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Integrating Traditional Wisdom and Modern Strategies: Prophet Yusuf's Legacy and SDG 2

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ABSTRACT

This study aims to explore the enduring relevance of Prophet Yusuf's ancient strategies for resource management and equitable distribution within the context of modern efforts to ensure food security and promote sustainable agricultural practices. This study utilizes a qualitative content analysis methodology, analyzing primary sources, such as religious texts recounting the story of Prophet Yusuf, alongside secondary sources, including academic articles, policy documents, and reports on sustainable agriculture and food security. The findings reveal that Prophet Yusuf's strategies - specifically his anticipatory planning and equitable resource distribution - hold significant relevance for modern agricultural practices and policymaking. The analysis demonstrates that integrating these ancient strategies with modern technologies and sustainable agricultural practices can significantly contribute to achieving SDG 2. This study advocates blending traditional insights with modern science to improve food security and agriculture, urging policymakers to focus on foresight and equity, and encouraging farmers to adopt Yusuf-inspired sustainable practices, all aimed at fulfilling SDG 2's vision of a hunger-free future.

Keywords: *Agricultural sustainability, food security, Prophet Yusuf, strategic resource management, SDG 2.*

In the quest to realize Sustainable Development Goal 2 (SDG 2), which aspires to eliminate hunger, enhance food security, improve nutrition, and promote sustainable agriculture by 2030, as delineated by the United Nations in 2015, integrating innovative strategies with traditional wisdom becomes pivotal. The essence of SDG 2 lies in its holistic approach towards fostering economic growth, ensuring social equity, and maintaining environmental sustainability,

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underscoring the indispensable role of food security in global human well-being (Food and Agriculture Organization [FAO] 2020; United Nations 2015). However, the path towards achieving these objectives is fraught with challenges, notably climate change, which adversely impacts agricultural productivity by altering weather patterns and growing seasons (Smith & Gregory 2013), alongside economic inequality that limits access to adequate food resources for the world's poorest (Barrett 2010), and political instability that disrupts food supply chains (World Food Programme 2019).

The urgency for innovative solutions to enhance food security and sustainable agriculture is unequivocal. These solutions span from technological advances and transformative policy reforms to community-based initiatives, all aimed at reinforcing food systems against environmental, economic, and socio-political challenges (Foley et al. 2011). Sustainable agricultural practices emerge as critical, offering frameworks for increasing productivity while conserving resources for future generations, through methods such as crop diversification, conservation agriculture, and efficient water management (Pretty et al. 2006; Rockström et al. 2017).

Policy interventions are essential for sculpting food systems that are equitable and sustainable, involving support for smallholder farmers, fair trade, safety nets for the vulnerable, and investments in agricultural research and infrastructure (De Schutter 2014). Meanwhile, community-driven approaches, like local food gardens and cooperative farming, empower individuals to actively secure their food needs, fostering local knowledge dissemination and social solidarity (Altieri & Toledo 2005).

Technological innovations hold promises for tackling food security, with precision agriculture and digital platforms for supply chain efficiency being notable examples. Nonetheless, technology's deployment must be inclusive, catering to diverse community needs worldwide, especially in developing countries (Aker 2011).

Achieving SDG 2 calls for a unified effort among stakeholders, blending innovative strategies, policy reforms, and community engagement to address the environmental, economic, and social facets of food security and sustainable agriculture (Godfray et al. 2010). This integrated approach emphasizes global cooperation towards sustainable food systems capable of feeding the present and future global population.

This article critically examines the food resource management strategies employed by Prophet Yusuf, assessing their relevance in addressing contemporary challenges associated with food security and sustainable agriculture as envisaged in SDG 2. Prophet Yusuf's narrative, rooted in traditional wisdom, offers timeless insights into effective food resource management, particularly in times of scarcity. By analyzing Yusuf's approach, which entailed prudent grain storage during years of abundance to mitigate the effects of forthcoming famine, parallels can be drawn to modern strategies aimed at bolstering food security. Yusuf's strategy underscores the importance of foresight, planning, and the strategic allocation of resources, principles that are imperative in the context of contemporary challenges such as climate change, economic disparity, and political instability.

The synthesis of Yusuf's traditional insights with contemporary methodologies furnishes an extensive framework for tackling the diverse challenges inherent in realizing SDG 2. This approach underscores the importance of amalgamating historical knowledge with current technological advances, policy developments, and community efforts to develop resilient and sustainable food systems. This integration not only preserves cultural heritage and knowledge but also utilizes it as a crucial asset in the global pursuit to secure food security, improve nutrition, and advocate for sustainable agricultural practices universally.

The Story of Prophet Yusuf and Its Relevance to Food Security

The narrative of Prophet Yusuf (Joseph) in Surah Yusuf (al-Quran, Yusuf 12:47) provides a seminal framework for contemporary discussions on food security and sustainable agricultural practices. This story, detailing Yusuf's divinely inspired foresight of seven years of plenty

followed by seven years of scarcity, and his subsequent advice to the Egyptian Pharaoh on grain storage, epitomizes strategic planning and resilience relevant to today's agricultural and food security challenges. In an era marked by climate change, with its attendant volatile weather patterns and shifting seasonal cycles, Yusuf's resource management approach offers a prescient model for modern strategies aimed at enhancing resilience against potential food shortages and economic instability (Smith & Gregory 2013; Foley et al. 2011).

Prophet Yusuf's strategy aligns with current initiatives in climate-smart agriculture, designed to adapt agricultural systems to climate change realities, thus securing food production and distribution (Lipper et al. 2014). Furthermore, the emphasis on grain storage in Yusuf's story mirrors sustainable intensification principles, advocating for increased food production through environmentally minimal impact methods. This reflects Yusuf's prudent resource stewardship, emphasizing sustainability at the heart of agricultural productivity to ensure long-term food security (Rockström et al. 2017; Pretty et al. 2018).

Policy implications derived from Prophet Yusuf's narrative are significant, suggesting policies that incorporate long-term planning and sustainable agricultural resource management can mitigate future crises' impacts. Investments in agricultural research and infrastructure, coupled with the adoption of agroecological practices, are crucial for developing resilient and sustainable food systems (De Schutter 2012; Godfray et al. 2010). Prophet Yusuf's story informs and inspires contemporary policymaking, advocating for a comprehensive approach to food security that includes both mitigation and adaptation strategies.

Integrating lessons from Yusuf's story with modern empirical research and policy frameworks highlights ancient wisdom's enduring relevance to global food security efforts and sustainable agricultural practices. Yusuf's narrative, emphasizing strategic resource conservation and equitable distribution during times of abundance and scarcity, offers a valuable blueprint for addressing the challenges posed by climate change and resource scarcity.

