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Food sovereignty:

A political vision for conserving genetic resources and self-reliance in Pakistan

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Roots for Equity – Pakistan



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Over the last century, it has become clear that environmental disasters that threaten human civilization, such as global warming, are largely attributable to humans themselves. The Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC) concluded that it is 95 per cent certain that human activities have caused most of the Earth's warming in the past 50 years.¹

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Aside from rapidly rising temperatures, planet Earth is also beset by a host of other environmental risks, all of which are currently at astronomical levels. In 2007, the concept of nine planetary boundaries was put forward, including, but not limited to, stratospheric ozone depletion, ocean acidification, freshwater use, land-system change, biosphere integrity (more commonly known as biodiversity loss and extinction) and, of course, climate change.² Though there is little consensus among scientists on the theoretical concepts around planetary boundaries,³ there is no doubt that current economic development, which is firmly linked to the capitalist mode of production, severely threatens various ecological systems. Pursued with near-religious zeal, industrialization is entirely dependent on the use of fossil fuels, which is largely responsible for global warming.

Capitalism in the era of globalization is built on the pillars of neoliberalism. The mantra for development – as often espoused by governments and corporations – is that neoliberal deregulation,

privatization and trade liberalization policies will pave the way for social and economic development. However, people's movements, such as farmers' and women's rights movements, as well as a very diverse range of other civil society actors, contest such neoliberal policies, which they have done since the 1990s when globalization first emerged.

Capitalism is based on the industrial mode of production, which has resulted in numerous highly destructive extractions from the planet, as well as pollution, including chemical and genetic pollution of oceans, land and air, and corrosive land usage, such as rapid forest depletion, mining and corporate agriculture. It is well known that

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PKMT Collective Seed Bank, Haripur, Khyber Pakhtunwa, 2018

climate change is the result of high levels of toxic gas emissions and the damaging exploitation of natural resources.

The debate under the auspices of United Nations Framework Convention on Climate Change (UNFCCC) has shifted from arguments around “common but differentiated responsibilities” to the current negotiation among developed and developing countries regarding nationally determined contributions (NDCs). Discussions have ranged from the need for economic development of developing countries and their resulting lack of concern for environmental conservation, to the profit-seeking neoliberal model and the exploitation of natural resources. These debates were clearly reflected in the negotiations leading to the finalization of the Sustainable Development Goals (SDGs).

Steering the focus of discussions on climate change and land use from theories and international negotiations on environmental degradation to the lives of communities will help provide a

clearer picture of the impacts of the harmful mode of production being forced onto them. The suffering and hardships faced by men, women and children, especially in developing countries, should not be ignored.

This paper focuses on possible systems for preserving biodiversity and sustainable methods of land use, as embraced by a farmers’ rights movement in Pakistan, presenting its political vision to save indigenous seeds. The paper also briefly details an experimental project to increase food security among landless riverine communities, while improving biodiversity by increasing land fertility and working towards seed sovereignty.

Food sovereignty framework: The right to stand up for our rights

The food sovereignty framework in Pakistan encompasses various dimensions (principles-based, rights-based, focused on self-sufficiency, a platform for uniting sectors), which is

ideal for advocating for policies, programmes and projects on sustainable production and consumption that would ensure decent livelihoods and better

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access for health services for farming communities, while working towards sustaining and improving biodiversity.⁴

Food sovereignty is also based on democratic principles, which include the universal right to adequate, nutritious, culturally acceptable food that is free from chemical and genetic pollution. The framework defines the right of

communities to choose their own production systems without being led by imperialist policies, as well as the right to decent livelihoods, and access and control over productive resources, including land, seeds and forests. In addition, the framework focuses on gender equality and recognizes women's economic and political rights, which is crucial to communities achieving lasting sustainable development. Food sovereignty demands women's right to participate in decision-making and also their right to resources, especially land and adequately nutritious food according to health parameters.

In short, food sovereignty aims to capture and build upon the struggle of people's and farmers' movements around the world, which is the result of suffering the effects of agricultural and trade-related liberalization for decades.

