DEPÓSITO LEGAL ZU2020000153 ISSN 0041-8811 E-ISSN 2665-0428

Revista de la Universidad del Zulia

Fundada en 1947 por el Dr. Jesús Enrique Lossada



Ciencias del	
Agro,	
Ingeniería	
y Tecnología	

Año 14 Nº 39

Enero - Abril 2023 Tercera Época Maracaibo-Venezuela

Sustainable agricultural development paradigm formation in the context of managerial experience of industrialized countries

Vitalina Nikitenko* Valentyna Voronkova** Roman Oleksenko*** Halyna Matviienko**** Oksana Butkevych****

ABSTRACT

The purpose of the article is to study the management experience of sustainable development of agriculture in the context of the paradigm of industrialized countries. To achieve the goal, general scientific and special-scientific methods of cognition were used, in particular, dialectical, formal-logical, analysis and synthesis, system-structural. This study analyzes the problems of "deep reform choice", which is the goal of creating an environmentally friendly society. The conditions under which agroecology restores and maintains the natural fertility of the land and contributes to the conservation of biodiversity, conserves soil and water resources, contributes to the achievement of high yields in the long term and opposes the use of agrochemicals are clarified. The management experience of industrialized countries (China, Japan, Malaysia), which, by developing agroecology, reproduce the natural flows of closed material cycles, resist emissions into the atmosphere, provide reliable access to land, water resources, information, credit and markets, advocates for a revision is being studied and generalizes legislation on property rights and support for farmers, investments in local infrastructure and agricultural products.

KEYWORDS: Agriculture, agroecology, sustainable development, ecopolis, regenerative economy.

* Zaporizhzhia National University, Zaporizhzhia, Ukraine. ORCID iD: <u>https://orcid.org/0000-0001-9588-7836</u>. E-mail: vitalina2006@ukr.net

Recibido: 13/09/2022

Aceptado: 09/11/2022

^{**} Zaporizhzhia National University, Zaporizhzhia, Ukraine. ORCID iD: <u>https://orcid.org/0000-0002-0719-1546</u>. E-mail: valentinavoronkova236@gmail.com

^{***} Dmytro Motornyi Tavria State Agrotechnological University, Zaporizhzhia, Ukraine. ORCID iD: <u>https://orcid.org/0000-0002-2171-514X.</u> E-mail: roman.xdsl@ukr.net

^{****} V.I. Vernadsky Taurida National University, Kyiv, Ukraine. ORCID iD: <u>https://orcid.org/0000-0002-5265-8379.</u> E-mail: halyna.matviienko@gmail.com

^{*****} Volodymyr Vynnychenko Central Ukrainian State Pedagogical University, Kropyvnytskyi, Ukraine. ORCID iD: <u>https://orcid.org/0000-0001-9583-0960</u>. E-mail:butkevuch.1975oksans@gmail.com

Formación del paradigma del desarrollo agrícola sostenible en el contexto de la experiencia gerencial de los países industrializados

RESUMEN

El propósito del artículo es estudiar la experiencia de gestión del desarrollo sostenible de la agricultura en el contexto del paradigma de los países industrializados. Para lograr el objetivo, se utilizaron métodos de cognición científicos generales y científicos especiales, en particular, dialéctico, lógico-formal, análisis y síntesis, sistema-estructural. Este estudio analiza los problemas de la "opción de reforma profunda", que es el objetivo de crear una sociedad respetuosa con el medio ambiente. Se aclaran las condiciones bajo las cuales la agroecología restaura y mantiene la fertilidad natural de la tierra y contribuye a la conservación de la biodiversidad, conserva los recursos suelo y agua, contribuye al logro de altos rendimientos a largo plazo y se opone al uso de agroquímicos. La experiencia de gestión de los países industrializados (China, Japón, Malasia) que, al desarrollar la agroecología, reproducen los flujos naturales de ciclos materiales cerrados, resisten las emisiones a la atmósfera, brindan acceso confiable a la tierra, los recursos hídricos, la información, el crédito y los mercados, aboga por una revisión que se está estudiando, y generaliza la legislación sobre derechos de propiedad y apoyo a los agricultores, inversiones en infraestructura local y productos agrícolas.

PALABRAS CLAVE: Agricultura, agroecología, desarrollo sostenible, ecópolis, economía regenerativa.