The narrative of Prophet Yusuf elucidates pivotal strategies in resource management, sustainable agriculture, and equitable distribution, which are essential for addressing contemporary global food security challenges. By integrating these ancient teachings with modern scientific research and policy frameworks, a resilient and sustainable food system can be engineered. This synthesis not only showcases the enduring relevance of historical insights but also enhances the efficacy of current strategies to ensure that no individual remains vulnerable to the impacts of hunger in our unpredictable world.

The integration of Prophet Yusuf's strategic foresight with modern policy and scientific approaches enhances the realization of SDG 2 by fostering resilient, sustainable food systems. This alignment not only addresses contemporary challenges of food security and climate change but also underscores the critical role of historical wisdom in shaping effective and sustainable agricultural strategies.

Quranic Verses Related to Food Security

The intersection of Islamic teachings and contemporary sustainability challenges offers a profound framework for addressing global food security and agricultural sustainability. The story of Prophet Yusuf, highlighted in Surah Yusuf (12: 47), provides timeless insights into anticipatory resource management and strategic planning, which are pivotal in the face of today's climate-induced agricultural uncertainties. Yusuf's divinely inspired foresight into seven years of abundance followed by seven years of scarcity, and his advice for grain storage, mirrors the modern scientific advocacy for adaptive strategies in agriculture to navigate the unpredictability of climate change (Foley et al. 2011; Wheeler & Von Braun 2013).

Islamic teachings further underscore the principles of environmental stewardship and moderation. Quranic directives in Surah Al-Baqarah (2:205) and Surah Al-An'am (6:141) echo contemporary discourses on sustainable agriculture, advocating for practices that combat soil depletion and biodiversity loss (Rockström et al. 2017). The Islamic ethos of moderation, as highlighted in Surah Al-Isra' (17:26-27), promotes responsible consumption and production,

aligning with global initiatives aimed at reducing food waste and enhancing system efficiency (Gustavsson et al. 2011).

Moreover, community support and the equitable distribution of resources, emphasized in Hadith like “Whoever brings dead land to life, that land will belong to him” (Sunan Ibn Majah, No. 4240), and “There is no Muslim who plants a tree or sows seeds, and then a bird, or a person, or an animal eats from it, but it is considered as a charitable gift from him” (Sahih Bukhari, No. 2320), highlight the critical role of resilient support systems in securing food security. The encouragement by Prophet Muhammad to share resources and cultivate unproductive land resonates with contemporary research advocating for equitable access to food and support for vulnerable populations (Barrett 2010; FAO 2020).

This synthesis of Islamic principles with modern sustainability strategies offers a holistic approach to Sustainable Development Goal 2 (SDG 2), illustrating the enduring relevance and potential of ancient wisdom in informing contemporary sustainability efforts. By integrating the foresight and environmental stewardship advocated in Islamic teachings with current scientific and policy frameworks, a more resilient and sustainable agricultural system can be realized, addressing the complex challenges of modern food security.

Integrating Prophet Yusuf’s Insights with Modern Food Security and Sustainability Challenges

Prophet Yusuf’s foresight in grain storage offers timeless wisdom on mitigating food scarcity, underlining the necessity for strategic planning in contemporary agricultural resilience. This historical insight, combined with current technologies such as precision farming and climate-adaptive practices, aligns with Sustainable Development Goal 2 (SDG 2) ambitions, promising enhanced agricultural productivity and sustainability. The application of Yusuf’s strategies in modern policymaking supports improved food distribution systems and fosters sustainable, equitable farming techniques. Examples include community-led grain storage initiatives in Africa and satellite-assisted agricultural forecasts, showcasing the efficacy of blending traditional knowledge with innovative technologies to address current food security concerns. These practices affirm the enduring value of Yusuf’s approach in informing agricultural policy and practices today, ensuring food security and sustainable agricultural development.

The Diagram 1 illustrates the relationship between adapting Prophet Yusuf’s strategies for contemporary food security, synergizing ancient wisdom with modern innovations to achieve Sustainable Development Goal (SDG) 2, and selected cases of modern applications of time-tested agricultural wisdom. First, Prophet Yusuf’s strategies for food security encompass strategic resource management and sustainable agriculture practices. Second, agricultural planning with foresight and the ethical foundations of food security ensures the sustainable use of technological innovations. Third, through policy development and community engagement, modern technologies such as precision agriculture and data analytics can be effectively implemented. Fourth, ecological restoration and biodiversity conservation are crucial steps in water management innovations and urban agriculture. Finally, these applications demonstrate how traditional agricultural wisdom can be harmonized with modern innovations to ensure contemporary food security sustainability.

