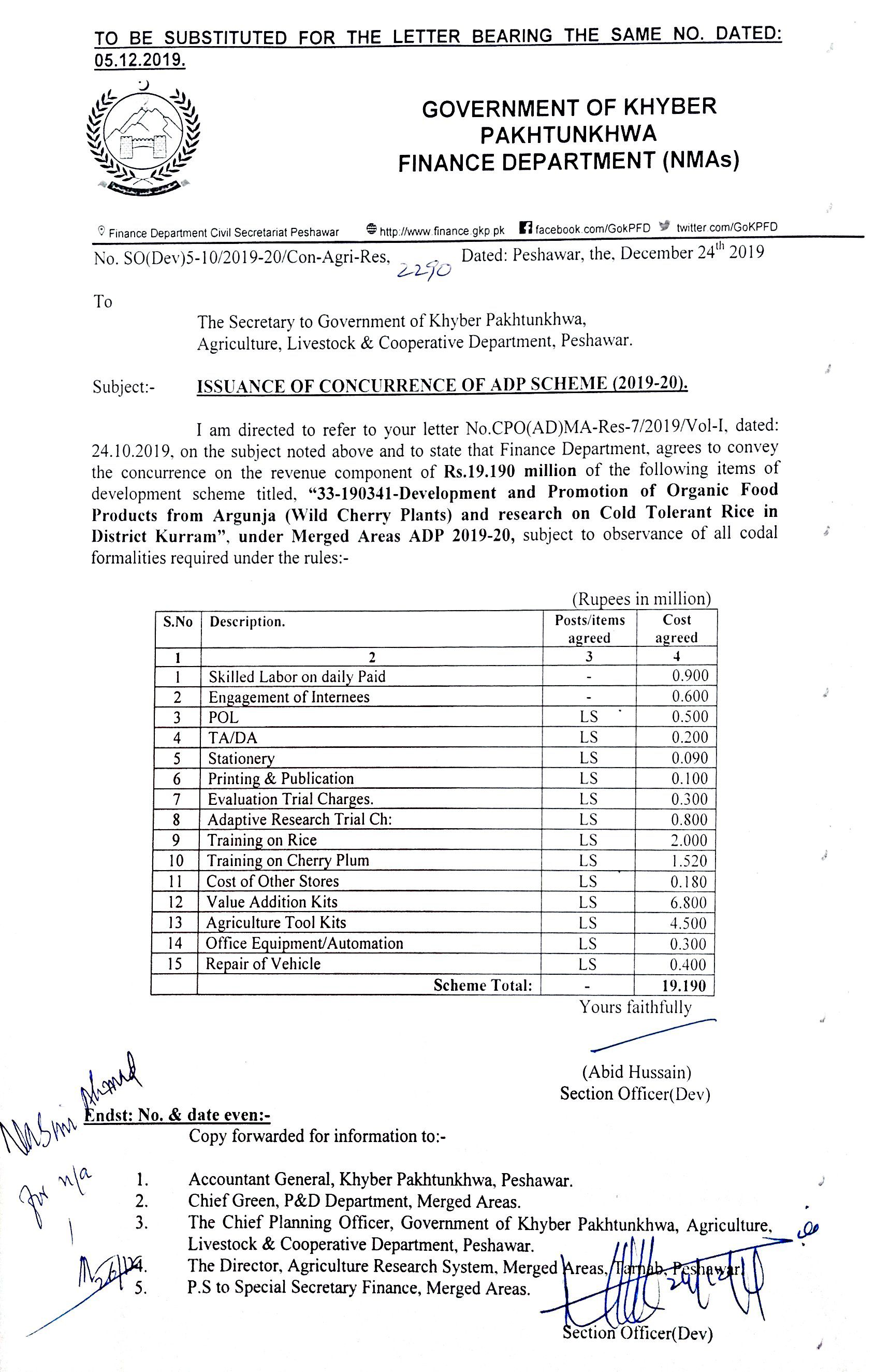
**Expenditure Requirements for training components.**

1. **Budget requirements for 