Introduction

Agricultural sustainable development paradigm in the context of industrialized countries experience has a great relevance, because for its implementation it is necessary management, economy, sustainable development state, smart society and smart technologies development in the context of modern civilization development.. According to the Khorramnia K. (Shariff, A.R.M, Abdul Rahim, A., Mansor, S. et al, 2014) he term sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that over the long term will: satisfy human food and fiber needs, enhance environmental quality and the natural resource base upon which the agricultural economy depends, make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls, sustain

the economic viability of farm operations, enhance the quality of life for farmers and society as a whole (Khorramnia, et al., 2014).

After all, the situation in the world is extremely critical, because humanity, lives in debt to the Earth. States have already exhausted or even exhausted all the planet's resources and continue to "borrow" in future generations. The planet has no time to renew itself, and states are increasing production at a frantic tempo, squandering resources, creating demand for consumerism volumes and catching up with the industrialized countries' growth rates. It is an opportunity to develop the economy, but not to drain more resources than the Earth can recover, so the economic development management to reduce unemployment, inequality and climate change in prosperity search us green is of primary importance (Maxton G.. et al., 2017).

The main challenges of the study are therefore extremely relevant questions: What paths can countries follow to make economics and agriculture sustainable, as the global majority faces the harsh reality of an unsustainable path to growth and prosperity, the benefits of which are enjoyed by a minority? Is it possible to turn a desert into a blooming oasis and form the kind of sustainability that resists the planet's destruction in the context of global environmental change that will be appropriate to the nature of the permanent state. The state must form a sustainable development paradigm for both the economy and agriculture, and we will show this through the examples of certain countries (China, Japan, Malaysia), whose practices are called agroecology. Agroecology covers a wide range of systems adapted to local conditions for local needs. They are all united by the principle of ecological, environmental and social sustainability. Agroecology preserves soils, water resources, restores and maintains the natural land fertility and promotes biodiversity; its productivity is constant in the state long-term perspective of sustainable development, future management, economy and society (Melnik, 2019).

1. Literature Analysis and Problem Statement

We rely on a study by Maxtone Graham, Randers Jørgen, «In Search of Welfare». Managing Economic Development to Reduce Unemployment, Inequality, and Climate Change. Report to the Club of Rome "(2017) Nair Chandran "The Sustainable Development State. The Future of Governance, Economics, and Society "(2020) Porter Michaela "Competitive Advantage. How to Achieve Sustainable High Performance " (2019) Spence

Michaela "The New Convergence. The Future of Economic Growth in a Multilayered World" (2017) Stadwell Joe "Why Asia Failed. The Successes and Failures of a Dynamic Region of the World" (2017) Sharma Ruchira "Advanced Countries. Waiting for the New 'Economic Miracle'" (2019), Kolokolchykova, I., Oleksenko, R., Rybalchenko, N., Yefimenko, L., & Ortina, G. (2021). Perceive of organic products by Ukrainian consumers and problems of shaping market demand. It is these authors who have succeeded in showing that a strong functioning state is able to prove in practice the sustainable development of developed East Asian states as an "East Asian miracle" through its governance and a strong political elite.

2. Goal and Objectives of the Study

The purpose of the study was to reveal the sustainable agricultural development paradigm formation in the context of the East Asian region management experience. It is based on the reports to the Club of Rome, which serve as an opportunity to contribute to a new sustainable development narrative. Sustainability is the system's ability to survive indefinitely without using more resources than it can recover, and without overusing them. And, therefore, more sustainable is agriculture, in which there is a smaller gap between the resources' use/abuse and the Earth's ability to regenerate them. Some technology aimed at protecting the environment, but does not help reduce this gap. In other words, all steel systems aim to protect the environment, but not all environmental protection systems are permanent.

To achieve the goal, the following tasks were solved: 1) determine the impact of the management paradigm on achieving the sustainable agricultural development practice, which was called agroecology; 2) establish the specific conditions under which agroecology reproduces and maintains the land's natural fertility and promotes biodiversity, contributing to achieving high crop yields in the long term; 3) study and generalize the management experience of industrialized countries (China, Japan, Malaysia) which, by improving agroecology, contribute to its successful development, which indicates a strong state, which is able to ensure sustainable development (Voronkova, et al., 2022a).

3. Materials and methods of research

The leading methods for the study of sustainable agricultural management experience in the context of the industrialized countries paradigm are: 1) system method, which offers

the concepts of "reasonable use of resources" and achieving sustainable development, resource cycling and regenerative urbanization; 2) Agile-methodology, based on adaptation to environmental conditions and flexibility of management structures that can contribute to the effectiveness of agricultural sustainable development; 3) synergistic method, based on which self-organization and finding the attractor (attraction) point, through which you can exit the crisis and instability situation. The methodology is based on the literature analysis, statistical material, the identification of new contradictions, the overcoming of which allowed to form practical recommendations for the formation of the sustainable development paradigm of agriculture in the context of the management experience of industrialized countries (Voronkova, et al., 2022b).