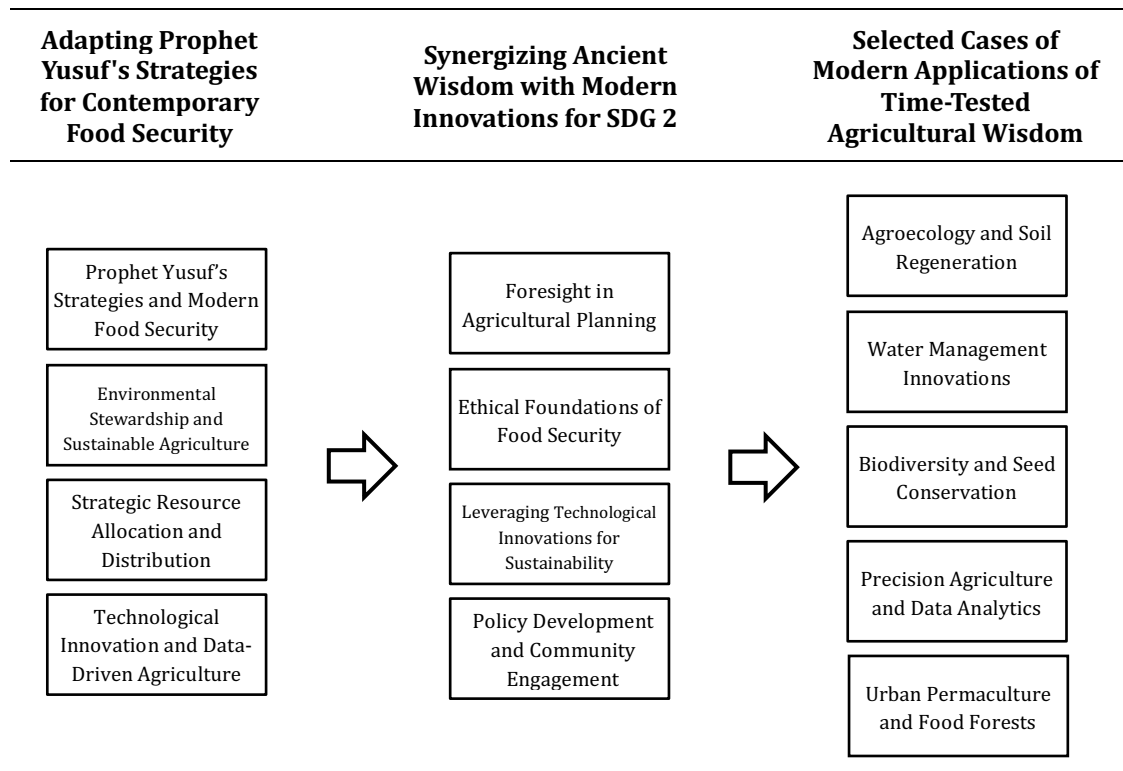


Diagram 1: Integrating Prophet Yusuf's Insights with Modern Food Security and Sustainability Challenges

The discussion for adapting Prophet Yusuf's strategies for contemporary food security and synergizing ancient wisdom with modern innovations for SDG 2 is as follows:

Adapting Prophet Yusuf's Strategies for Contemporary Food Security

The narrative of Prophet Yusuf, as detailed in the Quran, offers a profound case study on preemptive resource management, resilience, and sustainability. His strategic approach to the impending famine in Egypt, through grain storage and prudent resource distribution, provides valuable insights into addressing contemporary challenges in food security and sustainable agriculture. This section aims to analyze the applicability of Yusuf's strategies to modern contexts, underpinned by Quranic verses, Hadith, and a comprehensive review of academic literature.

Prophet Yusuf's Strategies and Modern Food Security

Prophet Yusuf's adept interpretation of Pharaoh's dreams and his strategic implementation of a grain storage plan underscore the critical role of foresight and preparedness in managing agricultural resources and ensuring food security. This narrative from the Quran (12: 47) serves as an early exemplification of anticipatory action in agricultural planning and resource management, resonating with contemporary approaches to mitigating the impacts of climate variability and economic instability on food systems. Yusuf's strategy, centered on the accumulation and prudent management of grain reserves during periods of abundance to safeguard against impending years of famine, exemplifies a proactive approach to resource stewardship that is increasingly relevant in today's context of global food security challenges.

Modern strategies in agriculture and food security similarly emphasize the importance of strategic planning and the development of resilient food storage systems to cope with the unpredictable dynamics of climate change and market fluctuations. The advancement of technologies in precision agriculture and the adoption of climate-smart agricultural practices are reflective of efforts to enhance productivity while ensuring sustainable resource use (Foley et al.

2011; Lipper et al. 2014). These strategies align with Yusuf's approach by advocating for the efficient use of agricultural inputs and the strategic management of crop yields to optimize food storage and distribution in anticipation of adverse conditions.

Moreover, the ethical considerations inherent in Yusuf's management plan—particularly the emphasis on equitable distribution during times of scarcity—mirror current discourses on the moral imperatives of food security. The concept of food justice and the pursuit of equitable access to food resources underscore the importance of addressing the social dimensions of food security, ensuring that vulnerable populations have adequate access to nutritional food supplies (Barrett 2010; FAO 2019). This alignment between Yusuf's ancient wisdom and modern ethical discussions highlights the enduring relevance of equitable principles in the management and distribution of food resources.

The integration of Yusuf's foresight with modern innovations in agricultural technology and policymaking presents a comprehensive framework for addressing contemporary food security challenges. By drawing lessons from Yusuf's strategic approach to grain storage and distribution, modern policymakers and practitioners can enhance the resilience of food systems against the backdrop of climatic uncertainties and socioeconomic disparities.

The integration of Prophet Yusuf's strategies with contemporary approaches in food security and sustainable agriculture highlights the enduring relevance of his insights in shaping resilient, equitable, and sustainable food systems. This alignment supports the global pursuit of Sustainable Development Goal 2 (SDG 2), emphasizing the historical wisdom's value in contemporary efforts to enhance agricultural sustainability and food security.

Environmental Stewardship and Sustainable Agriculture

The narrative of Prophet Yusuf (Joseph) is emblematic not only of foresighted crisis management but also of an ethos towards sustainable land use and agricultural practices. His strategic grain storage in anticipation of future famine years, as recounted in the Quran, is indicative of an early model of sustainable agriculture. This approach underlines the necessity of safeguarding food resources for future generations, a concept that is deeply embedded in Islamic teachings on environmental stewardship. The Quran and Hadith explicitly advocate for the conservation of natural resources and the preservation of ecological balance (Quran, 2:205; Sahih Muslim, 2244), principles that are increasingly relevant in today's discourse on sustainable agriculture and food security.

In the contemporary context, the emphasis on sustainable agriculture translates into a call for agroecological practices and conservation agriculture. These methodologies aim to enhance soil health, increase biodiversity, and bolster the resilience of food systems. They are reflective of a holistic approach to resource management, resonating with the strategic and considerate practices of Yusuf. Agroecology, with its focus on leveraging natural processes and minimizing external inputs, aligns with the Quranic imperative of maintaining ecological balance and ensuring the judicious use of resources. Similarly, conservation agriculture, which involves minimal soil disturbance, permanent soil cover, and crop rotations, embodies the principles of soil preservation and resource sustainability advocated by Yusuf's actions and Islamic teachings (Pretty et al. 2006; Rockström et al. 2017).

Moreover, the integration of modern scientific research with traditional Islamic teachings on environmental stewardship and sustainable agriculture presents a compelling narrative for addressing current challenges in food security and ecosystem management. This synthesis underscores the potential of ancient wisdom to inform and enhance contemporary strategies for sustainable development. The application of Yusuf's strategic insights, combined with the ethical imperatives derived from Islamic teachings, provides a robust framework for developing resilient and sustainable agricultural practices that can meet the demands of a growing global population while preserving the integrity of natural ecosystems.

The call for a return to practices that reflect Yusuf's foresightedness and the Quranic guidance on environmental stewardship is not merely a nostalgic longing for the past but a

pragmatic approach to ensuring the sustainability of future food systems. It highlights the importance of integrating ethical considerations and ecological wisdom into the fabric of modern agricultural policies and practices. By doing so, it is possible to create a more equitable, resilient, and sustainable framework for managing the earth's resources, ensuring that they continue to sustain life for generations to come.

