Jurnal Ilmiah Ilmu Administrasi Publik: Jurnal Pemikiran dan Penelitian Administrasi Publik
Volume 11 Number 2, July –December 2021. Page 518-535
p-ISSN: 2086-6364, e-ISSN: 2549-7499
Homepage: http://ojs.unm.ac.id/iap

Effectiveness of Regional Development Planning: A Systematic Literature Review

Ilham Akbar[1*], Saiman[2], Salahudin[3]
Government Science Study Program, Universitas Muhammadiyah Malang[1,2,3]
E-mail: akbarilham077@gmail.com

(**Received**: Juli 11-2021; **revised**: December 1-2021; **published**: December 31-2021)

ABSTRACT

This study aims to analyze the effectiveness of regional development planning through various planning models. This study used the literature study method by reviewing articles in previous studies obtained through the Scopus web and processed with the VOSviewer application. Based on the results of this study, several topics were found that have strong ties to regional development planning, namely decision making, decision support, land use, stakeholders, and coordination. The results obtained from the previous study show the main key in regional development planning was to make good use of the existing land, that is why careful planning for sustainable development was obtained. The limitations of this study were related to the source of the data obtained, where the articles reviewed are only sourced from the Scopus data base so this study does not have data that can be compared. Therefore, further research was expected to use a comparative analysis approach involving the Scopus database and the Web of Science (WoS).

Keywords: Region, Effectiveness, Development, Planning

INTRODUCTION

Basically, development planning is an early stage in the development process before it is implemented. The importance of planning is to adjust the objectives to be achieved in development with existing resources and various other alternatives that may be needed. Development planning in Law Number 25 of 2004 concerning the National Development Planning System is defined as a process to determine appropriate future actions, through a sequence of choices, considering available resources. This definition was then followed by Government Regulation Number 8 of 2008 concerning Stages, Procedures for Preparation, Control and Evaluation of the Implementation of Regional Development Plans (Oktaviana Putri et al., 2018). To assess the effectiveness of the preparation of regional development planning must be carried out after the plan that has been made is implemented. That is how much the goals, targets and development targets that have been determined can be achieved. However, before coming to an assessment of the results of the implementation of the development plan, effectiveness can be done on how the process of preparing the development plan is carried out. That is how development planning is carried out, involving anyone and has the process taken in accordance with existing regulations.

Development planning based on the time and referring to Law Number 25 Year 2004 is divided into 3 (three) namely the Long-Term Development Plan (RPJP), the Medium-Term Development Plan (RPJM) and the Annual Development Plan. RPJP is a development plan for a period of 20 years and RPJM for a period of 5 years. Based on Law Number 25 of 2004 Article

15 of the Regional RPJP contains the vision, mission, and direction of regional development which refers to the National RPJP. Then the regional RPJM is an elaboration of the vision, mission, and programs of the elected Regional Heads whose preparation is guided by the regional RPJP and considers the National RPJM, contains the direction of regional financial policies, regional development strategies, general policies, and programs of Regional Apparatus Work Units, across Work Units. Regional Apparatus, and regional programs accompanied by work plans within the regulatory framework and an indicative funding framework. Meanwhile, the RKPD, which is the regional annual plan, is an elaboration of the Regional RPJM and refers to the RKP, containing the draft regional economic framework, regional development priorities, work plans, and funding, whether implemented directly by the government or pursued by encouraging community participation.

Here is a comparison between spatial planning trends over a 30-year period with compaction at higher densities within existing city limits, or more dispersed market-led development. The authors also show how the viability of alternative water supplies will differ between these three spatial planning options. Water savings from rainwater harvesting will vary greatly on a regional scale but depend on residential density and the amount of rainfall available. Gray water recycling will be less affected by spatial planning but will have a better balance between system costs and water savings, feasibility will vary locally depending on household size and water efficiency. The findings show that forecasts of residential density, rainfall and water prices can be used in conjunction with more detailed local studies to then show how spatial planning will affect the potential future water savings of alternative water supplies (Hargreaves et al., 2019).