In 2010, Pakistani provinces were impacted by severe flooding, which caused massive losses and burdened farming communities immensely. According to the Government of Pakistan:

"The 2010 monsoon flood disaster in Pakistan was massive and unprecedented, killing more than 1,700 persons, affecting over 20 percent of the land area, more than 20 million people, and causing loss of billions of dollars through damages to infrastructure, housing, agriculture and livestock, and other family assets [...] The number of people requiring food assistance to support recovery and rehabilitation is estimated at approximately 3.6 million. More than 1.1 million houses were completely destroyed [...] and more than 2 million hectares of standing crops were damaged or lost. The flood had a severe impact on people's homes, livelihoods and assets. Most people do not know when they will be able to resume their livelihoods."⁵

After the floods, international aid programmes provided various loans and grants, which included distributing cash crop seeds to farmers. Pakistan Kissan Mazdoor

Tehreek (PKMT) – an alliance of small-scale and landless farmers that was formed in 2008 – noted its inadequacy in terms of accessing indigenous and local seeds. Shortly after the floods, farmers in some areas started to complain about the low quality of the seeds distributed, especially the sunflower seeds. Despite having lost their standing crops and stored grains, the Government and loan providers were not prepared to waiver loans that farming communities had taken out prior to the flooding. Farmers experienced yet another disaster when the crops from distributed seeds failed to grow.

PKMT's Constitution, which was approved in 2014, is based on Pakistan's food sovereignty framework and outlines its political aspirations to fight for farmers' rights and progress towards food sovereignty. The alliance was formed in response to the country's extreme exploitation and oppression of its small-scale and landless farmers. Pakistan has extreme inequalities in terms of land distribution. According to the 2010 Agricultural Census, rich landlords owned 45 per cent of the country's land, comprising just 11 per cent of all Pakistani farmers, with the remaining 55 per cent of the land owned by small-scale farmers, 64 per cent of which owned as little as 1–5 acres.

In the aftermath of the floods, PKMT decided to set up its own seed banks in line with its democratic aspirations. Through these seed banks, the alliance aimed to reduce farmers' complete dependence on hybrid seeds, especially given that Pakistan is one of the countries suffering most from climate change impacts.

PKMT also asked Root for Equity, a non-governmental organization closely allied with the alliance, to help establish a trial seed farm. This request led to the development of the Save Our Seeds (SOS) campaign, which was launched in three provinces: Khyber Pakhtunkhwa, Punjab and Sindh.

The campaign's objectives were to:

- (a) raise awareness among farmers about the need to save seeds – a critical component of biodiversity
- (b) find local and indigenous seeds that were being preserved in farming communities
- (c) create a political understanding of seed sovereignty as a tool for addressing imperialist control over the seed sector.

From 2011 to 2012, almost 150 villages in the three provinces of Khyber Pakhtunkhwa, Punjab and Sindh were explored for local and indigenous seeds. Local seeds included high yielding varieties (HYV) that farmers had sown and saved over several years, and were not necessarily indigenous species. In many farming communities, farmers would exchange their saved HYVs, which would then become stable crops after being sown repeatedly for several years. In addition to local seeds, searches were also carried out for indigenous seeds, which included those cultivated by farmers prior to the green revolution. Farmers who could prove that they had sown the same seed variety for at least 5–7 years were asked to donate as little as half a kilogram of their seeds to PKMT.

To maintain the seeds obtained during the SOS campaign, two different approaches were taken. First, Roots for Equity launched trial farms in Sindh and Punjab (and more recently in Khyber Pakhtunkhwa), to quickly increase

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the mass of the seeds it had obtained, and as backup farms for the seeds obtained by PKMT. Following this, PKMT began mobilizing its members to start individual seed banks, in order to build seed sovereignty within its own network. The PKMT Seeds Central Coordinating Committee developed a number of criteria for individual seed banks, which ensured that:

(a) the land belonged to the farmer and could be as small as an eighth of an acre

(b) only natural fertilizers, such as animal manure and compost, could be used to fertilize land

(c) no pesticides or any other chemical could be used on the land

(d) at least three varieties of wheat seeds were maintained by each farmer.

After the SOS campaign was phased out, PKMT developed another approach to access seeds from farming communities. From 2015 to 2018, the alliance visited at least 10 new villages per year in each of its operational districts to increase its membership, which resulted in a minimum of 600 villages being approached. Aside from its 15 operational districts, PKMT has also visited villages in districts where farmers have reported availability of specific seeds, such as Dera Ghazi Khan in Punjab and Dera Bugti in Balochistan, which have indigenous wheat varieties.