Strategic Resource Allocation and Distribution

The equitable management and distribution of resources during times of scarcity, as exemplified by Prophet Yusuf, highlights a timeless principle of justice and equity in resource allocation. This ancient practice holds profound implications for contemporary strategies aimed at combating food insecurity, particularly among vulnerable communities. In today's context, ensuring equitable access to food necessitates integrated policies that span food aid, social protection mechanisms, and the establishment of food banks, mirroring Yusuf's visionary approach to mitigating hunger and malnutrition (Food and Agriculture Organization [FAO], 2020).

Modern policies and programs designed to ensure food security often draw upon principles of equity and justice, aiming to create a more inclusive access to necessary resources. Food aid programs, for instance, are directly aligned with Yusuf's strategic release of grain stores during famine, tailored to meet immediate needs while avoiding the pitfalls of dependency or market distortion. Similarly, social protection programs are designed to provide vulnerable populations with the means to access food, echoing Yusuf's ethos of safeguarding against hunger through preemptive and planned resource distribution (Barrett 2010).

The establishment and proliferation of food banks across the globe serves as a contemporary embodiment of Yusuf's strategy, aiming to redistribute surplus food to those in need. These initiatives not only address the immediate challenge of hunger but also contribute to the reduction of food waste, thereby intertwining sustainability with food security (Porpino 2016).

Moreover, Islamic Hadith literature further emphasizes the importance of sharing and caring for the needy, underscoring a communal responsibility towards ensuring food security (Sahih Bukhari, 2320). This emphasis on community-centric approaches to food distribution reflects a broader ethical imperative, resonant across cultures and epochs, to support the most vulnerable members of society through collective action and solidarity.

The integration of these ancient principles with contemporary policies and practices underscores the enduring relevance of strategic resource allocation and distribution in addressing food insecurity. It highlights the necessity of adopting a multifaceted and inclusive approach that not only focuses on the physical availability of food but also on the equitable access to these resources for all individuals, irrespective of their socioeconomic status.

Incorporating these enduring strategies into current food security endeavors facilitates a holistic pathway, ensuring that historical insights inform and fortify responses to contemporary and prospective challenges. Viewed through the lens of Sustainable Development Goal 2 (SDG 2), this amalgamation of Yusuf's archaic wisdom with modern methodologies exemplifies the perpetual principles of justice, equity, and communal solidarity, essential for the eradication of hunger and the attainment of comprehensive food security globally.

Technological Innovation and Data-Driven Agriculture

Prophet Yusuf's ancient strategies for managing agricultural resources and navigating crises through strategic foresight and effective data interpretation are remarkably analogous to the application of modern technological advancements in agriculture. Today, precision farming, satellite imagery, and climate modeling epitomize the confluence of technology and data analytics, facilitating enhanced forecasting, resource optimization, and efficient agricultural management. These contemporary tools not only embody Yusuf's data-driven approach but also align with Islamic teachings advocating for innovation and problem-solving (Quran, Fatir 35:27-

28). The synergy between these age-old principles and modern technological innovations offers a robust framework for tackling the multifaceted challenges of food security and sustainable agriculture in the 21st century.

The adoption of precision agriculture, leveraging GPS and IoT devices, enables precise application of water, fertilizers, and pesticides, significantly reducing waste and environmental impact while increasing crop yields (Weersink et al. 2018). Similarly, satellite imagery and remote sensing provide critical data on soil moisture levels, crop health, and weather patterns, facilitating informed decision-making and anticipatory management akin to Yusuf's approach during Egypt's famine years (Lowenberg-DeBoer & Erickson 2019). Furthermore, climate modeling offers predictive insights that aid in preparing for and mitigating the impacts of climatic variances on agriculture, ensuring resilience and sustainability of food systems (Lobell et al. 2008).

The integration of these technologies within the framework of sustainable agriculture holds the potential to revolutionize food production, distribution, and consumption patterns. By enhancing productivity and efficiency, technological innovations can significantly contribute to reducing hunger and improving food distribution systems, thereby advancing the goals of Sustainable Development Goal 2 (SDG 2) (Foley et al. 2011). Moreover, the alignment of these technological solutions with Islamic principles of stewardship and equity further underscores the ethical dimension of technological adoption in agriculture, advocating for solutions that are not only effective but also just and sustainable (Rockström et al. 2017).

However, the successful integration of technology in agriculture necessitates supportive policy frameworks that foster innovation while ensuring access and equity. Policies that encourage research and development in agricultural technologies, alongside initiatives that facilitate technology transfer to developing countries, are essential for realizing the full potential of data-driven agriculture (Godfray et al. 2010). Additionally, community engagement and capacity building are crucial for adapting these technologies to local contexts, ensuring that the benefits of innovation are widely distributed and aligned with the needs and values of diverse populations (Pretty et al. 2006).

The integration of Yusuf's ancient wisdom with modern practices, viewed through the lens of Sustainable Development Goal 2 (SDG 2), emphasizes the enduring values of justice, equity, and community solidarity. These principles are crucial for eliminating hunger and achieving food security globally, showcasing how historical insights can strengthen contemporary strategies.

Synergizing Ancient Wisdom with Modern Innovations for SDG 2

The integration of ancient wisdom with modern technologies and policymaking presents a multifaceted approach to addressing the Sustainable Development Goal 2 (SDG 2), which aims to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture. This synthesis not only brings to light the enduring relevance of historical insights for current global challenges but also underscores the potential of innovative solutions to significantly enhance both food security and sustainability. This dialogue draws upon the rich tapestry of Islamic teachings, particularly the strategic foresight exhibited by Prophet Yusuf, as detailed in the Quran (Yusuf, 12:47), alongside cutting-edge research, to dissect the confluence of traditional knowledge, technological progress, and policy development in the quest to achieve SDG 2.

Foresight in Agricultural Planning

Strategic foresight in agricultural planning and resource management represents a pivotal theme that transcends historical epochs, drawing a parallel between the sagacious practices of Prophet Yusuf and the exigencies of contemporary agriculture. Yusuf's astute interpretation of impending climatic oscillations—seven years of abundance followed by seven years of scarcity—and his proactive resource allocation strategy underscore a profound understanding of environmental stewardship and the necessity for anticipatory measures in safeguarding food security. This

prescient approach to agriculture, as narrated in the Quran (Yusuf, 12:47), not only exemplifies early instances of strategic resource management but also mirrors modern methodologies aimed at enhancing agricultural resilience and sustainability.

In the face of mounting challenges posed by climate change, population growth, and resource depletion, the importance of forecasting and adaptive management in agriculture has never been more pronounced. Contemporary strategies in sustainable agriculture increasingly emphasize the need for predictive analytics and strategic planning to anticipate and mitigate adverse impacts on food production systems. This entails the utilization of advanced modeling and forecasting tools to inform decision-making processes, enabling a responsive and adaptive management approach to agricultural practices (Foley et al. 2011; Godfray et al. 2010).