Researchers find support for the idea that MPO partnerships operating at a megaregional scale are somewhat broad and involve MPOs in conjunction with other partners, such as state DOTs and government boards. From a common set of concerns, especially multi-modal transport, the main transport corridors, economic development, intercity rail services and air quality seem to be able to provide motivation for megaregional partnerships. MPOs are likely to be involved in a mega-scale collaboration which requires relatively low organizational time and resources compared to more substantive collaborative efforts to develop joint plans or project investments that are certainly well coordinated. At the same time, some of the MPO respondents view megaregional scale planning as a high priority or very effective plan. Survey respondents identified increased staff funding, which would require statewide DOT plans to address megaregional concerns and facilitate enabling inter-local agreements for megaregional planning as measures that would increase the importance and effectiveness of megaregional planning. But this action is likely to occur if planning at this scale can be accepted as an important priority by policy makers (Oden & Sciara, 2020).

Land use planning (LUP) is a land governance instrument that is often used to protect land and people from natural and man-made hazards, strengthen the resilience of land systems, and secure their sustainability. The United Nations Convention to Combat Desertification (UNCCD) notes that the important role of local action is to address the global threat of land degradation and desertification (LDD) and calls for the use of local and regional LUPs to combat LDD and achieve neutrality on land degradation. The complexity of LDD issues, prevailing modes of governance, and supported planning styles, combined with LDD awareness, knowledge and perception, value priorities, geographic specificity and historical circumstances, underlie the main challenges facing LUP namely adequate LDD representation at each stage of LUP, resolution conflicts between related LDD and development goals, the need for cooperation,

collaboration and coordination of various actors, sectors, institutions and policy domains from various spatial/organizational levels and uncertainty regarding current and future environmental and socioeconomic changes. In order to realize the integrative potential of LUP and promote its effectiveness in combating LDD at local and regional levels, providing an enabling and higher-level institutional environment should be prioritized to support phronetic-strategic integrated LUP at lower levels, which research should explore theoretically, methodologically and empirical (Briassoulis, 2019).

An important milestone in terms of landscape planning was its inclusion in the Federal Nature Conservation Act in 1976. In this study, landscape planning is defined as careful planning, which covers a wide range of natural assets and spatially defines the general legal objectives of nature conservation. and landscape management. This turned out to be effective for incorporating environmental issues into spatial development. But these shortcomings of landscape planning cannot stop powerful driving forces such as urbanization and agricultural intensification. The specific form and implementation options of German landscape planning can be explained by (1) the governance context with sufficiently strong legalization and respective limitations to public participation; (2) by constitutional barriers to unrestricted use of private property and (3) by a federal system with an unequal distribution of competencies between planning levels. To increase the effectiveness of Germany's landscape planning, recommendations are concluded, which include, for example, better access to and homogenization of information in landscape plans. Furthermore, the link between planning and implementation instruments should be strengthened (von Haaren & Vollheyde, 2019).

To facilitate effective land use planning, it is necessary to have sufficient data on urban expansion. So in this case there is what is called a high need to collect, process and disseminate land cover data. In detecting changes in urban land cover using Geographic Information Systems and remote sensing methods to produce basic information to support land use planning. The author in this article also tries to explain how the implementation of supervised land cover classification from LANDSAT data from 1987, 2002, and 2017. The author tries in this case to map the land cover transition from 1987 to 2017 and calculate net land cover change during this time. The authors then analyze the discrepancy between past and present urban land cover and land use plans and quantify the lost non-urban development areas as urban/developed. Based on observations of discrepancies between past/current land cover and existing land use plans. By providing detailed insight or a brief description of the discrepancy between regional land use plans and irregular urban expansion, it can then be used as material in assessing the role and effectiveness of land use planning for environmental sustainability and sustainable urban development (Enoguanbhor et al., 2019).