2019-20 = 0.506 million**
2. **Budget requirements for 2020-21 = 0.507 million**
3. **Budget requirements for 2021-22 = 0.507 million**

**Total: = 1.520 million**

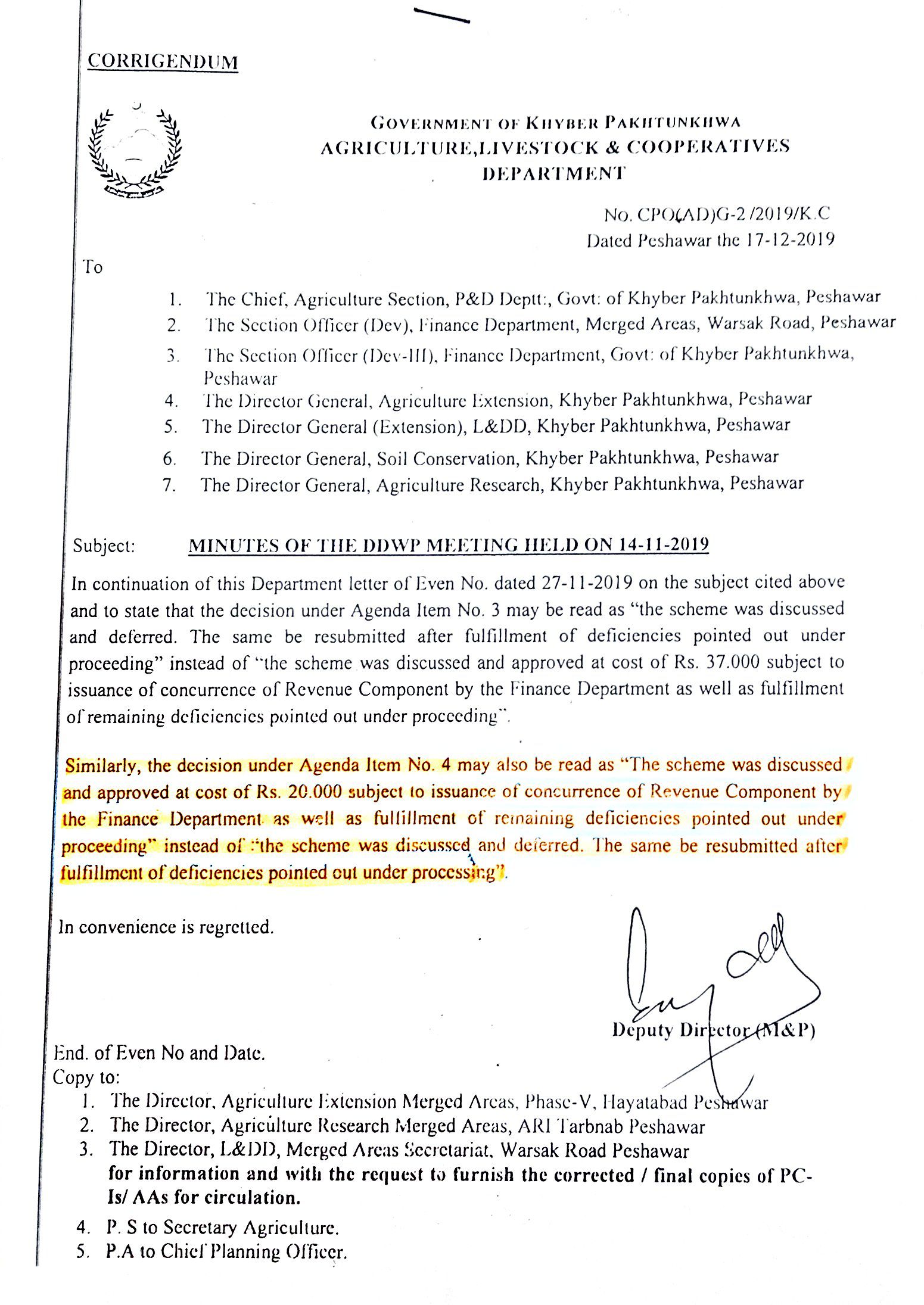
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