Seed Sovereignty and Indigenous Futures: A Situational Report on Agroecology, Policy, and Community Practices in India

Abstract
This report presents a critical analysis of seed sovereignty among Indigenous and Adivasi communities in India, focusing on the threats posed by corporatisation, state policy, and climate change. Drawing from recent research, fieldwork, and ongoing projects such as the RLS–Keystone initiative, it outlines the contours of seed systems shaped by history, global power structures, and community resistance. Anchored in agroecological and rights-based perspectives, this report is intended as a policy advocacy document for national and international forums.

Introduction: Seeds as Sites of Struggle

The discourse on seed sovereignty in India is situated at the intersection of ecological sustainability, Indigenous rights, food justice, and agrarian livelihoods. Seeds, as bearers of genetic memory, culture, and resilience, are far more than agricultural inputs. They carry within them entire ways of life, rooted in biodiverse landscapes and traditional ecological knowledge. The increasing corporatisation of agriculture, state-led promotion of monocultures, and the erosion of community-held seed systems have triggered growing concern across farming communities, civil society, and research institutions. This report provides a detailed account of the current state of seed sovereignty in India, drawing on documentation, policy review, community knowledge, and deliberations from two regional workshops conducted in the Western and Eastern Ghats as part of the ongoing Seed Sovereignty project supported by Rosa Luxemburg Stiftung and Keystone Foundation.

Historical and Political Context

India has a rich agricultural legacy dating back over 10,000 years, shaped by cultural diversity and ecological adaptation. Indigenous and Adivasi communities across India historically cultivated a wide variety of crops suited to specific soil, climatic, and cultural conditions. Traditional farming systems such as shifting cultivation, polyculture, and rainfed agriculture ensured dietary diversity, soil regeneration, and climate resilience. However, this legacy was significantly disrupted by colonial land revenue systems and further altered by post-independence agricultural reforms.

The Green Revolution, launched in the 1960s, marked a turning point. While it was promoted as a solution to food insecurity, it ushered in monocultures of rice and wheat, heavily dependent on chemical inputs and irrigation. Traditional seed varieties, once shared and saved by farming communities, were sidelined in favour of high-yielding varieties (HYVs). The Green Revolution also facilitated the emergence of state-supported seed research institutes and policies favouring industrial agriculture. In the decades that followed, the introduction of genetically modified (GM) crops, intellectual property rights, and global trade agreements further narrowed the space for community-held seed systems.

Global Contexts

Up until 1960, national seed systems were largely based on the principle that stored seeds should be available to anyone in need—however, everything changed with the establishment of the International Union for the Protection of New Varieties of Plants (UPOV) in 1961, and subsequently revised in revised in 1972, 1978 and 1991. UPOV stated aim is to "To provide and promote an effective system of plant variety protection, with the aim of encouraging the development of new varieties of plants, for the benefit of society."—subsequent limits of the production, sale, and exchange of seeds are meant to encourage innovation through privatisation and monopolisation, which requires that seeds must be genetically distinct, uniform, and stable. However, most ordinary seeds do not meet this criteria.

Though there is no legal obligation to sign onto UPOV, countries within the Global North—including Canada, member states of the European Union, Japan, Switzerland, and the United States—have used bilateral and regional trade agreements to pressure countries in the Global South to join.

Subsequently, four corporations—Bayer (formerly Monsanto), Corteva, ChemChina, and Limagrain—control more than 50% of the world's seed supply. The results on biodiversity are staggering—in Germany alone, 75 percent of vegetables grown at some point between 1836 and 1956 no longer exist. Decreasing biodiversity has severe implications for farmers' resilience. By creating more genetically uniform pools of seedstock, food systems across the world are more vulnerable to environmental stressors, and farmers find themselves overwhelmingly economically dependent on single crops. Instead of harnessing the benefits of diversification—including improved soil health through growing a diversity of crops, thus benefiting people, livestock, and ecosystems—farmers instead find themselves in increasingly precarious positions.