The local economy of ELM is strongly influenced by the framework and policies designed by the central government. Meyer (2014), Moyo & Mamobolo (2014); Khambule & Mtapuri (2018) assert that the laws, policies, and frameworks in South Africa stem from pro-poor ideologies. Pro-poor policies target the poor, which in this case is intended to reduce poverty. However, there are those who argue that a pro-poor strategic approach does not always produce the desired results. In this case there is a recommendation that the city government implement strategic management and the application of a system model to ensure that inputs are used effectively to achieve the required outputs. Then, collaboration between regions and districts should be emphasized to achieve effective LED. Lastly, the theoretical model that there is a

system that can be adopted to achieve the Local Economic Development (LED) goals required by Emakhazeni Local Municipality (ELM) (Radebe & Maphela, 2019).

METHOD

In this study, the aim is to facilitate researchers in reviewing various scientific articles related to the discussion on the theme of Effectiveness of Regional Development Planning which have been published in reputable international journals. In addition, the review article in this study is directed at the conceptualization of the study of the effectiveness of regional development planning, which is then explained through the following questions, namely: (1) How are the themes related and grouped in the topic of the study of the effectiveness of regional development planning? (2) What is the most dominant theme in the study of the effectiveness of regional development planning? (3) What are the topics related to the study of the effectiveness of regional development planning? (4) What type of mapping is used in the effectiveness of regional development planning as a topic of discussion? (5) Who is the author who has researched the most in relation to the effectiveness of regional development planning? These questions were explained based on the study topic, framework, and previous research findings indexed in the Scopus data. The articles reviewed in this study went through the stages of (1) searching for articles that matched the theme of the discussion and (2) mapping the topic.

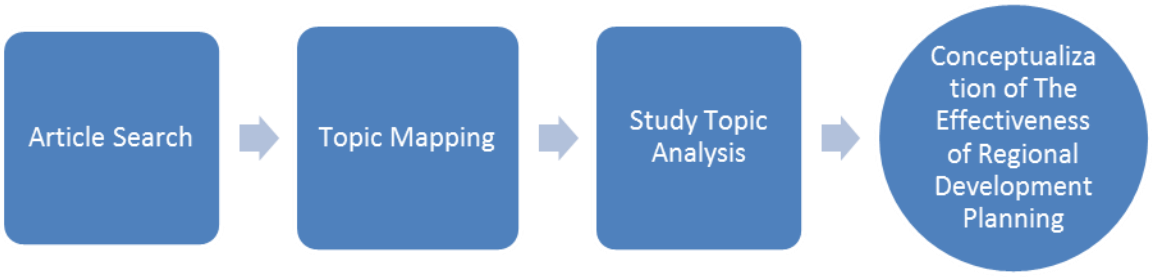

Figure 1: Process of Article Review Activities

In this case the article is searched in several stages, first, identify the article that will be used. The way to get these articles is that they can be retrieved from publications of various authors using the Scopus database-based software. Then at this stage enter keywords according to the theme "Effectiveness of Regional Development Planning" and are given a limitation on the year of publication which is only valid for the last one year or the same as between 2020 and 2021. The search resulted in 130 selected from 132 an article which is an article that is relevant to the topic to be discussed.

RESULT AND DISCUSSION

a. Linkage and Grouping of Themes in Effectiveness of Regional Development Planning

In this section, the concept will be explained into several visualizations related to the theme of this research, and 41 of them are identified in 130 articles. Furthermore, from the results of their review using VOSviewer, it was explained that there were 3 Clusters (table 1). Figure 2 has shown the names of the concepts derived from the cluster density display. Furthermore, the

color code is used to see the contents of the list of concepts that stand out from each cluster. The aim is to identify as many themes as possible that often appear in previous studies and allow them to be used in future research. Look at Figure 2, where it can be seen that the density of the clusters has been distinguished by the different colors of each cluster.