4. Research results

4.1. China

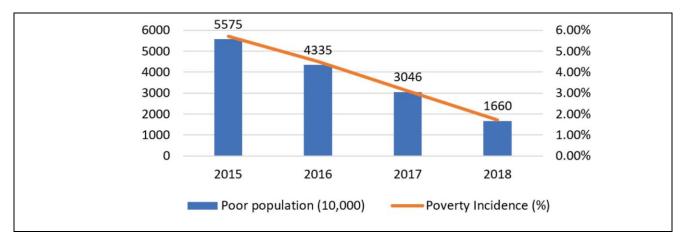
Land was East Asia's most political problem after the Second World War, "which later gave them the opportunity to sell their products on the international market and thus achieve competitiveness at the global level," notes Joe Stadwell (Stadwell, 2017). A notable problem is air pollution, three to four times the norm according to the World Health Organization WHO, which found that the average annual pollution level was above the norm. Instead of collecting payment from pollution sources locally (which can vary from region to region), Beijing collected a nationwide tax from polluting companies. China also announced a new program to open the carbon emissions trading market, where companies were forced to buy and trade emissions and pollution credits. China also has serious water pollution problems, as heavy industry and industrial agriculture have polluted both waterways and groundwater, half of which is unsuitable for human consumption of any kind, notes Chandran Nair (Chandran, 2020).

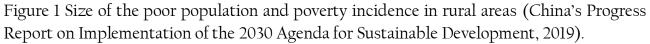
Agriculture also do one's part: According to the Chinese Academy of Environmental Planning, 90 percent of organic pollutants come from agricultural waste. The water pollution problem reached a critical limit in 2013, when Shanghai residents were awakened by nearly 3,000 pork corpses drifting down the Huangpu River.Intensive farming, which involves increased use of agricultural chemicals, is degrading much of China's vital farmland. A 2014 study by China's Ministry of Agriculture calculated that 40 percent of farmland is suffering from depletion. The country is also exhausting its rivers to provide water for agriculture, which has resulted in extremely excessive water use.

Since 1985, the Yellow River has completely dried up at least once a year. China's Ministry of Water Resources has found that 28,000 rivers have disappeared in the past 60 years. Beijing has launched the world's largest reforestation program to curb progressive desertification, growing a "green belt" around Beijing and other major provinces, and trying to deal with urban air pollution. In this regard, it is necessary to develop the concept of sustainable development, which is useful not only for certain countries, but also for the whole civilization, on which the representatives of the Club of Rome worked (Nikitenko et al., 2022). After all, China is ready to punish both owners and large companies for poor environmental protection. The Environmental Protection Law, as amended in 2015, gave the government great power to administratively arrest top executives. In practice, China's development focused on urban rather than rural areas, resulting in the threatening growth of Chinese cities, and when provincial cities and even small towns began to decline, so one of the concepts that had great practical significance for the countries analyzed is the formation of the concept of creative-conscious economy in the challenges of globalization (Oleksenko, 2017; Nikitenko et al., 2022).

China has recognized this problem, and has since launched several major initiatives to develop underdeveloped areas. These include infrastructure investments in China's western rural regions, the provision of social services, and regulatory changes such as the abolition of agricultural taxes in 2006. By 2013, all rural residents had some form of health insurance, up from 13 percent in 2000. Outside the western provinces, China's provincial cities now have international-class airports, excellent road and rail connections, modern universities, large companies, and skyscrapers. In China, in the early stages of economic reform, there were "township-volunteer enterprises," which were collectively owned. It was such enterprises provided the initial growth, in 10 years gave impetus to the economic boom, which combined state and collective ownership and combined to stimulate economic development, which also gave impetus to the development of agriculture, which says Porter M. in "Competitive Advantage. How to Achieve Consistently High Results" (Porter, 2019). With implementation of the precise poverty alleviation strategy, China has achieved remarkable results in the tough battle against poverty. Compared with the figures for 2015, by the end

of 2018, the number of poor people in rural China had decreased to 16.6 million from 55.75 million, incidence of poverty had decreased to 1.7% from 5.7%, and per capita disposable income of rural residents in poverty-stricken areas had increased from RMB 7,653 to RMB 10,371. New types of businesses have developed rapidly in poverty-stricken areas, along with a strong internal development momentum, a visibly improved ecological environment and a markedly better livelihood.