The main aim of the seed banks was to ensure that the collected wheat varieties were saved. Emphasis was placed on wheat in particular, as it is the country's major staple crop. Over the years, the PKMT adopted a more systematic approach to collecting rice, maize and vegetable seeds. As a result of these efforts, in 2018, eight years after the monsoon floods, PKMT had developed 89 individual seed banks in its operational districts, with 52 banks located in Sindh, 25 in Punjab

and 12 in Khyber Pakhtunkhwa. It should be noted that PKMT has exclusively focused their efforts on saving food crop and vegetable seeds and is yet to initiate work on cash crops.

Since 2017, PKMT has adopted another strategy to develop community seed banks at the district level. Community seed banks were needed as some individual seed banks were failing to meet the criteria established by the PKMT Seeds Central Coordinating Committee. One of the biggest concerns was the use of threshing machines, since these caused seed varieties to become mixed. Another concern regarded the individual seed banks themselves, as although numerous, they did not own seeds collectively as part of a network, which is what PKMT wanted to develop. It was therefore decided that each district would have a community seed bank, donating as little as one eighth of its land for this purpose. The land for these seed banks needed to be made available to PKMT for a minimum of three years, with at least three local and/or indigenous seed varieties planted in each as in the case of the individual banks. Only traditional farming methods and natural animal manure and compost could be used to maintain the seed banks and increase land fertility; the use of chemical fertilizers and pesticides was completely prohibited.

The seeds in each district's community bank have been saved by various PKMT members, who tend to exchange seeds with

the other districts. As regards harvesting, the PKMT Seeds Central Coordinating Committee has stipulated that crops should be harvested and threshed by hand, since threshing machines mix different seed varieties together, thus putting the purity of each seed at risk. At present, PKMT has 12 community seed banks: five in Sindh, three in Punjab and four in Khyber Pakhtunkhwa.

Maintaining the seed banks has proved challenging. One of the main hurdles concerns land donations to PKMT, as the farmers tend to own very little land therefore find it difficult to donate any. Another hurdle concerns certain impacts of the green revolution, in particular, reduced seed-saving practices and limited maintenance of genetic lines. Threshing small harvests from seed banks is therefore quite challenging, and farmers need to be reminded to do this manually. However, the fact that there is a large number of seed banks being maintained shows that PKMT members have the political will to achieve seed sovereignty. The stringent political education programme being coordinated by PKMT is the main reason for its success. PKMT's guiding principle has always been to save seeds and chase away companies. To achieve this goal, PKMT has focused its work on two main areas, progressing its political aspirations and gathering technical expertise from framers, both of which have contributed to the development of seed banks and maintenance of genetic resources.



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Manual Seed Threshing from PKMT Collective Seed Bank, Ghotki, Sindh, 2018

For wheat alone, PKMT has been able to collect 11 different varieties of indigenous seeds, two of which are from Sindh, five from Punjab, three from Khyber Pakhtunkhwa and one from Balochistan. Some varieties worth mentioning are the Sindhi Thori, from the upper Sindh region, and the red wheat varieties from Balochistan and the Dera Ghazi Khan district in Punjab, which is close to Balochistan. Indigenous wheat varieties have mostly been accessed in areas where it has not been possible to use green revolution technologies too widely, such as in the hilly area of Fort Munroe in Dera Ghazi Khan district. According to farmers and agricultural universities, two indigenous wheat varieties, Mehran and Khushab, are the most commonly available. Although PKMT is searching for these varieties, it is yet to locate them. Among local wheat seeds, at least 14 different varieties have been obtained, with some names of certain HYVs known by farmers including Watan, Inqalab,

TD1, Sehar and Lasani. All seeds obtained have been shown to agricultural universities in Sindh and Punjab and have been verified as indigenous or local varieties. According to farmers, indigenous varieties are thinner and shorter than local HYVs.

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Rice, maize and vegetable seed varieties have also been saved. Four indigenous rice seed varieties, including Sada Gulab, Ratrio and Sindhi Ganja, and six local varieties have been obtained. Rice seeds were sown for at least 5–6 years,

with the exception of the Boidar variety, which was sown for the past 10 years minimum, and a Sukkur variety in Sindh. At least 6–7 maize seed varieties have also been sown in PKMT seed banks, which include varieties from Punjab, Azad Jammu and Kashmir and Khyber Pakhtunkhwa.