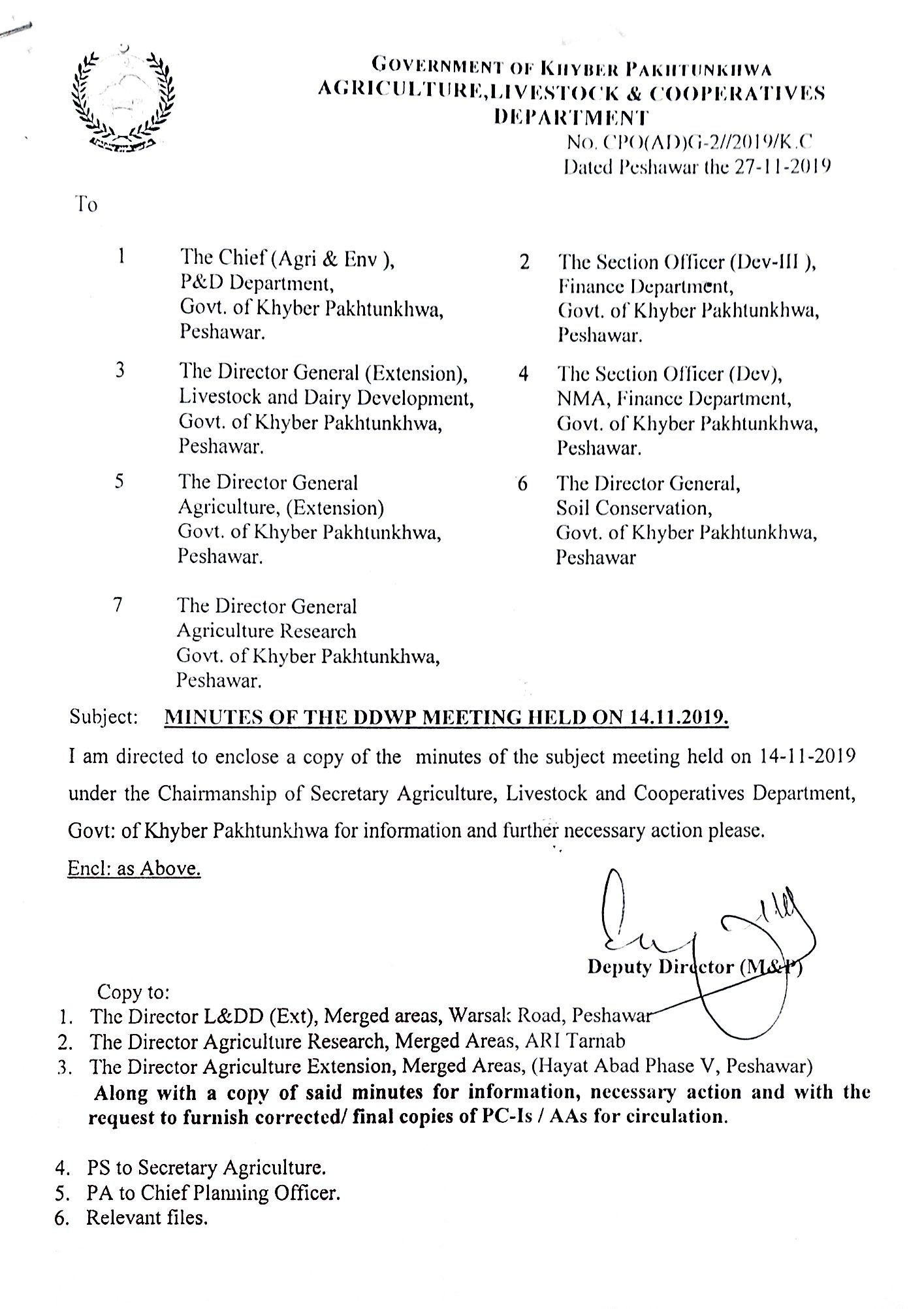
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