OPEN ACCESS
Global Journal of Research in Agriculture & Life Sciences
ISSN: 2583-4576 (Online)
Volume 06 | Issue 05 | Sept.-Oct. | 2026
Journal homepage: https://gjrpublication.com/gjrals/
Research Article

Knowledge Agriculture® and the 2030 Hunger Horizon: Bridging Climate Risk and Indigenous Wisdom

*Prof. Dr. H. O. Srivastava, FIETE [1] and Aprajita Srivastava [2]

[1,2] World Development Foundation, New Delhi, India.
[1]**ORCID**: 0000-0002-4813-4441 | [2]**ORCID**: 0000-0003-4249-7927

DOI: 10.5281/zenodo.23724228 **Submission Date: 30 Aug. 2026 | Published Date: 28 Oct. 2026**

***Corresponding Author:** **Prof. Dr. H. O. Srivastava, FIETE**
World Development Foundation, New Delhi, India.
E-mail: drhosrivastava@gmail.com
ORCID: 0000-0002-4813-4441

Abstract

*The global food system is under mounting pressure from rapid climate change, leaving many farming regions increasingly vulnerable. Yet the forecasting models used by international organizations often fall short — they struggle to capture how frequently environmental shocks occur together and how their combined impact disrupts agriculture in ways that single-factor predictions miss. Extreme weather, loss of natural resources, and economic instability are now joining forces to threaten the stability of food supply chains worldwide. Meeting the challenge of the 2030 Hunger Horizon is more than responding to disasters. It requires an effort that looks at climate risks, local farming conditions, and the financial limits of public support systems. In this paper we build on the concept of Knowledge Agriculture® first introduced in *Smart Farming and Ancient Wisdom: Agricultural Knowledge for Global Food Security*. This approach mixes ecological knowledge with modern tools such as remote sensing, predictive modelling, and secure digital systems. By introducing the role of the Agro-Informatician, a professional skilled in both soil science and technology, we show a model for adaptation. Our goal is to show how mixing ethics, technology, and tradition can build a foundation for a resilient food security system in the decades ahead.*

Keywords: *Climate change, Food insecurity, 2030 Hunger Horizon, Knowledge Agriculture®, Agro-informatics, Smart farming, Indigenous ecological wisdom, Food security governance.*

1. Introduction

Climate change, environmental degradation, and resource scarcity pose significant challenges to global food security. Increasing temperatures, droughts, floods, and extreme weather events threaten agricultural productivity, food availability, and the livelihoods of farming communities. Achieving Sustainable Development Goal 2 (Zero Hunger) by 2030 therefore requires integrated approaches that strengthen agricultural resilience and ensure equitable access to food.

Knowledge Agriculture® offers a conceptual framework that combines indigenous ecological wisdom, sustainable farming practices, and modern technologies such as remote sensing, artificial intelligence, and predictive modelling. It emphasizes the responsible management of natural resources and the integration of ethical principles into agricultural production and food distribution.

This paper examines the relationship between climate risks, agricultural productivity, and food-security systems. It explores the potential role of agro-informaticians and proposes Knowledge Agriculture® as an integrated approach to climate adaptation, sustainable resource management, and resilient food systems in the context of the 2030 Hunger Horizon.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

2. Key Research Findings. Risk Projections

Our findings show a growing gap between the clear predictions of standard models and the complex realities of climate-related disruptions. Traditional agricultural economics often assumes that crop yields will decline gradually and steadily and that trade adjustments can mitigate this. However, the data shows something disruptive: situations where multiple crises happen together, pushing food systems beyond critical thresholds. Instead of slow declines, we see the risk of multiple crop failures, sudden market disruptions, and local breakdowns that impact global supply chains. Table 1 shows the Baseline vs. Accelerated Scenarios.