Furthermore, the integration of climate-smart agricultural practices highlights the evolution of foresight in agricultural planning. Such practices aim to increase productivity, enhance resilience, and reduce greenhouse gas emissions, thereby addressing the tripartite challenge of food security, adaptation, and mitigation (Lipper et al. 2014). This approach resonates with Yusuf's strategic grain storage, advocating for the judicious use of resources during periods of surplus to ensure availability during times of scarcity.

Precision agriculture, characterized by the targeted application of inputs based on detailed field information, exemplifies the modern embodiment of foresight in agricultural management. By leveraging technologies such as satellite imagery, GPS, and IoT devices, precision agriculture enables the optimization of yields while minimizing environmental impacts, underscoring a commitment to sustainability and efficiency in resource use (Weersink et al. 2018).

Policy frameworks that incorporate elements of strategic foresight, such as the development of national food reserves and investment in agricultural research and innovation, are crucial in translating these principles into actionable strategies. Such policies not only bolster the resilience of food systems against environmental and economic fluctuations but also ensure equitable access to food resources, aligning with the ethical imperatives of sustainability and justice (Wheeler & Von Braun 2013; Barrett 2010).

Prophet Yusuf's timeless resource management strategies, combined with modern technologies and adaptive policies, offer a robust framework for tackling current challenges in food security and agricultural sustainability. This integration of ancient insights and contemporary innovations highlights the importance of strategic foresight in developing resilient, sustainable, and equitable food systems, aligning with the objectives of Sustainable Development Goal 2 (SDG 2).

Ethical Foundations of Food Security

The ethical foundations of food security, deeply embedded in the Quranic teachings of moderation, sustainability, and equity, illuminate the moral dimensions underpinning agricultural practices and the distribution of food resources. This theme delves into the ethical considerations that transcend the mere technicalities of food production, emphasizing a holistic commitment to fairness, responsible resource management, and ecological stewardship. The Quran advocates for a balanced approach to consumption and the preservation of natural resources, principles that are integral to fostering sustainable food systems (Quran, Al-An'am 6:141; 2:205). These ethical mandates underscore the imperative to ensure that contemporary actions do not undermine the capacity of future generations to satisfy their nutritional needs, aligning with the sustainability ethos of Sustainable Development Goals.

Incorporating ethical considerations into agricultural and food security strategies necessitates a reevaluation of current practices towards more sustainable and equitable models. The emphasis on moderation and avoidance of excess aligns with modern calls for reducing food waste and optimizing resource use, critical components in addressing global food insecurity and environmental degradation (Gustavsson et al. 2011). Sustainability, as advocated in Islamic teachings, finds resonance in contemporary research promoting agroecological practices that enhance soil health, biodiversity, and resilience of food systems, contributing to the long-term viability of agricultural landscapes (Pretty et al. 2006; Rockström et al. 2017).

Equity, another cornerstone of the Quranic perspective on resource management, highlights the moral obligation to ensure fair access to food for all individuals, irrespective of their socioeconomic status. This principle is foundational to efforts aimed at mitigating hunger and malnutrition, particularly among vulnerable populations. The establishment of social protection mechanisms and food aid programs reflects an institutional response to this ethical imperative, aiming to bridge the gap between surplus production and distribution inefficiencies (Barrett 2010; FAO, 2020).

The integration of these ethical principles into policy-making and agricultural practices offers a path towards a more just and sustainable food system. Policies that foster the development of resilient agricultural practices, promote fair trade, and ensure equitable access to food resources can significantly contribute to the realization of global food security goals. Moreover, the engagement of local communities in decision-making processes and the implementation of sustainable practices underscores the importance of inclusivity and participatory governance in achieving ethical and sustainable outcomes in food security (Godfray et al. 2010; Foley et al. 2011).

The intersection of Quranic ethical teachings with current challenges in sustainability and food security highlights the enduring relevance of these principles in guiding efforts to develop ethical, equitable, and sustainable food systems. By adopting these ethical tenets, stakeholders throughout the food production and distribution chain can address the complexities of global food security with a moral framework that emphasizes the welfare of all individuals and the planet, aligning with the goals of Sustainable Development Goal 2 (SDG 2).

Leveraging Technological Innovations for Sustainability

The integration of advanced technologies in agriculture, including precision farming, biotechnology, and information and communication technology (ICT), stands at the forefront of revolutionizing food systems towards greater sustainability and efficiency. This thematic exploration delves into how these technological innovations are not merely tools for enhancing agricultural productivity but also vehicles for fostering sustainable practices that respect ecological boundaries and ensure equitable access to food resources. The application of such technologies, while promising, necessitates a conscientious approach to ensure alignment with broader ethical and environmental imperatives.

Precision agriculture epitomizes the synergy between technology and sustainability, utilizing data analytics, GPS, and remote sensing to optimize resource use and increase crop yields. This approach minimizes waste and reduces the environmental footprint of farming practices, targeting inputs like water, fertilizers, and pesticides to where they are most needed, thus enhancing the efficiency of agricultural production (Weersink et al. 2018). Biotechnology offers another avenue for sustainability through the development of crop varieties that are more resistant to pests, diseases, and environmental stresses, potentially reducing the reliance on chemical inputs and improving food security in vulnerable regions (Qaim 2020).

Moreover, ICT's role in transforming agricultural systems extends to mobile technologies that provide farmers with access to vital information on weather, market prices, and sustainable farming techniques. Such ICT applications empower smallholder farmers to make informed decisions that align with sustainability principles, improving their livelihoods and resilience to climate change (Aker 2011).

Despite the clear benefits, the mindful application of these technologies is paramount. The risk of exacerbating existing inequalities or causing unintended environmental harm necessitates a framework that considers the social, ethical, and ecological dimensions of technological adoption in agriculture (Bronson 2019). This includes ensuring technologies are accessible to all farmers, including smallholders and those in developing countries, and that they do not lead to adverse ecological impacts or the loss of agricultural biodiversity (Tilman et al. 2011).

Policies and governance structures play a critical role in navigating these challenges, steering the development and deployment of agricultural technologies towards outcomes that

are equitable and environmentally sound. Such policies must foster innovation while also addressing issues of access, equity, and environmental protection, ensuring that technological advancements benefit all segments of society and contribute to the long-term sustainability of food systems (Fanzo et al. 2017).