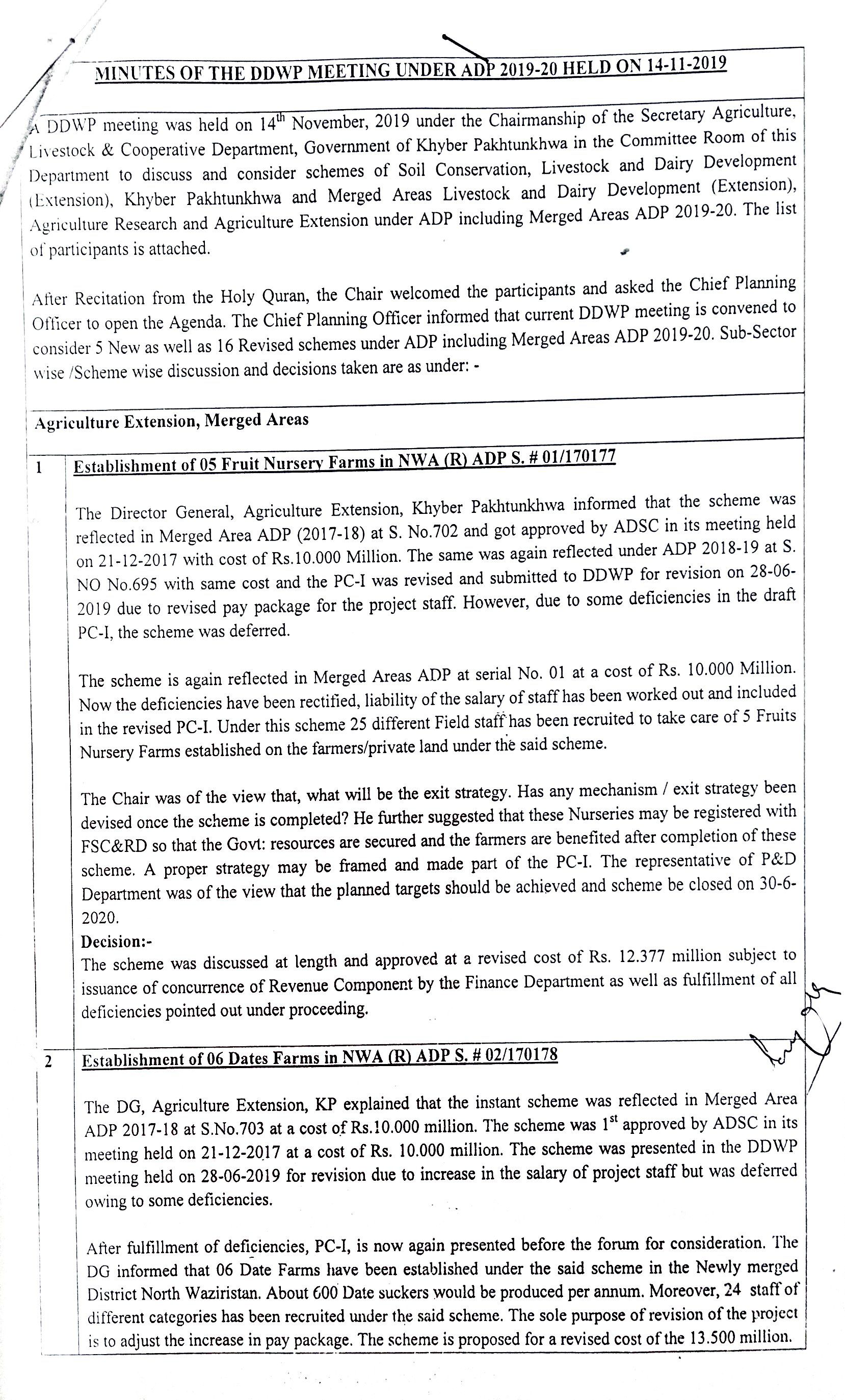
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**Annexure-6**

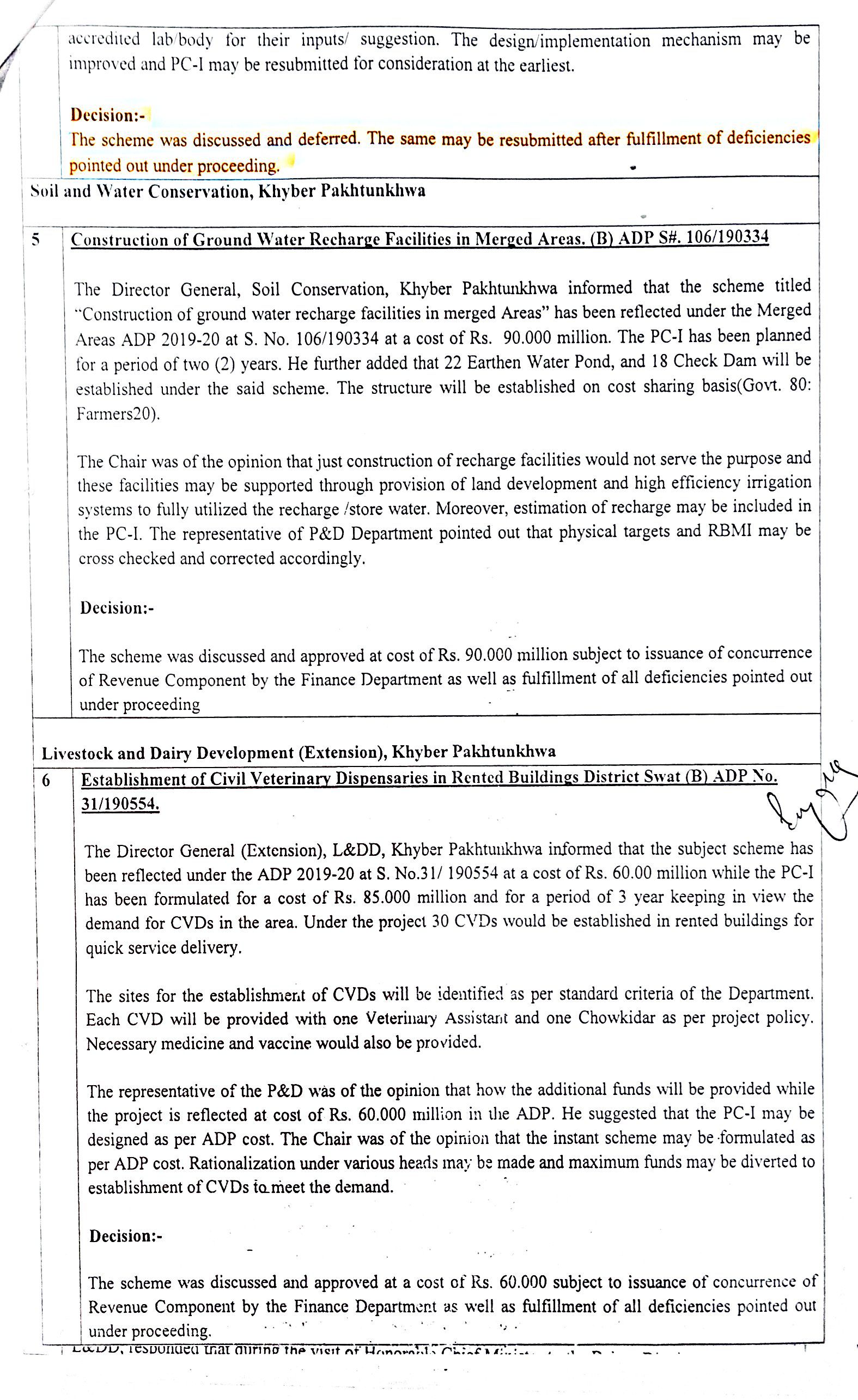