Table 1: Baseline vs. Accelerated Scenarios

Baseline Projections (Linear Impacts)	Accelerated Polycrisis Scenarios (Compounding Shocks)
Yield Dynamics: Annual reductions in cereal yields of 5–15% by 2030 which can be managed through crop improvement and farmland expansion.	**Yield Dynamics**: Non-linear crop failures with losses exceeding 30–50% in key production areas triggered by simultaneous heat and water stress.
Market Mechanics: Predictable price increases that can be handled by trade rerouting and using stored supplies.	**Market Mechanics:** Market breakdowns, distorted price responses, and hoarding during sudden crises.
Sovereign Safety Nets: Public food distribution systems work within budget needing small financial adjustments.	**Sovereign Safety Nets:** Rapid use of emergency reserves, reduced credit ratings due to emergency imports, and failure to protect vulnerable groups.
Resource Depletion: Slow loss of soil and groundwater is balanced by fertilizers and conventional irrigation.	**Resource Depletion:** Environmental thresholds crossed. Such as soil oxygen depletion, groundwater exhaustion, and bee population decline leading to system-wide breakdowns

3. Strategic Recommendations & Suggested Transition

To keep the food system from collapsing under escalating climate stress, decisive action is essential. International organizations, national governments, and research institutions must move beyond adjustments and adopt major reforms. Four main actions are recommended:

3.1 Implement Knowledge Agriculture® Governance

Integrate ecological knowledge, such as crop choices based on local climate, soil restoration practices and seasonal Farming, with modern technologies like real-time data analysis and remote sensing. This combination ensures that technology supports, not replaces, established farming practices.

3.2 Create Agro Informatician Programs

Universities should develop training programs for Agro Informaticians. Experts who blend hands-on agronomy with digital modeling and data science. Their role is to link field farming with technologies such as sensor networks, predictive systems, and big data analysis.

3.3 Adopt Precision Conservation Frameworks

Use satellite-based Earth observation tools (such as NASA's SMAP, MODIS/VIIRS and Landsat) to monitor soil moisture, expand irrigation and promote sustainable practices like no-till farming. These frameworks ensure that resources are managed effectively both locally and globally.

3.4 Incorporate Ethics into Distribution Systems

Add an ethical foundation to food distribution. Blockchain and smart contracts can stop manipulation, prices and hoarding when emergencies happen. Ethics must be seen as core infrastructure, not a side issue. These ideas rest on the fact that big climate changes make small farm problems worse. If we do not rethink risk views and mix ethics, rules, and data tools into food systems, we will keep finding it hard to build resilience.

4. Global Risk Perception and the Environmental Polycrisis

4.1 Strategic Context Institutional Scope

The global food system is not a collection of separate parts, but a complex and changing network that lives inside Earth's natural limits. The term "environmental polycrisis" describes how individual disruptions — such as soil erosion, water scarcity, loss of biodiversity, and increasing temperatures — interact in complex and non-linear ways. Together, these changes create a level of systemic stress that is much greater than the sum of their individual effects. Therefore, evaluating vulnerability must go beyond testing for single climate factor. It is necessary to model feedback loops that link ecological breakdowns with financial markets, trade systems, and rule-making frameworks.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

4.2 Report Synthesis of Intergovernmental Survey

A quick look at institutional studies shows that more climate pressure is pushing food systems into dangerous places.

- World Economic Forum (Global Risks Reports): Highlights loss of species, collapse of ecosystems, and extreme weather that disrupts supply chains. Failures in agricultural market integration contribute to Global political tension.
- Intergovernmental Panel on Climate Change (IPCC AR6): Indicates that under high emission scenarios (SSP5 8.5), the chance of simultaneous failures in multiple major grain-producing regions shall rise by over 400% by 2050 due to combined heat and drought events.
- UN Environment Programme Finance Initiative (UNEP FI): Connects the loss of natural capital with greater financial instability. Soil degradation and water shortages raise the risk of debt, increase in loan defaults, and weaken crop insurance systems.
- World Health Organization (WHO): Shows how agricultural shocks lead to public health issues — worsening child malnutrition, micronutrient deficiencies, and spreading vector-borne diseases among displaced communities.