With the development of economic reforms in China, rural poverty has entered a new phase. Its new feature is an increase of a gap between the levels of income in rural and urban areas, as well as in the industrialized coastal provinces and inner parts of the country. Even by the 1980s, urban per capita incomes were already growing at more than double the rate of rural farm incomes, and the reforms have further widened the gap. Despite the growth of per capita income in rural areas, particularly in the previous decade, the income gap between rural and urban areas increases. The national average rural–urban income ratio increased from 1:2.20 in 1990 up to 1:2.95 in 2016. Migrants only earn about 50% of urban worker. With the development of economic reforms in China, rural poverty has entered a new phase. Its new feature is an increase of a gap between the levels of income in rural and urban areas, as well as in the industrialized coastal provinces and inner parts of the country (Tianming, et al., 2016).

Thanks to its managerial paradigm, China has achieved historic results in reducing poverty, but many are still poor. Even according to China's own findings, 450,000,000 people in rural areas still live in poverty, equal to the population of Sudan. China's success in

economic development and poverty reduction is already challenging traditional economic and political theories, bringing more than half a billion people out of poverty and beginning to move toward a more sustainable economic system, by investing in alternative energy sources, protecting the environment and achieving sustainable development. This can ensure it is a leader in the world when it comes to sustainable development. It is based on reducing the food industry, investing in agricultural infrastructure, fair pricing for farmers and ecosystem services, and promoting circular agriculture. Attaching great importance to agriculture and rural development, the Chinese Government has taken various measures to further promote rural reform. The quality of agricultural development has thus been improving continuously, with stable grains output, steadily improving produces quality and safety, accelerated green development, better protection and utilisation of agro-species. Agriculture has become easier. Positive progress has been made towards the relevant sustainable development goal.

	Implementation of Progress agricultural development of China
1	China has further consolidated the foundation and capacity of food production and maintains a safe and stable
	supply of grains.
2	China has deepened supply-side structural reforms in agriculture and effectively protected agricultural outputs
	and farmers' rights and interests.
3	China has further consolidated the foundation and capacity of food production and maintains a safe and stable
	supply of grains.
4	China is developing an eco-friendly agriculture and has continued making progress in green agricultural
	development.
5	China has implemented several nutrition action plans and the nutrition and health status of its people has been
	continuously improved
6	China has sped up the development of modern seed industry and established a national system for the
	management, protection and utilisation of agricultural germplasms and livestock and poultry genetic resources
7	China has strengthened international cooperation in agriculture and helped to improve the technological level
	and capacity of recipient countries.

Table 1. Implementation of Progress agricultural development of China (China's Progress Report on Implementation of the 2030 Agenda for Sustainable Development, 2019).

China exercises the strategy of reserving and improving food production capacity by land rotation and with better technologies and has kept the total sown area stable. Actions have been taken to transform medium and low-yielding farmlands, improve permanent basic farmlands, develop water conservancy works, advance and upgrade agricultural mechanisation and roll out innovative technologies and know-hows (China's Progress Report on Implementation of the 2030 Agenda for Sustainable Development, 2019).

Therefore, China should be classified as a strong state, which is able to reach agreement on social issues, achieve well-being and contribute to overcoming poverty, as noted in Spence Michael's work "The New Convergence. The Future of Economic Growth in a Multi-layered World" (Spence, 2017).

4.2. Japan

Some of these strategies were used in other major East Asian economies, (Trusova, et al., 2021) in particular Japan used less stringent forms of state financial and industrial strategies to ensure that the economy developed in directions that were considered socially and economically optimal. Agricultural, manufacturing and financial strategies helped bring about the "Asian miracle" in the 1980s and 1990s. In Japan, Korea, Taiwan, and China, governments radically restructured agriculture after World War II, focused on attempts to modernize production, and subordinated their financial systems to development strategies. The choice of each individual political strategy caused a discontinuity in the development of the Asian region. The strategies – agricultural, productive, and financial-that determine success or failure were laid out a decade before the 1980s and 1990s debate about the "Asian miracle," notes Stadwell Joe's "Why Asia Succeeded. The Successes and Failures of a Dynamic Region of the World" (Studwell, 2017).