As regards vegetables, both winter and summer seed varieties have been saved. Indigenous winter vegetable seeds, such as garlic, carrot, spinach (palak), coriander, mustard, green peas and a local radish (moongrae) are being saved. Local winter vegetables include radish, onion and a local turnip (shaljam). Indigenous summer vegetables include two different varieties of okra and other local vegetables, such as tori, kado, rawa and gwar. Local summer vegetables include chillies, tendae, mongi, jewahar, kala and sufaid till. Using the food sovereignty framework, which encompasses the movement's political aspirations, PKMT has not only



PKMT Collective Seed Bank, Haripur, Khyber Pakhtunwa, 2018

been able to continue its search for indigenous seeds, but also keep its seeds banks alive, using innovative techniques to preserve the genetic resources that were painstakingly obtained throughout the country.

Land – crucial for farmers and sustainable food systems

The remainder of this paper will document another approach that was used by PKMT and Roots for Equity, to highlight that individual and collective land ownership is crucial for ensuring national security, sustainable livelihoods and sustainable food systems.

As previously mentioned, communities – especially riverine communities – were severely impacted by the monsoon flooding in 2010. Both their crops ready for harvesting and those that had been harvested in October (when rice and maize are usually harvested) were swept away. PKMT reported substantial loss in riverine areas, especially in Ghotki.

Roots for Equity therefore decided to work with riverine communities in order to understand their situation and develop a sustainable framework for them. This work was carried out from 2014 to 2017.

Along the riverine belt in Multan (Punjab Province) and Ghotki (Sindh Province) are some of Pakistan's most deprived areas. Communities living along the banks of the Indus River are considered illegal settlers, and thus face many socioeconomic and political challenges, lacking the essentials required for a quality standard of living, such as education, health and livelihood services. To stop main crop areas along the belt from flooding during monsoon seasons, the Pakistani Government has built large embankments on both sides of the river, where hundreds of thousands of landless people have found themselves living in a precarious situation, as they have nowhere else to go.

Though the media and the world generally tend to focus on the struggles faced by these riverine communities during major

disasters, they face flooding even when there are small rises in rivers' waters, which inundate their land with water. Due to constant debt and the inability to pay off sowing costs, farmers in the riverine belt have stopped sowing crops for the Kharif season, which takes place from May to September. Most communities in this area do not have their own land and will work as sharecroppers or lease one to two acres of land for six months or one year. With the effects of climate change intensifying, these communities tend to only lease land for the Rabi season from October to April, in order to secure the wheat harvest, which is a main staple crop for Pakistan. The main Kharif crops are rice and cotton, which are both very important for farmers, providing both food and income.

The objective of the second project of PKMT and Roots for Equity was to promote food sovereignty as a political framework for achieving climate justice, as well as agroecological farming as a practical and implementable solution to climate change.

A further objective was to research the work being implemented in order to understand the socioeconomics of the landless people living in riverine areas.

As part of the project, one acre of leased land was provided to the most marginalized farmers in the riverine community for three years, as determined by the community itself. The first step was to identify crops that could be sown during the monsoon months (July to August) so that they could be harvested before the floods arrived. Discussions with elderly farmers and community members revealed that some crops could be sown and harvested in that time frame, including monggi and rawan lentils. Since these crops could be used for food, farmers were particularly keen to sow them, especially given that they had not been able to grow any crops in the previous years. For the three years, farmers harvested wheat in the Rabi season and monggi and rawan in the Kharif season.

Farmers raised various concerns during discussions, with numerous reporting the high costs of land leasing (around PRs 25,000–30,000, equivalent to \$200) for a 12-month period. In addition to this amount, production and farmers' labour (livelihood) must be made on the land. Some farmers also noted that they had difficulty even finding land to lease, as large-scale farmers were not willing to lease to poor farmers. For these farmers, landlessness was the biggest challenge. Sometimes, if land was provided later in the cycle, seeds could not be sown at an optimal time, which reduced harvest yields. One farmer pointed out that using sustainable agriculture methods helped to improve the land's fertility, but that in doing so, they risked the landlord refusing their leasing of the same land the following year. Those who worked as sharecroppers faced similar issues, noting that they were required to till the land at the behest of the landlords, who did not favour

sustainable agriculture practices, traditional seed varieties or agroecological farming methods. It was also reported that access to animal manure was problematic for landlords, since their lack of space for livestock and capacity to grow fodder meant they kept limited animals. This therefore creates a vicious circle, as a lack of land results in fewer resources being maintained that are crucial for accessing agricultural inputs.