Different global organizations emphasize connected risk areas as outlined in Table 2. Together, their findings show how climate stress leads to food insecurity.

Table 2: Institutional Risk. Food Security Implications

Organization	Primary Risk Domain	Key Indicators	Implications for Food Security
World Economic Forum (WEF)	Supply chain & geopolitical volatility	Commodity price shocks, supply chain interruption metrics, trade protectionism	Disruption of grain corridors, export bans, and speculative price volatility.
IPCC AR6	Physical climate & bio-thermal extremes	Radiative forcing trajectories, vapor pressure deficit anomalies, heatwave frequency	Direct crop failures, pollen disruption, and irreversible shifts in agro-ecological zones.
UNEP Finance Initiative (FI)	Macro-financial & sovereign debt risk	Natural capital impairment, agricultural NPL ratios, insurance loss-costs	Contraction of rural credit, sovereign downgrades, collapse of insurance markets.
World Health Organization (WHO)	Public health & nutritional vulnerability	Undernourishment prevalence, micronutrient deficiency rates, waterborne disease vectors	Nutritional degradation, erosion of human capital, chronic health crises, climate-induced displacement.

4.3 The Polycrisis Matrix: Interlocking Risk Drivers

The environmental polycrisis is not only one shock, but a complex network of reinforcing feedback loops. Unseasonal heat and water stress speed up soil erosion and reduce organic matter, which weakens the soil's capacity to hold water. This puts crops at higher risk during future heatwaves. When extreme weather affects crop yields beyond safe levels, production plummets. Food prices rise quickly because demand for basic foods doesn't change much. Countries that rely on imports face bigger trade deficits, which forces governments to take money away from infrastructure and education to provide emergency food support. This shift in spending worsens long-term risks. Using chemical fertilizers and taking too much groundwater adds to damage of natural resources. Farming communities get stuck in a cycle of poverty and loss of assets due to climate issues.

4.4 Section Transition

Assessments of institutions outline the major pathways that climate stress takes at a broad level. However, to accurately measure the true risk to global food supplies, we need to look at the physical processes — the exact ways that changes in temperature and water levels harm plant growth.

5. Agronomic Mechanics of Yield Failure Across the Four Dimensions of Food Security

5.1 Strategic Context & Agronomic Scope

At the individual level, food insecurity starts within the plant. Weather events disrupt biochemical processes, converting heat and moisture stress into actual losses in crop yield. These losses spread through commodity markets, causing instability in food security worldwide.

5.2 Thermal Thresholds and Extreme Weather Frequency

Most crops have growth within certain climate boundaries. When this boundary is exceeded for a short period of time during critical growth stages of the plant's life cycle, serious problems occur affecting the plant's reproduction and metabolism.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

- **Pollen Microsporogenesis Disruption:** Pollen sterility can occur when high temperatures (above 32°C for wheat and 35°C for rice) affect pollen development. Although the plant looks healthy, it produces no flowers, and the ears or panicles do not develop further.
- **Vapor Pressure Deficit (VPD) Acceleration:** Extreme temperatures above 32°C for wheat and 35°C for rice for short periods of higher heat and dryness push VPD beyond the capacity of plant vessels. Plants close their stomata to avoid water loss, stopping carbon absorption and causing damage, early leaf death, and shriveled grains.
- **Root Zone Soil Hypoxia:** Following a dry spell, heavy rainfall can flood the soil, depriving roots of oxygen. This will prevent nutrient uptake and cause root damage, and can encourage pathogens such as Pythium and Phytophthora.

5.3 Disruption of the Four Dimensions of Food Security

Environmental challenges spread throughout the entire food system, weakening all four key areas of food security:

- **Availability:** Lower crop production, loss of topsoil, and falling groundwater levels greatly limit the total amount of food that can be produced.
- **Accessibility:** Shortages in certain areas push prices up, making it harder for poor families to buy food. This often forces them to sell valuable resources to survive, which makes future food insecurity worse.
- **Utilization:** High temperatures and high vapor pressure deficit (VPD) stress harm the quality of main food crops, reducing their levels of important nutrients like zinc, iron, and protein. Also, mold grows more after harvest, increasing the risk of harmful mycotoxins.
- **Stability:** Extreme weather events reduce seasonal predictability in the, making old farming schedules unreliable.