The strategic deployment of technological innovations in agriculture represents a significant advancement toward sustainability, predicated on a thorough understanding of their social, ethical, and environmental ramifications. As the global pursuit of Sustainable Development Goal 2 progresses, the deliberate integration of technology within agricultural frameworks emerges as a vital facet in achieving a sustainable and food-secure future.

Policy Development and Community Engagement

The formulation of policies that meld traditional wisdom with contemporary scientific advancements is pivotal in constructing food systems that are not only resilient but also equitable. This approach underscores the critical role of policy interventions in enhancing climate resilience, promoting disaster preparedness, and embedding community engagement within the agricultural sector. Drawing inspiration from Prophet Yusuf's exemplary governance, which skillfully navigated Egypt through a cycle of abundance and scarcity, contemporary policymaking can benefit from integrating such foresighted strategies to bolster food security and manage resources sustainably.

Governmental policies play a crucial role in building climate-resilient food systems that can withstand the challenges posed by environmental changes and unforeseen disasters. Strategic reserves, akin to Yusuf's grain storage solution, emerge as a central element in this context, ensuring that food supplies are maintained during times of crisis (Wheeler & Von Braun 2013). The adoption of policies that prioritize the creation and management of such reserves is essential for safeguarding against fluctuations in food availability and stabilizing food prices in volatile markets (FAO 2017).

Moreover, the emphasis on community engagement and the integration of communal values into policy frameworks highlight the importance of collective action and social cohesion in achieving food security. Policies that facilitate community participation in food production and distribution processes can harness local knowledge and foster a sense of ownership among community members, contributing to more sustainable and resilient food systems (Pretty et al., 2008). Social safety nets, including food aid programs and nutritional assistance, are critical for ensuring that vulnerable populations have access to essential food resources, thereby addressing the ethical dimensions of food security (Barrett 2010).

The inclusion of traditional insights in policy development offers a rich tapestry of knowledge that can enhance the sustainability and resilience of food systems. Policies that incorporate agroecological practices, for instance, draw on traditional agricultural methods while benefiting from scientific research to improve soil health, biodiversity, and ecosystem services (Altieri, M. A. & Nicholls, C. I. 2012). Such integration facilitates the adoption of farming practices that are environmentally sustainable and economically viable, aligning with the principles of equity and sustainability advocated by Prophet Yusuf.

The successful implementation of these policy initiatives necessitates a multidisciplinary approach, bridging gaps between policymakers, scientists, and local communities. This collaborative effort ensures that policies are informed by both scientific evidence and community needs, leading to more effective and context-specific solutions to food security challenges (Godfray et al. 2010).

At its core, the development of policies that seamlessly integrate traditional knowledge with modern scientific insights forms a comprehensive strategy for improving food security. These policies, by strengthening climate resilience, encouraging community participation, and ensuring fair access to food resources, are essential in propelling the achievements of Sustainable Development Goal 2. This approach highlights the critical role of inclusive and adaptive policy frameworks in navigating the challenges of global food security.

The integration of lessons from figures like Prophet Yusuf with contemporary scientific innovations heralds the development of a more inclusive, resilient, and sustainable food system, inching us closer to the global aspiration of achieving food security for all. This narrative advocates for a comprehensive approach that embraces the depth of historical wisdom alongside the breadth of modern technological and policy advancements, offering a rich blueprint for addressing the multifaceted challenges of food security and sustainable agriculture in today's world.

Selected Cases of Modern Applications of Time-Tested Agricultural Wisdom

The harmonious blend of ancient wisdom and modern innovation holds the key to unlocking sustainable solutions for today's pressing food security and agricultural challenges. At the heart of this fusion is the story of Prophet Yusuf, whose strategic foresight and resource management in ancient Egypt offer timeless lessons on sustainability and resilience. This narrative, deeply rooted in Quranic teachings, provides a blueprint for addressing the complex objectives of Sustainable Development Goal 2 (SDG 2). By exploring contemporary case studies that mirror Yusuf's strategies, we uncover the profound impact of integrating traditional insights with modern technologies and policymaking.

Agroecology and Soil Regeneration

The resurgence of agroecological practices in Sub-Saharan Africa showcases a significant shift towards integrating indigenous agricultural knowledge with contemporary ecological science, emphasizing sustainable land management and soil regeneration. This revival is reflective of a broader trend towards leveraging traditional agricultural methodologies, informed by an intrinsic understanding of local ecosystems and biodiversity, to revitalize degraded lands and substantially improve crop yields (Altieri & Toledo 2011). These practices, deeply rooted in principles of conservation and moderation as advocated in the Quran (Quran, Al-An'am 6:141), underscore the seamless integration of age-old agricultural wisdom with modern ecological insights.

The principles of agroecology, such as crop rotation, intercropping, and the use of organic inputs, are aligned with the Quranic teachings and demonstrate the potential of ancient agricultural strategies, akin to those employed by Prophet Yusuf, in addressing the contemporary challenges of food security and environmental sustainability (Gliessman 2014). The application of agroecological methods in enhancing soil health and biodiversity offers a model for sustainable agriculture that not only mitigates climate change impacts but also supports the livelihoods of communities (Pretty & Bharucha 2014).

Moreover, the narrative of Prophet Yusuf underscores the importance of strategic resource management during times of fluctuation, illustrating the significance of forward-thinking practices in contemporary agricultural systems. This narrative, alongside the demonstrated success of agroecological implementations in Sub-Saharan Africa, confirms the lasting value of combining traditional knowledge with scientific innovation to develop resilient and productive food systems (Wezel et al. 2009; Tittonell 2014).

The resurgence of agroecological practices represents a comprehensive approach to agriculture, effectively bridging ancestral wisdom with contemporary demands to address future challenges. This method prioritizes soil regeneration, biodiversity, and resource conservation, positioning agroecology as a sustainable agricultural model that blends innovation with ethical and ecological principles. This paradigm not only advances environmental stewardship and fosters social equity but also directly supports the objectives of Sustainable Development Goal 2 (SDG 2). By focusing on sustainable agriculture, agroecology contributes significantly to global efforts aimed at ensuring food security and promoting sustainable land use practices.

Water Management Innovations

The innovative adaptation of traditional qanat systems in the Middle East exemplifies the enduring value of historical wisdom in contemporary water management strategies, particularly within arid and semi-arid regions. This approach to water management, which draws inspiration from Prophet Yusuf's adept resource allocation, embodies a sustainable solution to the pressing challenges of water scarcity. By harmonizing ancient water distribution techniques with modern technological advancements, these systems underscore a comprehensive strategy for enhancing agricultural water efficiency and sustainability.