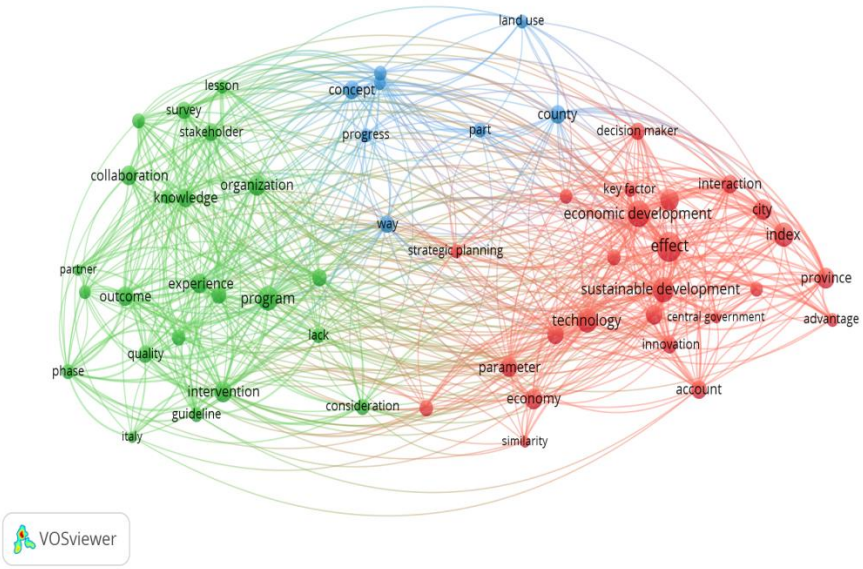

Figure 2. Data about what? From than 100 article data, analyze and explain themes. How many cluster and described.

More or less data resulted in 130 articles on the effectiveness of regional development planning, giving rise to three different clusters. Based on the picture above, there are various colors, namely red, green, and blue. Each of these clusters has a different discussion in each cluster. The concepts contained in the green cluster are lesson, survey, stakeholder, collaboration, knowledge, organization, partner, outcome, experience, program, phase, quality, lack, intervention, guideline, italy, consideration. Meanwhile, the blue cluster discusses land use, concept, progress, part, county, way. And the red cluster regarding strategic planning, parameters, economy, similarity technology, decision maker, key factor, economic development, effect, sustainable development, central government, innovation, account, interaction, city, index, province, advantage. For researchers, with the division of clusters like this, it is certainly very easy to discuss the themes that will be raised and can help success in research.

Table 1. Theme clustering in effectiveness of regional development planning

Cluster	Concept Name	Total
Cluster 1	Lesson, Survey, Stakeholder, Collaboration, Knowledge, Organization, Partner, Outcome, Experience, Program, Phase, Quality, Lack, Intervention, Guideline, Italy, Consideration.	17
Cluster 2	Land Use, Concept, Progress, Part, County, Way.	6
Cluster 3	Strategic Planning, Parameter, Economy, Similarity, Technology, Decision Maker, Key Faktor, Economic Development, Effect, Sustainable Development, Central Government, Innovation, Account, Interaction, City, Index, Province, Advantage.	18

In cluster 1, the most dominant theme is program, in this case it is related to articles written by (Niedźwiecka-Filipiak et al., 2019) entitled "The method of planning green infrastructure system with the use of Landscape-Functional Units (Method LaFU) and its implementation in the Wrocław functional area (Poland)". Here the author explains that the strategic Green Infrastructure (GI) Planning which is included in the spatial development policy of the city area can contribute to sustainable development, including the provision of various ecosystem services. To answer the challenges of GI planning on a regional scale, the author here tries to present a Landscape-Functional Units Method (LaFU Method) which is used for planning and evaluating the system. The results demonstrate the effectiveness of the LaFU Method in GI planning and most importantly in its assessment that it is possible to identify problem areas that are at risk but are still essential for the proper functioning of the GI system. This will certainly allow for quick decision-making by the entity responsible for spatial planning in the area.

In addition, there are articles related to this cluster, which have been described by the author (Xu & Yan, 2021) where the author tries to present an integrated model based on the theory of Transit Oriented Development (TOD) in which this model can optimize land use and transportation simultaneously for the area covered by Urban Rail Transit (URT) in China under a new type of urbanization that aims to achieve sustainable development. . The advantages of this integrated model scheme are demonstrated through comparative analysis. This research provides a new concept for the government and planners about integrated urbanization and transportation planning. Apart from that, this study extends the TOD theory to use a better multi-objective planning model.

