

DETECTION OF URBAN EXPANSION IN URBAN FRINGE OF JAKARTA METROPOLITAN AREA USING LANDSAT TM IMAGE

Janthy Trilusianthy Hidajat¹, Santun R.P Sitorus², Ernan Rustiadi³, and Machfud⁴

¹Departemen of Regional and City Planning, Faculty of Engineering, Pakuan University-
Bogor, janthy_sis@yahoo.co.id,

^{2, 3}Departement of Regional Planning Science, PostGraduate School, Bogor Agricultural
Institute (IPB) – Bogor, santun_rps@ipb.ac.id, ernan_r@ipb.ac.id,

⁴Management of Natural Environmental Resources Study Programme, PostGraduate School,
Bogor Agricultural Institute (IPB)-Bogor, machfud@ipb.ac.id.

ABSTRACT

Rapid urbanization in Jakarta due to massive migration from rural to urban areas has caused spill over of urban growth and expansion physically marked by land use change in urban fringe area. Its growth tend to be widespread and dispersed randomly as well getting out of control (urban sprawl). Urban fringe expansion in Jakarta Metropolitan Area has caused many inconsistency between local goverment spatial planning (RTRW) with existing land use. The purpose of this research are detection of urban expansion to analized by the dynamic growth of built up area in urban fringe area of Jakarta Metropolitan Areas with case study in Jakarta-Bogor coridor. Research used digital data landsat TM with covered of year 1982, 1992, 2000, 2005, 2010 and map of local goverment spatial planning (RTRW). Analysis were done by using remote sensing and GIS technique, sprawl index analysis and regression analysis. The result showed that the trends of growth and magnitude are increasing every year with an acceleration of 2.35 and a sprawl index of 7,21. Integration between spatial planning (RTRW) with existing land use got the inconsistency of 16,35 %.

Key words : Jakarta Metropolitan Area, land use change, urban expansion, urban sprawl, urban fringe.