

# The Dynamics of Rice Field Conversion Into Settlement in The District of Bandung

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**Abstract.** Bandung District as one of the rice-producing areas in West Java has a strong interest in maintaining rice field. However, the land conversion of rice field in the Bandung District continues to occur with various factors. This study aims to identify the elements that make up the structure of the phenomenon and the linkages between these elements which lead to the conversion of rice fields and recommend some policy alternatives that are useful for efforts to control the conversion of rice field. In order to achieve the stated goals, this study uses system dynamics which is one method of thinking system that could see the integral part of various aspects and structurally enable to explain the phenomenon of land conversion occurrence. This study determines 4 scenarios consists of a basic scenario, rice field cropping intensity scenarios (RFCI), necessity standard of land settlement scenarios (NSLS), and food diversification scenarios (FD). The final result of this study states that the necessity standard of land settlement scenarios resulted in a decrease in the rate of land conversion is smaller and the rice stock inventory is more stable compared to other scenarios. Under these conditions, policies that support the above scenario should be established, namely the policy of land-saving settlement development and establishment of sustainable rice field.

*Keywords:* land conversion, rice field, land settlement, system dynamics

## Introduction

Bandung District as one of the rice-producing areas in West Java has a strong interest in preserving technically-irrigated rice fields. It is due to the fact that rice field considered as scarce natural resources for its relatively fixed in amount compared to increasing needs for its uses. Rice field conversion continues to occur for several reasons. The land conversion in Bandung District had been taken place for seven years from 2004 up to 2011. In 2004, the amount of rice field area was 42,254.107 hectares and became 40,983.840 hectares in 2011 with numbers of decreased area of 1,270.267 hectares. It means the average land decreased was 181.47 hectares or 0.44 % per year. Rice field aside, the field of corn or other commodities suffered a land decrease of 956.738 hectares with average decrease of 136.677 or 0,594 % per year. On the other hand, the use of land or field for

settlement or industrial area has increased in numbers. Settlement land or area increased for 2.009,379 hectares in seven years period with average increase of 287.054 hectares or 2,01% per year. Industrial land increased for 186.165 hectares with average increase of 26.60 or 2,18% per year.

This land conversion phenomenon can be seen from many aspects, either by micro, meso or macro review. From micro review, rice field conversion occurred directly by the landowner or indirectly by other parties with prior trading rice field transaction. Meso review stated that land conversion is caused by the dynamic of urban growth, demography or economic and regional policy regarding rice field conversion. The macro review confirmed land conversion caused by policy factors, which are regulations aspect released by the central government.

Many regulations have been made to

**Received:** May 23, 2016, **Revision:** November 14, 2016, **Accepted:** December 30, 2016

**Print ISSN:** 0215-8175; **Online ISSN:** 2303-2499. Copyright@2016. Published by Pusat Penerbitan Universitas (P2U) LPPM Unisba Accredited by DIKTI. SK Kemendikbud, No.040/P/2014, valid 18-02-2014 until 18-02-2019