This leaves farming communities with too little time to recover between disasters.

5.4 Structural Framework Visualization

Figure 1 shows how environmental stress causes problems in farming, which then weakens all four parts of food security, eventually leading to overall system failure.

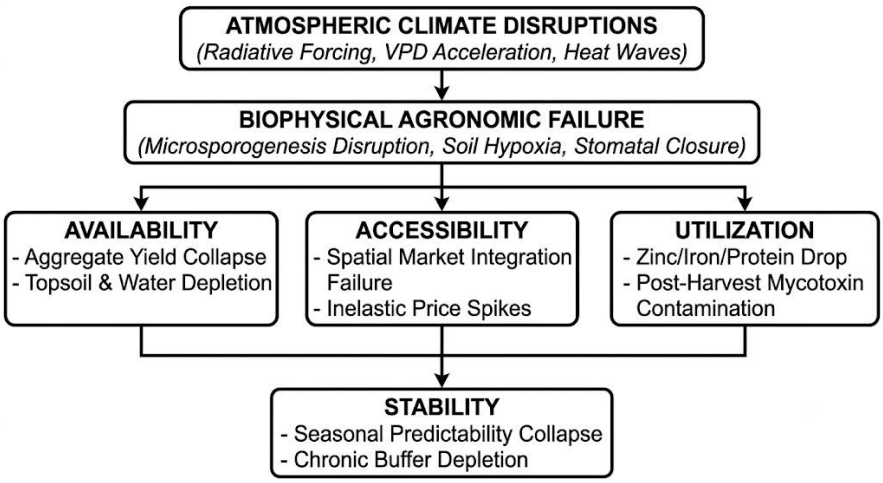

Fig.1: Structural Framework showing how atmospheric issues lead to farming problems.

5.5 Section Transition

The ways agricultural systems fail, as outlined earlier, directly influence the amount and price of staple foods. When these challenges occur, they clearly show the weaknesses in public food distribution systems creating more serious governance issues as we approach the 2030 Hunger Horizon.

6. The 2030 Hunger Horizon and Sovereign Safety Net Strain

6.1 Strategic Context and Policy Scope

As the 2030 deadline for the United Nations Sustainable Development Goal 2 (Zero Hunger) approaches, a dangerous gap has developed between traditional policy frameworks and the challenging realities of climate stress on the ground. Safety nets designed with the assumption of long-term climatic stability are now struggling under the pressure of sudden, intense weather calamity. Public systems responsible for purchasing, storing, and distributing food are being pushed beyond their operational limits, revealing deep structural weaknesses in national food security systems.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

6.2 Compounding Climate Shocks vs. FAO Baseline Projections

- According to FAO projections, nearly 600 million people are expected to remain chronically undernourished by 2030 under economic and climate conditions as of the date of the report writing and the projections. However, these projections have become invalid in the changing circumstances as below.
- **Inadequacy of Linear Model:** FAO models are based on the assumption that the minor decline in crop yields will be offset by the use of digital technology in agriculture and improvement in trade. This did not take into account the climate shock being seen now.
- **The Non-Linear Climate Gap**: Current levels of warming have resulted in a decline in agriculture yields in major agricultural regions. The existing food reserves are incapable of meeting the export demands due to this decline of yield as a result of frequent heatwaves and droughts in several regions of the world. Export bans, stockpiling, and price swings are leading to food insecurity affecting many more people than linear forecasts suggested.