McMichael and Friedman (1993) pioneered the term food regime— a "rule-governed structure of production and consumption of food on a world scale"—to describe how states reconfigure food systems in the construction and development of the global capitalism. Combined with Patel's (2012) analysis of the "long Green Revolution", we begin to understand UPOV as a key policy that upholds the tenets of the Green Revolution; that privatisation, monopolisation, and technological advancement (through genetic modification of seeds, increased chemical inputs via fertiliesrs and pesticides, etc.)—will solve the global food crisis. It should be noted that evidence does not necessarily support such a conclusion: though total food production in the "developing world" more than doubled between 1960 and 1985 (the core years of the first Green Revolution), the number of hungry people increased by more than 11%, and while food production has increased, the Green Revolution has not presented an "escape from hunger".

Within this global context, the notion of seed sovereignty—defined by Bharat Beej Swaraj Mach as the "farming communities' and indigenous peoples' sovereign rights over their collective bio-cultural heritage, including the right to freely plant, use, reproduce, select, improve, adapt, save, share, exchange or sell seeds, without restriction or hindrance, as they have done for past millennia."—has emerged as a crucial method of food sovereignty (defined by la Via Campesina as "the peoples', Countries' or State Unions' RIGHT to define their agricultural and food policy"), and a foil to Green

Revolution rhetoric that has come at the cost of farming communities and global biodiversity. Development interventions that fail to respect seed sovereignty and reduce control over seed systems have been shown to be unsustainable and harmful to farmers across the world (see Galie, 2013, Gough et al., 2003, Magrini and Vigani, 2016, Meles et al., 2009, and Nabuuma et al., 2022,) —thus, seed sovereignty is not only a question of rights, but also of food security and wellbeing.

Social movements across the world have spent decades advocating for seed sovereignty. In Benin, over 90 civil society organisations came together to prevent the country from formally joining UPOV, while organizations including the Alliance for Food Sovereignty in Africa (AFSA), the Zambia Alliance for Agroecology and Biodiversity have been working against the influence of the Alliance for Green Revolution in Africa (AGRA) and the African Continental Free Trade Area (AfCFTA), both of which have pushed for plant variety protection (PVP) laws aligned UPOV 1991 that would further jeopardise seed sovereignty across the continent.

In Latin America, ANAFAE (la Asociación Nacional para el Fomento de la Agricultura Ecológica/National Association for the Promotion of Ecological Farming) spent almost nine years fighting the Honduran Congress' Law for the Protection of Plant Varieties (another PVP law) in court, which was finally deemed unconstitutional, on the grounds that it :

> "(1) represented an attack on the country's sovereignty and right to self-determination, by granting plant breeders' rights over native seeds and plant varieties for commercial use, to the detriment of the free use of wealth and natural resources; (2) violated constitutional principles for life, human dignity and the right to an adequate standard of living; (3) represented an attack on the human rights to nutrition and health; (4) contradicted the obligation of the state to preserve the environment so as to protect the health of its population; and (5) contravened the constitutional and international duty of the state to protect Indigenous cultures and farmers' rights."

In Argentina, trade unions led a nation-wide strike against the Milei government's "Omnibus Law", which, alongside other deregulation measures aligned with the government's libertarian politics, included joining UPOV 1991—a direct attack to Argentina's Seed Law (No. 20.247 of 1973), which guarantees farmers' rights over the fruits of their harvests. The Zapatista communities in Chiapas have also championed seed sovereignty, framing Indigenous seed varieties as a protected commons and strengthening their subsistence agriculture in their ongoing resistance against corporate power over the world's seed supply.