These strategies begin with an analysis of the radical redistribution of agricultural land in Japan, China and Taiwan in the 40s and early 50s, which enabled them to sell their products on the international market and thus achieve global competitiveness. The regenerative economy, based on the relationship between business, social institutions and nature, has an inexhaustible capacity for self-reproduction and regeneration, as its relationship to nature must be changed as quickly as possible. (Dmytrenko, et al., 2021). Self-Sufficiency in Food With regard to Japan's food self-sufficiency ratio on a calorie supply basis, although there is a downward trend over the long term, it has been fluctuating at a level of around 40 percent since fiscal 1996. Whereas the ratio was 53 percent in fiscal 1980, it was 38 percent in fiscal 2017. The major reason behind the decrease in the food self-sufficiency ratio is that despite a decline in consumption of rice, of which self-sufficiency

within Japan is possible as a result of diversification of the Japanese dietary life, there was an increase in consumption of livestock products and oils and fats, for which overseas dependence for feed and raw materials is inevitable. In fiscal 2017, the self-sufficiency ratio per item (on weight basis) was 100 percent for rice, 14 percent for wheat, 8 percent for beans, 79 percent for vegetables, 39 percent for fruits, 52 percent for meat, and 55 percent for seafood. While completely self-sufficient in rice, the staple food of its people, Japan relied almost entirely on imports for the supply of wheat and beans. Japan's present food self-sufficiency ratio is the lowest among major industrialized countries, and Japan is thus the world's leading net importer of agricultural products (Statistical handboo of Japan, 2019).

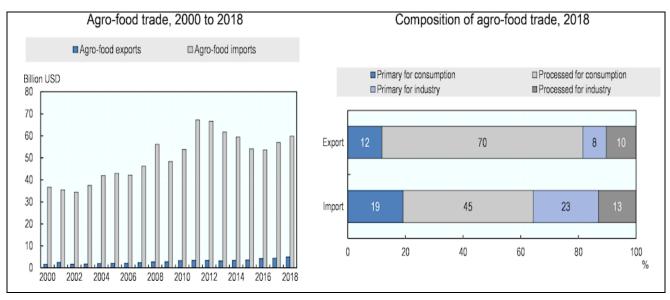


Figure 2 Japan: Agro-food trade

Policies that restrict trade or unnecessarily increase trade costs harm countries' domestic economies as well as their trading partners, by constraining the development of the agro-food sector. Japan contributes to agro-food sector development in LDCs by providing duty-free, quota-free market access for agricultural products which originate there. It is active in its support for agricultural production in developing countries, announcing during TICAD7 that it would help double rice production in Africa by 2030. Its agricultural science research priorities include climate-smart technologies, and practices for sustainable agriculture (G20 Meeting of Agricultural Chief Scientists, 2019). In 2020, Japan allocated some USD 24.3 million to the Ministry of Agriculture, Forestry and Fisheries to establish food value chains in developing countries, reduce hunger and take measures in response to challenges on a global scale. Support to agricultural producers in Japan averaged 47% of gross

farm receipts in 2016, two and a half times the OECD average, approximately USD 34.6 billion, 86% of which was potentially most distorting. As noted in a recent report, there is room for greater innovation in the domestic food and agriculture sector to become more productive and environmentally sustainable (OECD, 2020).

Large scale natural disasters continued to occur in 2019, causing significant income oss to the agricultural sector. The funds needed to restore damaged infrastructure, both at regional l and farm level, put substantial mitigating the risk and damage (OECD, 2020). There is significant room to improve the environmental performance of agriculture. Japan has one of the highest nutrient surpluses among OECD countries. Moreover, though GHG emissions from agriculture were the lowest among OECD countries, the sector accounts for more than three-quarters of total methane emissions and half of the national nitrous oxide emissions. Japan has set a Nationally Determined Contributions (NDCs) target of 26% emissions below 2013 by 2030 but no specific target for the agricultural sector. Several environmental programmes have been implemented but agricultural policy programmes should provide consistent incentives to adopt sustainable production practices. An integrated agri-environmental policy framework with quantitative targets in which all farmers commit to improving their environmental performance should be developed. Although the share of expenditures for general services provided to agriculture relative to total support is higher than the OECD average, the level has decreased since the 1990s. Moreover, most of these expenditures were programmed for infrastructure development and maintenance. Further progress is needed in supporting agricultural knowledge and innovation to enhance the sector's productivity and sustainability (OECD, 2020).