6.3 Sovereign Safety Net Stress Test: India's PMGKAY / NFSA Case Study

India's food assistance system which is governed by the National Food Security Act and expanded through PMGKAY, provides free food to over 800 million people. Its effectiveness depends on the annual purchase of tens of millions of tons of rice and wheat at the Minimum Support Price (MSP), which is decided by the Government every year. However, the climate changes in India have resulted in several problems:

- **Terminal Heat Stress:** During the Rabi harvest season during March to April, unseasonal heat waves have been seen in Punjab, Haryana, and Uttar Pradesh. High temperatures during the grain development stage are resulting in faster plant aging, disruption in pollen formation, and shrinkage of kernels.
- **Procurement Shortfalls:** Lower grain weights and poor quality make it hard for agencies to fulfil their Central Pool targets.
- **Emergency Buffer Drawdowns:** To keep food rations available, the government uses strategic reserves. Prolonged climate shocks risk using up these reserves below safe levels.
- **Fiscal Strain:** To cover shortfalls, the government has to buy grain at higher market prices or import food. This results in diversion of funds that should be used for long-term infrastructure. This also makes the distribution systems more vulnerable to price increases and local supply chain breakdowns.

6.4 Hunger Expansion in 2030 & Safety Net Strain

Figure 2 illustrates how a single climate shock can trigger a cascading chain of failures. First, harvests falter, and procurement targets are missed. This forces governments to dip into reserves, which quickly run thin. To fill the gap, states turn to costly open-market purchases, but these strain budgets and destabilize distribution systems. As safety nets weaken, millions more are pushed into hunger — expanding the crisis as we move toward 2030.

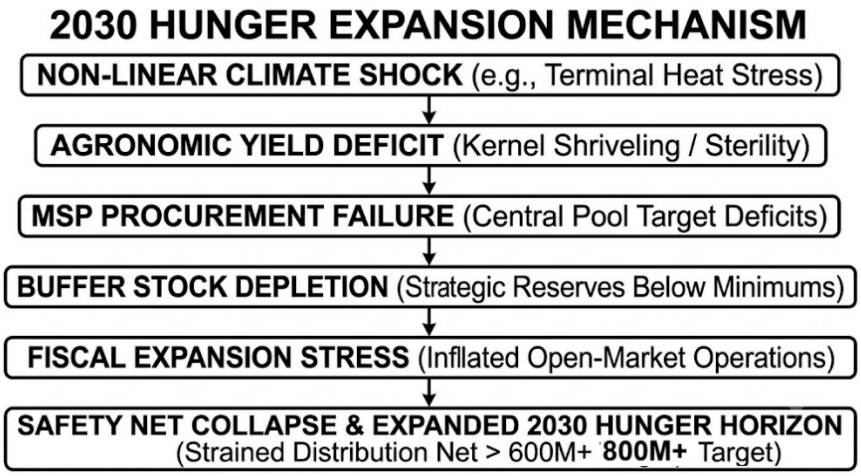

Fig. 2: Safety net collapse in 2030

6.5 Section Transition

Dealing with the weaknesses found in safety net stress tests needs more than just allocating more finances. What is needed is a long-term, planned approach to agriculture—one that combines modern technologies with environmentally friendly farming methods to build resilience instead of just fixing problems.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

7. Mitigation and Adaptation via the Knowledge Agriculture® Paradigm

7.1 Strategic Context & Paradigm Scope

The present agriculture system relies heavily on synthetic chemicals, single-crop farming, and continuous plowing. This has led to short-term increases in crop yields at the cost of long-term environmental stability. This model causes soil carbon loss, aquifer depletion, and weak ecosystem resilience to climate challenges. The alternative is Knowledge Agriculture®—a model that focuses on ecological understanding, efficient utilization of resources, and use of technology for real-time capture of data for analysis and corrective actions. It advocates for the optimal use of resources to increase the yield and at the same time sustain the climate and its reserves.

7.2 Theoretical Framework of Smart Farming and Ancient Wisdom

The foundation of Knowledge Agriculture® is explained in the book *Smart Farming and Ancient Wisdom: Agricultural Knowledge for Global Food Security* authored by Prof. Dr. Hari Om Srivastava and Aprajita Srivastava. The book states that technology alone is not enough to solve the problem of food insecurity. It has to draw from the traditional practices of nature conservation and ethics across the entire value chain.