Examples:

Bharat Beej Swaraj Mach Seed Sovereignty Declaration (India)
NFU Farmers' Seed Act (Canada)
UPOV-aligned PVP laws impinge on farmer seed systems (African Center for Biodiversity)

Seed Systems in Transition: Community Knowledge and Biodiversity Loss

The erosion of Indigenous seed systems has been uneven but profound. In many Adivasi regions—such as Latehar in Jharkhand, Kandhamal in Odisha, and parts of the Nilgiris—older farmers still recall cultivating up to 40 varieties of rice, multiple millets, legumes, and root crops. Today, only a handful of those varieties survive, maintained by a shrinking circle of seed keepers. The shift towards

commercial agriculture, incentivised through subsidies and the Public Distribution System (PDS), has weakened traditional seed-saving practices. The normalisation of rice and wheat as dietary staples, despite their ecological unsuitability in many Adivasi areas, has accelerated the loss of crop diversity.

Seed systems in these communities are embedded within broader food systems that include wild and uncultivated foods, seasonal diets, and gendered knowledge transmission. Women often play a central role in selecting, saving, and processing seeds. Yet, this role is increasingly undervalued in both formal agriculture extension and policy frameworks. The decline of traditional tools, granaries, and processing techniques also points to a more insidious erosion of cultural and ecological memory.

Workshops and Field Sessions: Learning from the Ground

Two regional workshops conducted under this project—one in the Western Ghats (Wayanad) and one in the Eastern Ghats (Andhra Pradesh)—have informed our understanding of the issues surrounding seed sovereignty. These were designed as participatory learning spaces, combining field visits, storytelling, community seed mapping, and policy dialogues.

In the Western Ghats workshop, which was held in the 3rd week of September in Wayanad (Kerala) along with the Using Diversity network. This meeting saw a gathering of farmers and seeds savers from Maharashtra (Sindhudurg, Raigad) from the Katkari and Kolam community, Karnataka (Mysuru, HD Kote) from Jenu Kuruba communities, Tamil Nadu (Pillur) from the Irula community, Kerala (Wayanad, Nilambur) from the Paniya and Kattunaickan communities. There were representatives from 11 tribal communities in 4 regions of the Western Ghats region with the objectives of seeds and food sovereignty, nutritional security and rights over their land. There were rich conversations, interactions and meetings over the two days. The meeting was formally inaugurated by Hon. Block Panchayat President Shri. Justin Baby. Mr. Rajeev Khedkar (Social Science Expert, Maharashtra) spoke about the importance of community-led initiatives in seed conservation and food security. Keystone Foundation Founder Director Snehlata Nath (Tamil Nadu), Sahaja Samrudha Director Mr. Krishna Prasad (Karnataka) also addressed the meeting participants with their own experiences in the importance of adivasi food security through community-led efforts. As part of the meeting, Mr. Leneesh K., Farmer and Director of Samadhatu, spoke about the diversity and contemporary importance of Wayanad's rice seed varieties. Following this, the team visited the farm of Cheruvayal Raman, a Padma Shri awardee and learned about conserving traditional rice varieties. Mr. PJ Manuel, renowned agriculturist, winner of the State Plant Genome Saviour Award, and member of Edavaka Gram Panchayat Biodiversity Monitoring Committee spoke about the process, challenges and importance of preparing the People's Biodiversity Register and how communities can contribute to the register. The group also visited the farm of Noorank, a Bettu Kurumba women's group protecting the diversity of tuber varieties. The programme concluded with an interactive session on the subject of farmers' sovereignty over seeds, and community experiences on Indigenous Seed Sovereignty & Seed Savers Rights.

A second in-person meeting was held at Andhra Pradesh with Seeds Savers groups and farmers from the Eastern Ghats from November 7th to 9th, 2024. The meeting was planned in collaboration with local partner NGOs, Sanjeevini Environment Protection Society and Velugu Association, who have been working for nearly 3 decades with the tribal and vulnerable communities in the Visakhapatnam and Srikakulam region and preserving their rich seed and crop diversity.

As part of this meeting, there were discussions on seed conservation experiences especially in conserving local varieties that are grown by indigenous farmers of the region. Over the meeting days, we discussed seed conservation experiences from this region and set up a seed display. This meeting was attended by indigenous farmers and seed savers, professors and researchers from agricultural departments and colleges, as well as government officials from the panchayat and district levels. The meeting was held at Araku and field visits to their seed savers, diversity blocks and working areas at Paderu were organised.