And there are also articles that have similarities regarding the discussion of the themes to be discussed, such as articles written by (Dobravec et al., 2021) with the title "Multilevel governance energy planning and policy: a view on local energy initiatives". Where local governments have an important role in conveying public policies relevant to these efforts. Therefore, the implementation of multilevel governance (MLG) is a priority to encourage more inclusive regional development. The success of the MLG approach is demonstrated in the case study of the city of Judenburg. This MLG analysis demonstrates the strong alignment of different levels of governance. In contrast, a comparison of energy and climate initiatives at the local level outlines recommendations for the design of more effective energy planning approaches. The application of this MLG analysis demonstrates the alignment of energy targets in Austrian policy at different levels of government. In the case study of the city of Judenburg developed through the TIMES model, it is emphasized that coordinated action from various levels of government leads to the implementation of effective actions.

There are also articles that have relevance to this cluster written by (Mastroianni et al., 2021) with the title “Mitigating Infrastructure Disaster Losses Through Asset Management Practices in the Middle East and North Africa Region”. This article explains that although infrastructure investment is growing in developing countries, on the other hand maintenance related to the infrastructure built remains inconsistent and there is even a growing need to focus on the long-term operational demands of new assets to reduce vulnerabilities. In parts of the Middle East and North Africa, natural hazards and conflict continue to undermine development and risk management. In this study there are four main findings that are presented to advance asset management practices as a disaster risk reduction tool (1) asset management practices can be a proactive disaster policy; (2) there needs to be a policy regarding asset management at an appropriate level in the North African region; (3) asset prioritization improves the effectiveness of, and decision-making, risk management; then (4) there is a lifelong consideration that enables effective planning for asset management practices.

Then there is also an article related to this cluster whose author is (Boffardi et al., 2021) with the title "Best-compromise Solutions for Waste Management: Decision support system for Policymaking" which explains that in particular, the organic fraction is the largest part of urban waste. In the context of the circular economy framework, this is described as a valuable resource, to be converted into soil improvement, biogas and energy. The purpose of this study is to propose a Decision Support System (DSS) for policy makers based on linear programming techniques. Referring to the goals set by the local government of Campania (Italy), this model makes it possible to choose the most cost-effective and sustainable solution for treating organic waste. The results show that three different scenarios are associated with the impact that each possible outcome has on the stated objectives. The "Ideal Solution" is not attainable but is used as a yardstick; The "Max NPV solution" is worth it, but it has some major drawbacks. Finally, the “Best Compromise Solution” enables a six-fold increase in regional composting capability and seven-fold increase in biogas availability, with environmental implications very similar to the ideal.

In another article also discusses topics that have relevance to this cluster studied by (Huang et al., 2020) with the title “Consolidating the Layout of Rural Settlements Using System Dynamics and the Multi-agent System”. In this article, it is discussed that the Chinese Government has emphasized the consolidation of rural settlements because from the standpoint of their existential use and emptying in the hope that agricultural land losses can be reduced nationally, the ecological environment can be protected, and improvements can be made to agricultural production and rural livelihoods. Consolidation of rural settlements, however, requires a complex optimization approach involving various aspects including rural development policies as well as evaluation and classification of settlement spatial planning, land use decision-making behavior of villagers, and spatial optimization models. Based on the results of the study indicate that the first, the use of this model can reduce the complexity of rural settlements and reduce pressure on the landscape matrix. Second, the consolidation of rural settlements leads to clear socio-economic and ecological benefits within the study area as well as increased agricultural production and rural livelihoods due to spatial adjustments. Third, ecological and economic policy priorities reduce the effectiveness of rural settlement consolidation, hinder economic development, and can even exacerbate village deepening. So in this case, rural development policies must strike a balance between environmental protection and economic development.