- Indigenous ecological knowledge—such as pest control without excessive chemicals, selection of drought-resistant seeds, intercropping systems, and soil conservation adapted to the local climates is Compulsory.
- Use of ethical practice during entire food chain from field to fork using modern technology like blockchain etc.

7.3 Human Resource & Educational Transformation: Training Agro Informaticians

Putting Knowledge Agriculture® into practice needs changes in our current education curriculum. Currently. agronomy and data science are taught separately as two independent courses. The solution is to create a new breed of professionals, Agro Informaticians—who have knowledge of agronomy as well as of data science.

Agro Informaticians are trained to:

- Work in the field, deploy tools for sowing, cultivation, and thrashing.
- Use sensor data, build predictive models, and analyse data to interpret these observations.
- Analysis of the data for optimal use of resources and conserve the natural resources.

Figure 3 shows this integration, highlighting how Agro Informaticians blend stewardship methods with modern informatics to create a new professional role for the 21st-century food system.



Fig. 3: Agro-Informatician: Translating Data into Decisions

Agro Informaticians act as a link between complex environmental conditions and proactive action to enhance farm produce. By processing, analyzing and converting climate and soil information into useful decisions they help local communities improve resource use efficiency while also helping restore natural resources.

7.4 Technical & Operational Pillars: Precision Conservation Agriculture

Knowledge Agriculture® is an active, operational methodology. It uses digital technology, AI and Generative AI software, traditional regenerative agricultural practices, and ethical practices:

- **Space-Based Remote Sensing:** NASA SMAP, MODIS/VIIRS and Landsat provide real-time data, on soil moisture, plant health and water loss. These tools help farmers to detect stress and take corrective actions.
- **IoT-based Data Collection:** Subsurface sensors and similar devices connected to edge computing units measure soil moisture levels and help control micro-irrigation systems. Analysis of data using AI models allows farmers to use optimal quantity of water and nutrients to plant roots. This prevens water loss and avoids soil salinization.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

- **Regenerative Conservation Tillage:** Knowledge Agriculture® recommends no-till or minimum tillage to keep fungal networks alive, increase carbon storage, improve water absorption, and reduce erosion during severe weather events. Regenerative conservation tillage strengthens resilience by protecting soil life, preserving earth moisture, and allowing ecosystems to support farming communities.

7.5 The Compulsory Moral Ethics Layer: Decentralized Governance & Anti-Hoarding

Technology cannot protect food systems if distribution is still open to manipulation. Knowledge Agriculture® includes a Compulsory Moral Ethics Layer in its governance:

- **Decentralized Ledgers**: Granaries and warehouse stocks are tracked on public consensus ledgers, stopping secret reporting of supplies.
- **Smart Contracts:** Intelligent contractual agreements—tied directly to environmental sensor data and verified market price signals—automatically trigger the release of strategic food reserves when predefined scarcity thresholds are met.
- **Transparent Distribution**: Food moves directly to approved networks without delays giving timely support to vulnerable groups. This ethical layer changes distribution from a process to a reliable rule-based system that provides stability during emergencies.

This ethical layer changes distribution from a process to a reliable rule-based system that provides stability during emergencies.

7.6 Structural Framework Visualization: Knowledge Agriculture® Adaptation & Governance Framework

We show the components of the knowledge structure in detail in Fig. 4.



Fig. 4: Knowledge Agriculture®. Governance Framework

8. Conclusion

The evidence is clear: climate stress is not an issue but a complex crisis that affects nature, money, and health. The 2030 Hunger Horizon is not a prediction of hunger; it is a warning of possible system failure. Traditional safety nets, designed for risks, are not ready for complex crises. Without governance, ethical protections and climate-ready procurement strategies, the goal of "Zero Hunger" will remain out of reach.