The meeting was held at Paderu, in Sanjeevini BioDiversity Block, Killoguda village, near Araku, Alluri Sitarama Raju District, AP. The inauguration session included a ceremonial lamp lighting around the altar of seasonal seed varieties and honouring the late Ammaji, who was a phenomenal leader and advocate of natural farming and seed diversity in this region. Agricultural officers from the mandal, panchayat leaders, professors from Acharya N. G. Ranga Agricultural University (ANGRAU) and representatives of the Rythu Sadhikara Samstha (RYSS), Andhra Pradesh Community Managed Natural Farming (APCNF) held discussions with farmer groups on the key issues related to growing food, saving seeds and ensuring food sovereignty. The discussions revolved around the importance of protecting native varieties of millets, vegetables, tubers, and other crops through creating diversity blocks and developing climate resilient and drought resilient crops. There were also discussions on how the rights of seed savers ensure seed sovereignty for the entire community and region, including registering of seed varieties, conducting research and documentation on high yielding varieties and supporting farmer initiatives in the region.

Day 1 was attended by nearly 95 participants, from various PVTG communities of the Eastern Ghats, including Konda Dora, Mukhadora, Bhagata, Gadaba, Porangi Porja, Kammara, Duliya, Khonds, Kotiya, Saura and Jatapu. All of them practise natural farming and traditional agriculture but also depend on forest produce for their diet diversity. There was a vibrant display of seeds and traditional varieties in 10 stalls at the venue, showcasing diverse millets, vegetables, tuber and uncultivated food varieties. Over the years, Sanjeevani NGO has documented many seed varieties especially related to millets, cereals, beans, tubers, etc. On Day 2, the participants visited Demuduvalasa and Gondiguda villages in the Sovva valley and were introduced to 2 diversity blocks. This region is known for its indigenous crop diversity and natural farming practices that have enabled 50+ native rice varieties, 100+ tuber varieties and medicinal plants and many other vegetables, cereals and food crops that are locally grown through innovative techniques round the year. There are nearly 4 crop cycles in the year, sometimes even with no water or irrigation facilities. During the visit, there were discussions on how this work was made possible through training, encouraging seed savers, farmer support and development of diversity blocks through Sanjeevani NGO and its associated FPOs and support from the AP government. On Day 3, a smaller part of the group travelled to Kotturu in Srikakulam district, to engage with the work being taken up with Velugu Association in the Saura and Jatapu communities' regions. Field visits were organised to the Dwarabanda and Addangi village, where a group of Saura community members discussed various issues related to land, forest based livelihoods and associated challenges. The discussions over the day also revolved around how slowly communities are losing their traditional grain varieties, but the presence of FPOs through Velugu Association and government programmes gives a boost to agriculture of high yield crops such as rice, cashew, mango, custard apples, etc. There were discussions on how land security is directly linked to

food security and the contemporary challenges of sustaining agricultural practices in remote areas especially amidst a breakdown in cultural ethos and high dependence on the public distribution systems.

The two meetings were a really wonderful opportunity to learn from the grassroots movements related to land, labour and agriculture in the Western and Eastern Ghats region. These were held in collaboration with Adivasi farmers and grassroots groups, discussions focused on the pressures of market integration, government schemes promoting hybrid seeds, and the steady displacement of traditional millet cultivation. Participants from indigenous communities shared practices of seed selection and exchange that were previously part of seasonal rituals. The workshop also highlighted the emergence of new challenges, such as the contamination of traditional seed varieties due to cross-pollination with hybrids, and the encroachment of commercial interests even in organic value chains. This meeting concentrated on the intersection of seed saving and women's knowledge. Several participants recounted how customary seed festivals, like the Burlang Yatra, served as sites of exchange, governance, and intergenerational learning. The discussions also revealed the risks of biopiracy, with seed companies and research institutions increasingly targeting Adivasi territories as repositories of "raw genetic material." These sessions reaffirmed the need to build safeguards around collective intellectual property and to prioritise community governance in any seed-related initiative.