Qanat systems, an ancient method of water transport from aquifers to surface for irrigation, represent a sustainable and efficient means of exploiting groundwater resources without depleting them. The revival and modernization of these systems illustrate the potential of traditional knowledge to contribute to solving present-day issues of water scarcity and management (Lightfoot 1996). Incorporating contemporary technologies such as remote sensing and Geographic Information Systems (GIS) into the management of qanat systems can further optimize water use, ensuring the equitable distribution of this scarce resource (Beaumont 1989).

Moreover, the integration of qanat systems with modern water-saving irrigation techniques, such as drip irrigation, highlights a holistic approach to water management that aligns with sustainable agricultural practices. This combination not only maximizes water use efficiency but also minimizes the environmental impact of agricultural activities in water-scarce environments (De Schutter 2012).

The strategic allocation and efficient use of water resources, as demonstrated through the adaptation of qanat systems, align with the principles of conservation and moderation advocated by Islamic teachings (Quran, Al-An'am 6:141). This alignment emphasizes the ethical dimension of water management, advocating for practices that ensure the sustainability of water resources for future generations (Faruqi, Biswas, & Bino 2001).

The modern adaptation of qanat systems within contemporary water management strategies showcases the efficacy of merging traditional knowledge with innovative technologies to address water scarcity challenges. This integration plays a crucial role in supporting Sustainable Development Goal 2 (SDG 2) by enhancing water availability for agriculture, crucial for food security in arid regions. By fostering sustainable water use practices, this approach exemplifies the comprehensive strategies needed to effectively manage water resources, ensuring the sustainability of agricultural practices and contributing to global efforts to end hunger.

Biodiversity and Seed Conservation

Community seed banks in South America epitomize a modern iteration of ancient grain storage strategies, spotlighting the critical roles of biodiversity conservation and climate resilience in contemporary agricultural practices. These initiatives resonate with the ethos of communal sharing and support, a principle deeply rooted in Hadith literature, underscoring the collective responsibility towards preserving agricultural biodiversity. The establishment of community seed banks not only fosters the conservation of a wide array of plant genetic resources but also empowers local communities by enhancing their autonomy and resilience in the face of climatic uncertainties.

The strategic preservation of diverse seed varieties through community seed banks is pivotal for maintaining crop genetic diversity, which is essential for food security and agricultural sustainability. This approach ensures the availability of resilient seed stocks capable of withstanding environmental stresses, pests, and diseases, thereby contributing to the stability and productivity of agricultural systems in a changing climate (Veteto & Skarbø 2009). The participatory nature of community seed banks facilitates the exchange of knowledge and resources, strengthening local capacities in seed conservation and management (Pautasso et al. 2013).

Furthermore, community seed banks serve as living libraries of plant biodiversity, safeguarding traditional knowledge associated with crop cultivation and utilization. This conservation of both genetic material and cultural heritage aligns with the sustainable resource management principles demonstrated by Prophet Yusuf and reflects Islamic teachings on stewardship and moderation (Quran, Al-An`am 6:141). The integration of these traditional and modern practices enhances agrobiodiversity, contributing to the resilience of food systems against the backdrop of global environmental change (FAO 2010).

Community seed banks serve as a practical implementation of Yusuf's foresight in resource management, merging traditional knowledge with modern biodiversity conservation strategies to address both current and prospective agricultural challenges. This integration supports Sustainable Development Goal 2 (SDG 2) by fostering community engagement in biodiversity conservation, highlighting the importance of collective efforts in securing food security and promoting sustainable agriculture. These initiatives exemplify how community-driven approaches can enhance resilience and adaptability in food systems, crucial for achieving agricultural sustainability and equitable food distribution.

Precision Agriculture and Data Analytics

The adoption of precision agriculture technologies across Asia exemplifies a significant shift towards data-driven farm management, mirroring the analytical acumen of Prophet Yusuf. This contemporary approach to agriculture leverages advanced technologies to optimize farming practices, significantly enhancing agricultural productivity and sustainability. Precision agriculture embodies the utilization of data analytics, satellite imagery, and sensor technology to inform decision-making processes, allowing for precise application of water, fertilizers, and pesticides, thus maximizing efficiency, and minimizing environmental degradation.

The implementation of precision agriculture techniques represents a paradigm shift in how resources are managed within the agricultural sector. By utilizing real-time data, farmers can monitor and adjust their practices to the specific needs of each plot, thereby reducing waste and increasing crop yields (Zhang et al. 2002). This methodical approach to farming is facilitated by the integration of Geographic Information Systems (GIS) and Global Positioning Systems (GPS), which enable the accurate mapping of farm fields and the variable rate application of inputs (McBratney, Whelan, Ancev, & Bouma 2005).

Moreover, the application of remote sensing technology offers the ability to assess crop health and soil moisture levels from afar, providing critical insights that guide irrigation and nutrient management strategies (Moran et al., 1997). The advent of Internet of Things (IoT) devices further enhances the capacity for precision agriculture by facilitating continuous monitoring of environmental conditions and plant health, thereby enabling timely interventions to optimize crop growth (Wolfert et al. 2017).

Precision agriculture not only aligns with Yusuf's foresight in agricultural resource management but also resonates with Islamic principles advocating for the judicious use of resources and environmental stewardship (Quran, 6:141). This approach underscores the potential of harnessing technology and data analytics to address the dual challenges of food security and ecological sustainability, promoting practices that are both efficient and environmentally responsible.

The incorporation of precision agriculture technologies into contemporary farming methods exemplifies the transformative potential of data-driven approaches in agriculture. This integration aids in optimizing resource use, minimizing environmental impact, and enhancing crop productivity, aligning closely with the principles of Sustainable Development Goal 2 (SDG 2). By applying these advanced technologies, agriculture not only meets current needs efficiently but also safeguards the capacity of future generations to fulfill their nutritional requirements. The strategic deployment of precision agriculture demonstrates a synergy between historical agricultural practices and modern innovations, contributing significantly to the development of sustainable, efficient, and resilient agricultural systems worldwide.

Urban Permaculture and Food Forests

Urban food forests in North America exemplify an innovative integration of permaculture principles into urban planning, offering a sustainable model for land use that resonates with historical practices of environmental stewardship. These self-sustaining ecosystems not only supply communities with fresh produce but also enhance urban biodiversity and promote ecological balance. This approach to urban agriculture reflects a contemporary adaptation of ancient land management strategies, contributing significantly to urban food security and embodying Quranic teachings on the guardianship of nature.

The concept of urban food forests is grounded in the principles of permaculture, a design philosophy that mimics the patterns and relationships observed in natural ecosystems. By creating multifunctional landscapes that incorporate edible plants, trees, and shrubs, urban food forests aim to establish productive environments that require minimal external inputs and provide a diverse array of benefits, including habitat creation, water management, and carbon sequestration (McLain et al. 2012). These spaces not only serve as sources of local food production but also as educational platforms for communities to learn about sustainable agriculture and ecological conservation (Colding & Barthel 2013).