Japan is promoting a broad-based, whole-of-society approach to implementing the SDGs. The SDGs Promotion Headquarters was established in May 2016 and is headed by the Prime Minister with participation of all members of Cabinet. Japan focuses on a broad range of global public goods and challenges. Japan has listed eight priorities for engagement in sustainable development (MFA, 2017). Examples of Japan's global leadership on these include: Empowerment of all people, Achievement of good health and longevity, Creating growth markets, revitalising rural areas and promoting science technology and innovation, Energy conservation, renewable energy, climate change countermeasures and a sound material-cycle society, Conservation of the environment, including biodiversity, forests and

the oceans, Achieving peaceful, safe and secure societies, Strengthening the means and frameworks for the implementation of the SDGs and Sustainable and resilient land use, and promoting quality infrastructure (OECD, 2020). The Basic Plan for Food, Agriculture and Rural Areas, which sets Japan's comprehensive agricultural policy direction for the next 10 years, was revised in March 2020. In response to challenges such as the decrease of farming population and the implementation of new large-scale trade agreements, the plan aims to strengthen the agricultural production base regardless of farm size or its hilly and mountainous condition. Emphasis is also placed on sustaining rural areas.

4.3. Malaysia

Malaysia established the Federal Land Office in 1965, which is considered one of the most successful strategies for redeveloping land and relocating poor Malaysian farmers to newly developed areas to organize them into small farms. Priority was given to people in rural areas who did not own farmland, giving them access to land and agricultural development. As a result, Malaysia created a strong agricultural sector that provided seed money for Malaysia's early development. The Federal Land Office focused on growing crops such as palm oil rather than more socially oriented products such as fruits, vegetables, and staple foods. Large private sector facilities have been established, such as the International Venture Holdings of the Federal Land Office of Malaysia, which are engaged in large-scale industrial palm oil production. Prudent management, interventions, and resource allocation have ensured better effects on both the overall economy and agriculture, growing crops such as rice, cocoa, pepper, pineapples, tobacco, and others. Farmers should be helped to avoid the mistakes of industrialized countries and gain access to the best practices of regenerative management, circular metabolism and ecopolises," says Sharma Ruchir in "Advanced Countries. Waiting for a new 'economic miracle'" (Sharma, 2018).

Selected Agricultural Indicators, Malaysia, 2020 comprised of statistics on economic performance, employment, domestic production and external trade in the agriculture sector. These statistics are presented in three main agriculture sub-sectors namely crops, livestock and fisheries. The agriculture sector contributed 7.1 per cent (RM101.5 billion) to the Gross Domestic Product (GDP) in 2019. Oil palm was the major contributor to the value added of agriculture sector at 37.7 per cent followed by other agriculture (25.9%), livestock (15.3%), fishing (12.0%), forestry & logging (6.3%) and rubber (3.0%). Exports of agriculture sector

in 2019 amounted to RM115.5 billion as compared to RM114.5 billion in 2018, increased by 0.9 per cent. Total imports was valued at RM93.5 billion as compared to 2018 at RM93.3 billion with an increase of 0.2 per cent. Trade balance of this sector rose by 4.1 per cent from RM21.1 billion in 2018 to RM22.0 billion in 2019. The production of main commodity crops namely oil palm (fresh fruit bunches) and natural rubber increased by 646.0 thousand tonnes (0.7 per cent) and 36.5 thousand tonnes (6.1 per cent) respectively in 2019 as compared to the previous year. On the ontrary, the production of paddy declined by 11.0 per cent from 2,639.2 thousand tonnes to 2,348.9 thousand tonnes for the same period. The number of ducks increased 7.6 per cent to 10.4 million in 2019 followed by chicken (5.8%) and goat (3.5%). Meanwhile, the number of both swine and sheep decreased by 0.8 per cent and 0.4 per cent respectively. Total marine fish landings in 2019 was 1,455.4 thousand tonnes, rose by 0.2 per cent against 1,452.9 thousand tonnes in 2018. Production of brackishwater and freshwater aquaculture also showed an increase of 17.0 thousand tonnes (5.9%) and 3.3 thousand tonnes (3.3%) respectively. Employed persons in the agriculture sector recorded 1,541.1 thousand persons in 2019 and dominated by males at 79.2 per cent (1,220.9 thousand persons) (Press Release selected Agricultural Indicators, Malaysa, 2020).

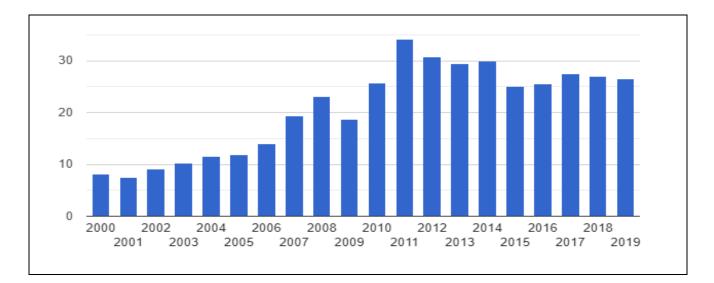


Figure 3. Malaysia: Agriculture value added, billion USD (Business and economic data for 200 countries, https://www.theglobaleconomy.com/Malaysia/value_added_agriculture_dollars/) For that indicator, we provide data for Malaysia from 2000 to 2019. The average value for Malaysia during that period was 10.16 billion U.S. dollars with a minimum of 0.84 billion U.S. dollars in 1960 and a maximum of 34.13 billion U.S. dollars in 2011.