Policy Landscape: Between Protection and Precarity

India's legal and institutional framework offers a patchwork of protections for farmers' seed rights. The Protection of Plant Varieties and Farmers' Rights Act (PPVFRA, 2001) recognises the rights of farmers to save, use, exchange, and sell farm-saved seed. However, the Act has limited reach in many Indigenous territories, where communities are unaware of their entitlements. The Biological Diversity Act (2002) and Forest Rights Act (2006) also contain provisions to protect traditional knowledge and community governance over biodiversity, but enforcement remains weak.

At the same time, the proposed Seed Bill has raised alarm for its potential to criminalise the possession and exchange of unregistered seeds. If passed, it could undermine centuries-old community practices and empower seed inspectors to penalise smallholder farmers. This shift aligns with broader trends toward centralisation and the privatisation of seed systems. The expansion of intellectual property regimes under TRIPS and pressure to align with UPOV 1991 further threaten India's relatively progressive stance on farmers' rights.

oday, a handful of multinational corporations—such as Bayer, Syngenta, and Corteva—dominate the global seed market. Their growing presence in India, including in tribal and forested areas, has led to the gradual marginalisation of community-led seed banks. Seed replacement campaigns by state agencies often coincide with aggressive marketing by these corporations, leading to a loss of autonomy and ecological mismatch.

However, civil society organisations and farmers' networks continue to push back. Initiatives like the ASHA Network, Deccan Development Society, and Sahaja Samrudha have pioneered seed festivals, community seed banks, and participatory plant breeding. These efforts have provided platforms for seed exchange, farmer-led experimentation, and rights awareness. The Bharat Beej Swaraj Manch

has also played a significant role in developing a political vocabulary around seed sovereignty that integrates food sovereignty, ecological justice, and community rights.

Climate Change, Nutrition, and the Need for Resilience

Climate change adds a critical dimension to the debate on seed sovereignty. Indigenous and traditional seed varieties—often drought-resistant, pest-tolerant, and requiring minimal external inputs—are key to climate adaptation. For example, saline-tolerant rice in Gujarat's coastal regions, or drought-resistant millets in the Deccan Plateau, hold significant promise for climate-resilient farming.

Moreover, diet diversity linked to traditional crops contributes directly to health and nutrition. The marginalisation of these crops, often seen as "poor man's food," has coincided with rising rates of anaemia, lifestyle diseases, and undernourishment. Revitalising traditional seed systems is therefore not only an ecological or economic imperative but also a public health strategy.

The question of seed sovereignty in India is not just a policy debate—it is a lived reality for millions of small and marginal farmers, especially Indigenous communities. The findings from this project reaffirm the need for a rights-based, community-led approach that values local knowledge, decentralised governance, and ecological integrity. Any future efforts must centre the voices of seed keepers, especially women, and recognise their roles as custodians of both biodiversity and cultural heritage.

Policy advocacy should push for stronger implementation of existing laws, resist coercive legislation like the Seed Bill, and support Panchayat-level biodiversity registers. Educational outreach in schools, community radio, and seed literacy campaigns can play a crucial role in reclaiming the narrative around seeds. Finally, digital platforms must be used with caution, ensuring that data on Indigenous seed systems remains under community control.

In a time of global ecological crises, Indigenous seed systems offer grounded, regenerative, and dignified alternatives. Supporting them is not merely an act of preservation—it is a commitment to justice, sovereignty, and sustainable futures.

Policy Recommendations

To strengthen seed sovereignty in India, the following recommendations are proposed:

A. Legal Reforms

- Amend the Seed Bill to include safeguards for Indigenous seed systems.
- Enforce benefit-sharing provisions of the Biological Diversity Act and establish community-level access protocols.
- Support collective IPR mechanisms and resist UPOV-aligned legislation.