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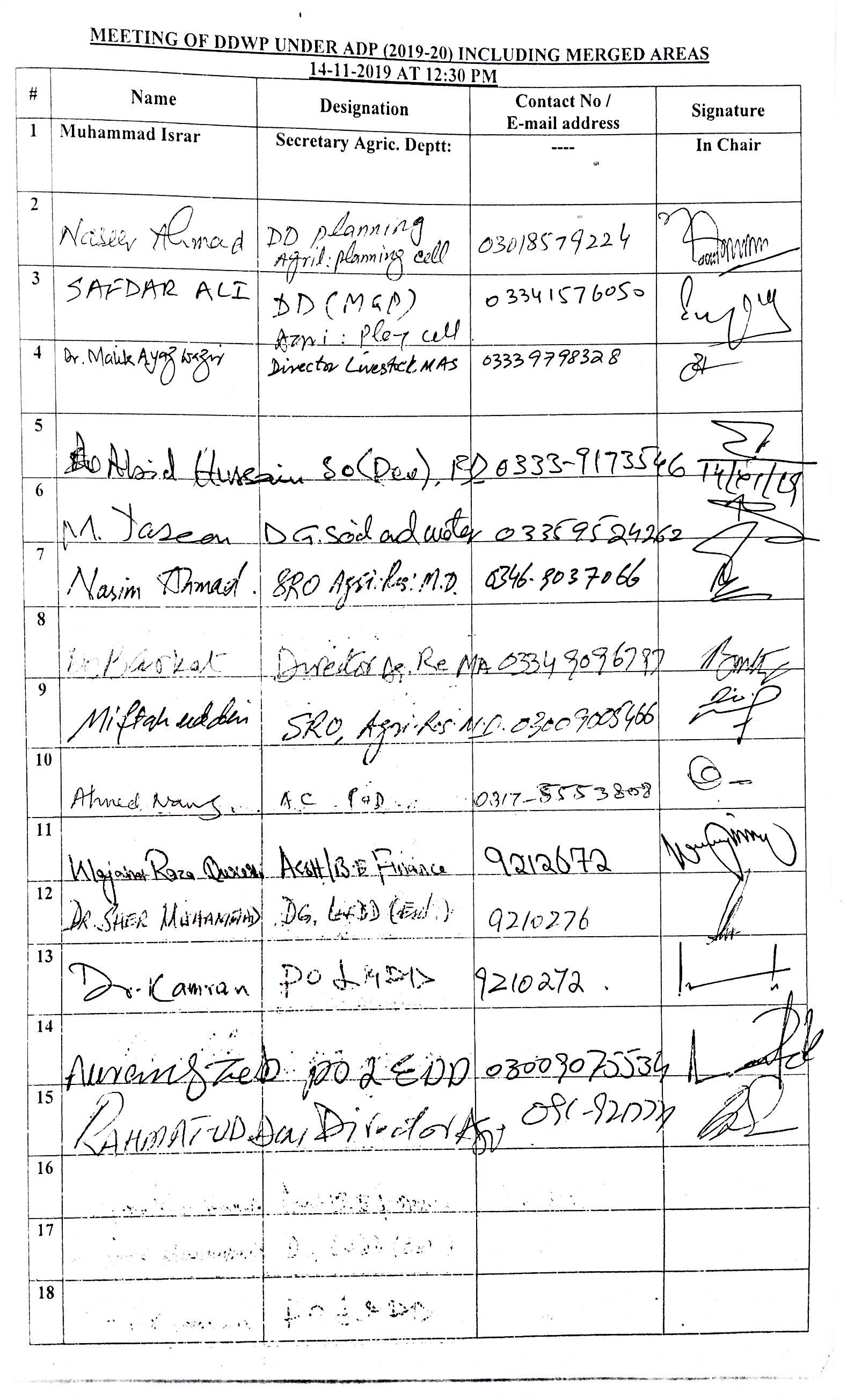