Solving this challenge requires more than throwing extra resources at the problem; it demands a fundamental shift in mindset. We must weave ethics, ecology, and advanced informatics directly into the foundational fabric of agriculture. **Knowledge Agriculture®** provides that exact roadmap, and **Agro-Informaticians** are the multidisciplinary leaders who will carry it forward.

Ultimately, Knowledge Agriculture® is as much a moral imperative as it is a technical one. Its operational pillars safeguard the physical environment, while its ethical layers guarantee fair, equitable access. Together, they form a robust, human-centered governance framework capable of meeting and mastering the challenges of the 2030 Hunger Horizon.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA

Note:

1. The idea, theoretical framework, and components of Knowledge Agriculture® referenced in this article have been taken and quoted from the book "Knowledge Agriculture: Smart Farming and Ancient Wisdom for Global Food Security" ISBN: 978-1-965922-40-8, by Prof. Dr. Sir Hari Om Srivastava and Aprajita Srivastava.
2. Knowledge Agriculture® is a registered trademark of Aprajita Srivastava.

Bibliography

I. Foundational Literature & Books

- Srivastava, Hari Om, & Srivastava, Aprajita (2026). *Smart Farming and Ancient Wisdom: Agricultural Knowledge for Global Food Security*. Universal Publishers, US.ISBN: 978-1-965922-40-8.

II. Intergovernmental & Policy Reports

- Food and Agriculture Organization (FAO), IFAD, UNICEF, WFP, & WHO. (2023). *The State of Food Security and Nutrition in the World (SOFI) 2023: Urbanization, Agrifood Systems Transformation and Healthy Diets Across the Rural-Urban Continuum*. Rome: Food and Agriculture Organization of the United Nations.
- Intergovernmental Panel on Climate Change (IPCC). (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* P.R. Shukla et al., Eds. Cambridge, UK & New York, NY, USA: Cambridge University Press.
- United Nations Environment Programme Finance Initiative (UNEP FI). (2023). *Nature-Related Financial Risks and Agricultural Sector Stability: Integrating Natural Capital into Sovereign and Corporate Credit Assessment*. Geneva: UNEP FI.
- World Economic Forum (WEF). (2024). *The Global Risks Report 2024 (19th Edition)*. Geneva: World Economic Forum.
- World Health Organization (WHO). (2023). *Climate Change, Food Insecurity, and Malnutrition: Quantitative Assessment of Global Public Health Vulnerabilities*. Geneva: World Health Organization.

III. Sovereign Policy & Programmatic Frameworks

- Ministry of Consumer Affairs, Food and Public Distribution, Government of India. (2013). *The National Food Security Act, 2013 (No. 20 of 2013)*. The Gazette of India, New Delhi.
- Department of Food and Public Distribution, Government of India. (2022). *Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY): Operational Guidelines, Central Pool Grain Stocks Management, and Welfare Extension Strategies*. New Delhi: Government of India.

IV. Scientific Repositories & Earth Observation Systems

- National Aeronautics and Space Administration (NASA). (2023). *Soil Moisture Active Passive (SMAP) Mission Data Architecture and Applied Remote Sensing Capabilities for Agronomic Drought Monitoring*. NASA Earth Science Division.
- National Aeronautics and Space Administration (NASA) / U.S. Geological Survey (USGS). (2023). *Moderate Resolution Imaging Spectroradiometer (MODIS), Visible Infrared Imaging Radiometer Suite (VIIRS), and Landsat Earth Observing System Data Products for Evapotranspiration and Vegetation Canopy Dynamics*. NASA EOSDIS.

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA



CITATION
Srivastava, H. O., & Srivastava, A. (2026). Knowledge Agriculture® and the 2030 Hunger Horizon: Bridging Climate Risk and Indigenous Wisdom. In Global Journal of Research in Agriculture & Life Sciences (Vol. 6, Issue 5, pp. 38–46). https://doi.org/10.5281/zenodo.23724228

@ 2026 | PUBLISHED BY GJR PUBLICATION, INDIA