B. Institutional Mechanisms

- Strengthen Biodiversity Management Committees (BMCs) to document crop diversity at the Gram Panchayat level.
- Facilitate Panchayat-level Seed Registers and Traditional Knowledge databases.

C. Support Systems

- Provide funding for Indigenous seed banks through state rural development schemes.
- Include uncultivated foods and minor millets in the PDS and midday meal schemes.
- Promote agroecology curricula in rural schools and support community knowledge exchanges.

D. Safeguarding Information

- Develop protocols for digital platforms like the proposed Seed Diversity in India website, ensuring community control over data and narratives.
- Avoid open access databases that could expose Indigenous communities to seed appropriation.

Conclusion and Learnings

Seed sovereignty is central to any vision of ecological justice and democratic food systems in India. Indigenous communities, long marginalised by state and market forces, are now asserting their rights over seeds, knowledge, and food systems. The task for policy and civil society is to listen, learn, and legislate—not merely in recognition, but in active support of these community-driven futures.

The primary **thematic focus** of this project evolved into - Community Food Systems, Land Resources of Communities, Access to Common Lands & Forests, Food Grower's Rights, Food Sovereignty, Seed Sovereignty, Seed Savers, Adivasi Food Systems, Access to Collect Food & NTFPs, Indigenous-Adivasi Rights, Farmer's & Food Producer's Rights. It was impossible to talk merely about seeds sovereignty, without addressing the gamut of concepts around it, especially amongst indigenous communities. The report will also be touching upon these topics along with other pressing concerns.

Based on the discussions over the project period, the primary knowledge gaps seemed on seed sovereignty debates seemed to in (a)The literature gaps in understanding intellectual property of community-owned seed varieties and the implications of existing policies on indigenous food systems (b) the limited understanding amongst farmer groups about the different legalities that govern their land, agricultural and seed systems {c) Documentation on diverse adivasi agricultural systems and the natural seed selection/seed survival process that has been traditionally practiced (d) Heirloom seeds and their positive impact on health and nutrition of indigenous communities and therefore the need to safeguard them under special measures (e) Climate change and market impacts on adivasi seed savers and agriculturalists. We have considered all these points while developing outputs that are public facing as well as community facing.

There are several ground level strategies that farmers are adopting to safeguard their seeds and integrity of their agricultural produce. Apart from resisting commercial interests and chemical agriculture, some farmer groups in Kerala are also taking up People's Biodiversity Registers (PBRs) mandated by the Biological Diversity Act of 2002, as a way to list out and represent their indigenous varieties of cultivars and traditional crops. There are also varied positions on the Protection of Plant Varieties and Farmers' Rights Act, 2001 (PPVFR Act). While some indigenous farmer groups are registering their seed varieties under individual farmers' names, other groups are resisting this, as the act of registering itself dilutes the collective wisdom or group farming practices of communities that went into conserving and protecting a variety. In other cases, the creation of a Farmers Producers Organisation (FPO) is seen as a process of collectivisation to resist market pressures and protection of indigenous seed varieties. The latest Seed Bill of 2004 has also evoked several debates and discussions from all stakeholders involved on the efficacy of such a policy. Overall, the theme of this project has various socio-eco-political implications. While it is not possible to cover all the debates ongoing in this arena within the project period alone, the need for more conversations and advocacy in favour of indigenous seed sovereignty is evident and working towards this end is highly relevant to communities and policy makers alike.

References and Resources

Saxena, L.P. (2020). Community Self-Organisation: Burlang Yatra and Revival of Millets.

Patel, R. (2012). The Long Green Revolution.

McMichael, P., & Friedman, H. (1993). The Food Regime.

Mugwagwa et al. (2009). Socioeconomic Impacts of GMOs.

Frempong et al. (2009). Cowpea Networks and Food Sovereignty.

Bharat Beej Swaraj Manch. Seed Sovereignty Declaration.

ASHA Network, MAKAAM, DDS, Keystone Foundation archives.