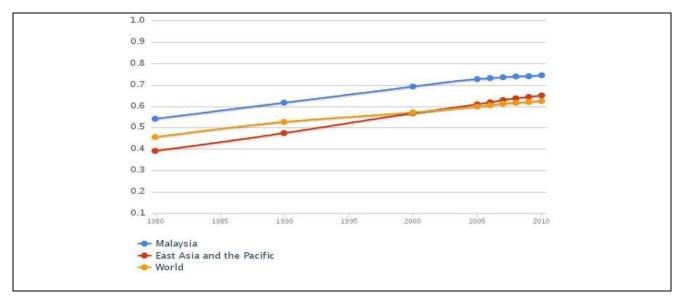


Figure 4. HDI trend in Malaysia, East Asia and the Pacific and the World (Dmytrenko et al., 2021).

Malaysian agricultural sector received strong government support during last three decades. The government of Malaysia, set up strategic directions to use information and communication technologies in third National Agricultural Policy (NAP3). According to NAP3, training activities focused on new methods and technologies like PA and providing basic infrastructures (i.e. GIS and remote sensing) in national scale. According Khorramnia et al (2014), a wide variety of agricultural activities are running in Malaysia. Maintaining high quality of agricultural products with lower environmental impacts through a sustainable economic viability and life satisfaction of farmers and community are important factors helping to meet sustainable agriculture. Human resources are playing key role in directing the community toward sustainable development. The trend of improving the human development index in Malaysia is highest in the East Asia and the Pacific, high human development countries and the world, since 2000. Precision agriculture is providing strong tools to achieve sustainable agriculture. Different types of sensors, positioning and navigation systems, GIS, software and variable rate technology are well known components of precision agriculture. Drones and robots are promising tools that enabling farmers and

managers to collect information or perform particular actions in remote areas or tough conditions.

Conclusions

The conducted research established that the formation of the sustainable agricultural development management experience paradigm based on institutional competence and the ability to achieve sustainable state through their management skills, technologies, strategies formulation of state development.

1. Importantly, China's state development program gives Beijing the tools to create a more sustainable agriculture. To become a strong state, China has increased its managerial capacity by creating new tools to manage the economy, increasing the ecological tax increase. It is to be commended that Beijing has implemented a real sustainable development paradigm.

2. The state must have the ability and willingness to constantly intervene in the economy and agriculture and manage them. This means that the state must be strong, that is, it must be able to define and implement social, political and economic goals; support capital and services that will act as the basis for an equitable distribution of resources and the creation of smaller, ecological and sustainable enterprises and economies. (Oleksenko et al., 2021).

3. The main thing for East Asian countries is to create a rural economy to reduce the level of displacement of people to cities, which requires direct investment in rural areas, to create a shortage of labor force from rural areas that works to provide benefits for urban areas, to create a viable and stable economy in rural areas.

4. Agroecology conserves soil and water resources, largely avoids the use of agrochemicals by growing different crops together, and replicates the natural flow of closed material cycles. Their management paradigm includes: 1) ensuring reliable access to land, water, credit, and markets; 2) revising property rights legislation to support farmers; 3) establishing equitable regional and global agreements; and 4) investing in local infrastructure and agro-processing industries. The effectiveness of the state and its governance paradigm is most important to sustainable development for the masses. The astounding economic development of China, Malaysia, and Japan is considered a success story of globalization.

References

Chandran N. (2020). The state of sustainable development. The future of governance, economy and society / trans. from English Iryna Hnatkovska. Kyiv: Our format. 288.

China's Progress Report on Implementation of the 2030 Agenda for Sustainable Development (2019). Ministry of Foreign Affairs of the People's Republic of China, September, 2019.

Dmytrenko, M., Nesterenko, S., Oleksenko, R., Yeremenko, L., & Vasylchenko, O. (2021). Management of corporate responsibility in the business environment: Socio-psychological aspect. *Periodicals of Engineering and Natural Sciences (PEN)*, 9(4), 323-346.