Implementing urban food forests involves a participatory approach, engaging residents in the design, development, and maintenance of these green spaces. This collaborative process fosters a sense of community ownership and responsibility towards local food systems and environmental health, reflecting the communal sharing and support emphasized in Hadith literature (Sahih Muslim, 1015). Moreover, the inclusion of indigenous plant species and traditional agricultural knowledge in the development of urban food forests acknowledges the value of cultural heritage in ecological practices, bridging the gap between traditional wisdom and modern sustainability efforts (Barthel, Parker, & Ernstson 2015).

The expansion of urban food forests in cities across North America showcases the transformative potential of permaculture to re-envision urban landscapes as productive and ecologically resilient spaces. By marrying contemporary urban agriculture initiatives with ancient principles of land stewardship, urban food forests embody a comprehensive strategy for tackling modern challenges related to food security, biodiversity loss, and climate change. These initiatives are vital in demonstrating the integration of sustainable land use practices into urban planning, thereby promoting ecosystems that benefit both human and environmental health.

Urban food forests are crucial for urban sustainability, enhancing local food access, increasing biodiversity, and improving ecological health. These managed ecosystems provide communities with fresh produce, support urban wildlife, and mitigate city heat through expanded green cover. By integrating nature into urban environments, food forests serve multiple ecosystem functions that promote healthier, more sustainable cities (Clark & Nicholas 2013; Barthel et al. 2015).

The fusion of traditional wisdom with modern scientific advancements offers a promising pathway to address the complexities of global food security and sustainable agriculture. By intertwining Prophet Yusuf's ancient insights with contemporary innovations, a holistic framework emerges, enhancing efforts to achieve Sustainable Development Goal 2 (SDG 2). This approach underscores the enduring relevance of Islamic teachings in modern sustainability challenges, blending ethical, equitable resource distribution with environmental stewardship. The transition from historical agricultural practices to today's agroecological methods and urban food forests illustrates sustainable resource management's timeless nature, highlighting the importance of integrating diverse knowledge systems. This synthesis presents a vision where innovation, tradition, and community engagement collectively forge a future where food security and sustainability are realized, reaffirming the critical role of historical insights in shaping sustainable agricultural futures.

Future Insights from Prophet Yusuf's Strategies in Agriculture

The story of Prophet Yusuf, with its profound insights into resource management and sustainability, serves as a guiding light for modern efforts to combat food insecurity and promote sustainable agriculture. His strategic foresight in storing grain during years of abundance to prepare for impending famine underscores the importance of anticipatory planning and resilience in today's context, where climate change and economic uncertainties pose significant risks to food security. Prophet Yusuf's emphasis on equitable distribution highlights the ethical dimension of food access, resonating with the goals of Sustainable Development Goal 2 (SDG 2) to achieve food security and improved nutrition for all. Integrating these ancient strategies with modern technologies and policies offers a holistic approach to addressing current agricultural challenges. This narrative, bridging millennia, underscores the timeless relevance of combining wisdom from the past with contemporary innovations to create resilient, sustainable food systems that ensure no one is left hungry, embodying the spirit of SDG 2 in the process.

The narrative of Prophet Yusuf, with its emphasis on foresight, strategic resource management, and equitable distribution, offers rich insights for contemporary efforts towards securing food and promoting sustainable agricultural practices. This ancient wisdom, deeply embedded in the fabric of religious and historical texts, provides actionable guidance for empirical research, governmental policymaking, and the agricultural community, underscoring its enduring relevance in addressing modern challenges in food security and sustainability.

Empirical Implications

The strategic foresight demonstrated by Prophet Yusuf in establishing grain storage systems during a period of abundance to prepare for subsequent famine years highlights the critical role of predictive modeling and risk management in agricultural research. Yusuf's approach serves as a historical exemplar of utilizing predictive analytics, which modern researchers can adapt to improve food security forecasting and planning. By integrating historical data with advanced predictive models, researchers can enhance the accuracy of crop yield predictions, assess the impacts of climate variability, and optimize resource allocation.

To further this approach, contemporary researchers are encouraged to delve into innovative methodologies that can refine crop yield prediction models, evaluate the potential effects of climatic changes, and develop comprehensive resource management strategies. These methodologies can lead to the formulation of more effective agricultural policies and practices that are better equipped to handle environmental and economic uncertainties.

Governmental Policy Implications

The story of Prophet Yusuf exemplifies the pivotal role of strategic governance and public policy in achieving food security and advancing agricultural sustainability from a governmental standpoint. This narrative underscores the importance of government-led initiatives to establish food reserves, akin to Yusuf's grain storage strategy, as a preemptive measure against potential food shortages. Implementing such policies can help stabilize food supplies and mitigate the impact of future crises.

Furthermore, Yusuf's approach to equitable resource distribution during times of scarcity highlights the necessity for inclusive policies that guarantee food accessibility to all societal segments, especially the vulnerable and marginalized. This requires governments to invest in social protection programs, bolster support for smallholder farmers, and enhance the accessibility of markets and advanced technologies.

In addition to food storage and equitable distribution, Prophet Yusuf's story encourages sustainable management of land and water resources. Governments are urged to advocate for and implement policies that promote sustainable agricultural practices and conservation of

natural resources, ensuring long-term agricultural productivity and environmental sustainability.

Agricultural Community Implications

For farmers and the broader agricultural community, the story of Prophet Yusuf offers practical lessons in resilience, innovation, and sustainability. His approach to managing agricultural resources during periods of abundance and scarcity highlights the importance of adopting sustainable farming practices that not only increase productivity but also ensure the long-term viability of agricultural lands. Farmers are encouraged to explore modern agricultural technologies, such as precision farming and water-efficient irrigation systems, that optimize resource use and reduce waste. Furthermore, Yusuf's strategy of grain storage can inspire the development of community-based storage solutions and cooperatives that enhance food security at the local level, providing a buffer against crop failures and market fluctuations.

Prophet Yusuf's narrative serves as a timeless beacon for empirical research, government policy-making, and agricultural practices, offering key insights into achieving food security and sustainable agriculture. By drawing on the strategic foresight, resource management, and equitable principles demonstrated by Yusuf, modern efforts can be guided towards more resilient, sustainable, and inclusive food systems. This integrated approach not only advances global efforts to end hunger and promote sustainable agriculture but also highlights the continuing relevance and applicability of ancient wisdom in solving contemporary challenges.

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