

ILO COUNTRY OFFICE FOR INDONESIA AND TIMOR LESTE FORUM

TOWARDS DECENT WORK & PRODUCTIVITY IN INDONESIA'S AGRICULTURAL SECTOR: HARNESSING THE POTENTIAL OF AI FOR INCLUSIVE GROWTH

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Kementerian Ketenagakerjaan
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LESSON LEARNED, THE ROLE OF AI IN TRANSFORMING PRODUCTIVITY OF THE AGRICULTURAL SECTOR

The use of Artificial Intelligence (AI) in the agricultural sector has shown significant positive impacts on productivity. This shows the crucial role of technology in addressing global challenges in agricultural sector such as food security, climate change, and the need to increase agricultural output sustainably.

- 1 INCREASED EFFICIENCY IN CROP MONITORING**
AI technologies such as drones and sensors allows for early detection of issues such as diseases, water shortages, or nutrient deficiencies in crops, leading to faster and more precise decision-making. (World Economic Forum, 2020)
- 2 HARVEST PREDICTION AND RISK MANAGEMENT**
AI predict harvest yields accurately based on the analysis of variables, which helps farmers better plan their planting strategies and manage risks related to weather or natural disasters. (IBM, 2020)
- 3 MORE EFFICIENT RESOURCE MANAGEMENT**
AI is used for efficient irrigation management to reduce water wastage and improve crop yields. (Netafim, 2020)
- 4 EARLY DETECTION OF PESTS AND DISEASES**
AI is used for the early detection of pests and plant diseases, by utilizing satellite imagery and AI-powered applications to detect signs of pest infestations or diseases on crops. (National Geographic, 2018)
- 5 AUTOMATION IN AGRICULTURE**
Agricultural robots with AI have increased productivity by automating tasks such as harvesting, planting, and pruning. This reduces dependence on manual labor and optimizes agricultural output. (Octinion, 2020)
- 6 PRECISION AGRICULTURE**
AI use detailed data analysis to manage every aspect of farming, from fertilizer use to irrigation, leading to overall improved crop yields. (AgFunder Network Partners, 2020)

Furthermore, these findings above also prove that AI can promote decent work in the agricultural sector by making work more productive, safer, and more sustainable. AI can also be used in strategic deployment and capacity building, that will drive innovation and resilience.

THE CHALLENGE OF INDONESIA'S AGRICULTURAL SECTOR

While the potential use of AI in Indonesia's agriculture is very enormous. We still need to look at some manpower issues in the sector as a consideration when applying AI technology into the sector.

STRATEGIC CHALLENGES OF EMPLOYMENT IN THE AGRICULTURAL SECTOR

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- Workers in the agricultural sector are aging. 58.44% of workers in the agricultural sector are 45 years old and above (BPS, February 2024).
 - Workers in the agricultural sector have low education levels. 82.34% of workers in the agricultural sector have junior high school education or lower (BPS, February 2024).
 - 90.60% of workers in the agricultural sector have informal employment status (BPS, February 2024).
 - The average wages in the agricultural sector are relatively low compared to the average wages in other sectors (2.4 million IDR compared to 3.3 million IDR), making it less attractive for workers, especially young workers with secondary to higher education (high school, vocational school, diploma, and university) to enter the agricultural sector. (BPS, August 2024).

CHALLENGES OF AI APPLICATION IN THE AGRICULTURAL SECTOR

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- AFFORDABILITY:** Ensuring AI tools are accessible to smallholder farmers.
 - INCLUSION:** Ensuring marginalized groups benefit from AI advances.
 - TRAINING:** Providing workers with the skills to operate and maintain AI-driven systems.
 - ETHICS:** Balancing automation with human job preservation to prevent displacement.

GOVERNMENT OF INDONESIA FULLY COMMITTED IN TRANSFORMING THE AGRICULTURE SECTOR TOWARD THE BETTER FUTURE



2ND ASTA CITA PRESIDEN REPUBLIK INDONESIA

Strengthening the country's defense and security system and encouraging national independence through self-sufficiency in food, energy, water, creative economy, green economy and blue economy.



STRATEGICAL ROLE OF MINISTRY OF MANPOWER

The Ministry of Manpower plays an important role in improving the quality of agricultural human resources through training at many BPVPs throughout Indonesia. The Ministry of Manpower also provides full support for agricultural entrepreneurial activities.

STRATEGIC PROGRAM ON MANPOWER 2024-2029

IMPROVING WORKFORCE COMPETENCE

- Strengthening Integrated Vocational Curriculum and Certification
- Hybrid, Sustainable, and Massive Reskilling and Upskilling Program (1 million/year)
- Preparation of Workforce in Green, Food Security, Entrepreneurship, and Digital Sectors

EXPANSION OF WORKFORCE PLACEMENT

- Ecosystem Development through Collaboration (Cross Ministries, Industry, Banking, Educational Institutions, Local Government, etc.)
- Empowerment of Persons with Disabilities and Vulnerable Workers

IMPROVING WORKER WELFARE & PROTECTION

- Implementation of Living Wage and Sectoral Wage
- Fair and Prosperous Wage Scale Structure
- Employment Social Security Protection

INCREASING COMPETITIVENESS

- National Productivity Movement (Pentahelix)
- Self-Development Incentives (Strengthening Intellectual, Spiritual, and Emotional Intelligence)

LAW ENFORCEMENT

- Ensuring the Upholding of Employment Norms
- Fulfillment of Workers' Rights

EMPLOYMENT MANAGEMENT REFORM

- Bureaucratic Reform (Transparent, Collaborative, Performing, Ethical)
- Optimizing digital/AI modalities and technologies (Prakerja Platform, SiapKerja, etc.)
- Re-engineering the Regulation Drafting Process



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