Khorramnia, K., Shariff, A.R.M, Abdul Rahim, A., Mansor, S. (2014). Toward malaysian sustainable agriculture in 21st century. 8th International Symposium of the Digital Earth (ISDE8,), IOP Conf. Series: Earth and Environmental Science 18, 2014, doi:10.1088/1755-1315/18/1/012142

Kolokolchykova, I., Oleksenko, R., Rybalchenko, N., Yefimenko, L., & Ortina, G. (2021). Perceive of organic products by Ukrainian consumers and problems of shaping market demand. *Amazonia Investiga*, 10(39), 169-177.

Maxton G., Randers J. (2017). In Search of Goodwill. Managing Economic Development to Reduce Unemployment, Inequality and Climate Change. Report to the Club of Rome / translated from English by Kateryna Humeniuk and Yana Sotnik. Kyiv: Pabulum. 320.

Melnik V. V. (2019). Agile-management 3.0 concept as a factor of technological progress development in the digital society. Humanitiesï Studies. Вип. 1 (78). 130-139.

National Bureau of Statistics of China. Statistical Database. Available online: <u>http://www.stats.gov.cn/ english/Statisticaldata/AnnualData/</u>

Nikitenko V.O., Vasylchuk H.M., Merzhynskyi E.K. (2022). The network economy as a factor of increasing the efficiency of digitalization in the context of the development of a digital society from 1G to 5G. Humanities studies: Collection of Scientific Papers. Zaporizhzhia: Publishing house "Helvetica". 10 (87). 112-121

Nikitenko, V., Voronkova, V., Shapurov, O., Ryzhova, I., Oleksenko R. (2022). The influence of digital creative technologies on the development of education and medicine. *International Journal of Health Sciences*, 6(2), 699–708. <u>https://doi.org/10.53730/ijhs.v6n2.7669</u>

OECD (2020), "Japan", in Agricultural Policy Monitoring and Evaluation 2020, OECD Publishing, Paris, <u>https://doi.org/10.1787/751935f0-en</u>.

Oleksenko R.I. (2017). Formation of the Concept of Creative Personality as a Factor of Creative-Cognitive Economy in the Conditions of the Globalization Challenges. Humanitarian Bulletin of the Zaporizhzhia State Engineering Academy. Vin.71. 118-126.

Oleksenko, R., Bilohur, S., Rybalchenko, N., Verkhovod, I., & Harbar, H. (2021). The ecological component of agrotourism development under the COVID-19 pandemic. *Cuestiones Políticas*, 39(69), 870-881. <u>https://doi.org/10.46398/cuestpol.3969.53</u>

Porter, M. (2019). Competitive Advantage. How to achieve consistently high results / translated by Irina Yemelyanova, Irina Gnatkovska. K. Nash format. 624 c.

Press Release selected Agricultural Indicators, Malaysa, 2020. Department of statistics Malaysia.

Sharma, R. (2018). Advanced countries. Waiting for a new "economic miracle" / trans. from English Andriy Ishchenko. K. : Our format. 296.

Spence, M. (2017). A new convergence. The future of economic growth in a multi-layered world. Kyiv: Tempora 352.

Statistical handboo of Japan, 2019. Edited and Published byStatistics Bureau Ministry ofInternalAffairsandCommunicationsJapan.https://www.stat.go.jp/english/data/handbook/index.html

Studwell, J. (2017). Why Asia succeeded. Successes and failures of the most dynamic region of the world / trans. from English Oleksandr Tsekhanovska. Kyiv: Our format. 448.

Tianming, G., Ivolga, A. and Erokhin, V. (2016). Sustainable Rural Development in Northern China: Caught in a Vice between Poverty, Urban Attractions, and Migration. Sustainability 2018, 10, 1467; doi:10.3390/su10051467

Trusova, N. V., Oleksenko, R. I., Kalchenko, S. V., Yeremenko, D. V., Pasieka, S. R., & Moroz, S. A. (2021). Managing the intellectual potential in the business-network of innovative digital technologies. *Studies of Applied Economics*, *39*(5).

Voronkova V.G., Nikitenko V.O. (2022b). Philosophy of Digital People and Digital Society: Theory and Practice: Monograph. Lviv-Torun : Liha-Pres, 2022. 460 c.

Voronkova, V., Kaganov, Y., Metelenko, N. (2022a). Conceptual basis of «the digital economy forsite model»: european experience. HUMANITIES STUDIES : Collection of Scientific Papers / ed. V. Voronkova. Zaporizhzhia : Publishing house «Helvetica Nov. 10 (87). 9-19.