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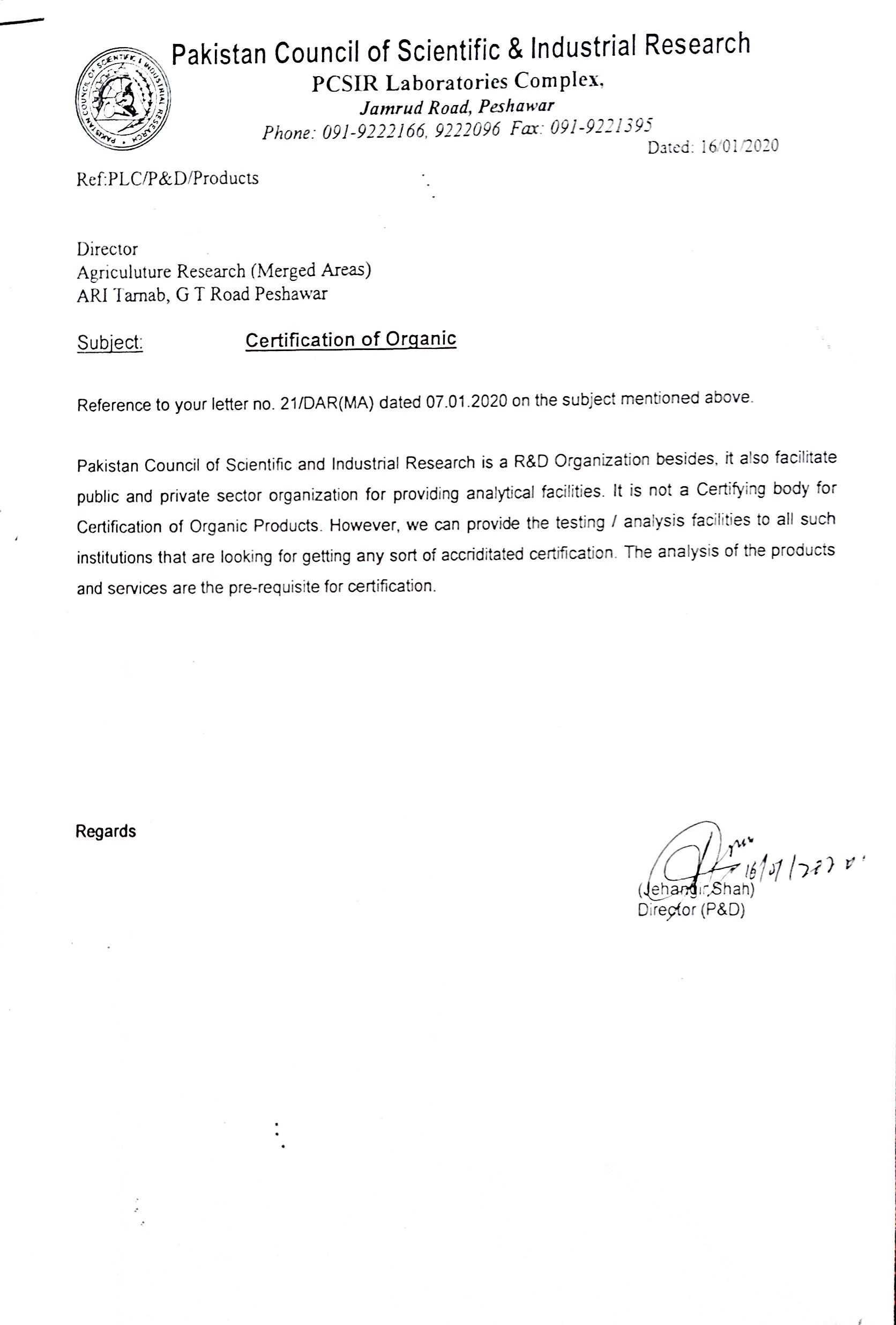
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