Since the initiative was based on promoting agroecological farming practices, farmers who agreed to participate in the programme knew that indigenous and local seed varieties had to be used, as well as traditional fertilizers, such as animal manure and compost. Farmers were asked to identify biological pesticides that had been used for generations. In addition to a spray made from neem leaves, farmers identified several other plants and herbs that could be used for such a purpose.

During the three-year cycle, farmers were able to gradually increase their yield every year. Although the yields were lower than those attained through conventional agriculture practices, particularly in the first year, farmers were still able to benefit, as there were no additional costs involved, such as those incurred when purchasing expensive chemical fertilizers and pesticides. Practising sustainable agriculture methods significantly reduced such costs, especially through sourcing animal manure within the community. For almost all the farmers, the harvest yields were enough to meet their needs for an entire year, including the flood season. Another major gain for the farmers was that they were able to obtain seeds to sow in the following season. Farmers also reported that the quality of the harvests were better, noting that the taste and softness of bread made using their wheat was different to that of the mainstream wheat obtained from industrial, chemical-based production.

A total of 57 farmers, both men and women, benefited from this initiative. Most had wheat for the whole year and were able to earn some income from selling monggi and rawan. According to the farmers, they were also able to save money through practising sustainable agriculture.

In Ghotki and Multan, livestock were distributed, including goats to 40 families and sheep to 39 families. To be eligible to receive the livestock, the community was required to identify its women most in need and agree to donate half of any offspring to another woman in need. Over a three-year cycle, the indigenous breeds multiplied manifold. In total, 215 livestock were distributed, all of which were local breeds.

This initiative clearly demonstrates the multi-pronged benefits of control and ownership of land and productive resources such as seeds and livestock. Without land, farmers are unable to resolve their hardships. Land ownership would therefore address their immediate and long-term issues, as well as helping to mitigate any climate change impacts they face, since they would be able to grow secondary crops, thereby providing them with food and a means of income.

According to community feedback, the sustainable agriculture component of the project directly addressed the needs of community members who are caught in the poverty cycle imposed by landlords and corporations. Landless farmers were taking out loans for leasing land, ploughing, purchasing seeds, fertilizers and pesticides, and harvesting. At the end of the cycle, once they had paid back the loan to the landlords, these farmers were left with no savings. Unfortunately, this is also the case for small-scale farmers with small plots of land.



Roots/PKMT Seeds Exhibition, Arts Council of Karachi, Pakistan, 2017

Conclusion

The seed-saving and sustainable food systems approaches warrant serious consideration. Although seed saving was a slow and onerous process, PKMT managed to carry it out and small-scale farmers were willing to take the steps needed to save their seeds. It was evident that PKMT's landless communities did not take part in

the initiative as they lacked the critical resource for doing so – land.

The second approach, which took the form of an experimental project, assessed the impact of land ownership on landless communities in terms of livelihood, sustainable agricultural practices, and food and nutritional security. The project's outcomes were highly encouraging, but hinged on

land ownership or access to land, thus demonstrating PKMT's need to focus its work on addressing fair land distribution. Without land ownership and access to and control of resources, small-scale farmers cannot create sustainable food systems nor have food sovereignty, which means sustainable land use and conservation of genetic resources will remain nothing more than elusive goals.

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About the Organisation:

Roots for Equity works with the most vulnerable, marginalized communities that include small and landless farmers, women and religious minorities in the rural and urban sector. The inequities in society are a result of the oppression and exploitative forces of feudalism, imperialist corporate hegemony often termed as globalization, and patriarchy. We believe that a democratic base is essential for the social and economic development of the country. This is not possible without mobilization of communities themselves; no doubt only socially conscious and politically active communities can demand and achieve social justice. Roots remains committed to being an active part of communities' struggle to achieve political, social, environmental and economic justice.

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