There are also other articles discussing topics that have relevance to this cluster written by (Colavitti & Serra, 2020) entitled "Non Financial Compensation for the Redevelopment of The Historic Urban Landscape: The Case Study of Villasor in Sardinia (Italy)". This article examines the debate about the restoration of historic centers that have developed, over the years, around the balance between conservation and transformation needs to meet the new demands of the contemporary world. In the area of urban planning, a strictly conservative and binding approach is gradually supported by flexible and consensual mechanisms that act as a stimulus for private initiatives in the rebuilding and regeneration of historic urban landscapes. The Sardinia region has played an important role in the implementation of policies for the restoration and rebuilding of the historic centers identified by the Regional Landscape Plan (RLP). Constraints and engagement approaches are effective in conservation strategies but are often inadequate to implement integrated redevelopment actions of urban structures transformed by new buildings that contrast with historic urban landscape features, also because of the global crisis situation and public funding shortages. The integration of methodologies for assessing the financial viability of demolition and reconstruction of nonconforming structures in the planning process, as tested in the case study of the municipality of Villasor, has allowed the elaboration of models to support the use of compensatory mechanisms for rebuilding historical values of settlements. In particular, it describes the experimental results of a methodology for the analysis of urban structures that takes into account the factors that influence the feasibility of incompatible building demolition and reconstruction interventions. Finally, a model for valuing any bonus in terms of additional building capacity is suggested, to be provided to private operators as an incentive to ensure project cost effectiveness.

With the same article that has relevance to this cluster with the title "Looking for Causes of Effects in Cases: Evaluating Intermunicipal Collaboration in The Netherlands Applying QCA" researched by (Lagendijk et al., 2021). In this article it is explained that there is a clear lack of answers experienced by economic geography and regional planning that have to do with the question of what methods are used to systematically explain complex territorial phenomena such as territorial development. Departing from the effects of universal causes, in this case the analysis must focus on the patterns revealed through the case-specific effects of enabling and disabling conditions. Using qualitative configuration analysis (QCA), this article provides an indication of how relevant this kind of approach is to examine the effectiveness of collaboration variables between cities in the Netherlands. Configuration analysis reveals one dominant evolutionary pattern (evolving policy focus), one minor pattern (metropolitan collaboration) plus two unique cases. In this study there are also findings related to the role of contributions to mission orientation, inclusiveness, and size. There is evidence here that QCA is a promising tool for studying complex dynamics across territorial case populations.

For cluster 2, the most dominant is the concept, in this case the most relevant to the theme data is the article written by (Chernyakhovskaya et al., 2019) entitled "Approach to the organization of decision support in the formulation of innovative regional development strategies based on adaptive-simulation model" regarding the conceptual scheme in order to implement DSS in the field of innovative regional development management. The tools that exist in the structure of the regional development management system are determined and the authors also indicate the possibility of their use in the formation of regional development assessment estimates, as well as in evaluating the effectiveness of alternative management actions. This tool will expand the application of management theory and decision support methods, intelligent information technology, economic and mathematical methods and modern

computer simulation technology to the strategic planning of macro- and meso-level socio-economic systems. As it happens on the ground, the tool is of interest to public authorities in solving problems in the realm of formulation of innovative regional development strategies for the Russian region and the formation of medium-term forecasts and justification of social, economic and budgetary policy parameters.

In addition, there are other articles that are relevant to the discussion of the theme discussed "A cellular automata-based land-use model as an integrated spatial decision support system for urban planning in developing cities: the case of Bogota region" whose author is (Guzman et al., 2020) where cellular automata-based (CA) land use simulation is an approach whose purpose is to understand how urban planning policies and regulations impact. This tool can help improve inter-regional and inter-agency coordination, which through planning and management policies seeks spatially integrated development, with a long-term perspective. This CA-based model is proposed to be calibrated to reproduce land use change between 2007 and 2016 using different methods and indicators. The model is used to simulate and analyze eight scenarios with different directions of transportation infrastructure policy in the future. The occupation scenario with limited zones that can be developed within the city tends to have a greater degree of spread in the study area, compared to the scenario where the land development plan in Bogota represents a more compact development.

The article discusses topics that have relevance to this cluster with the title "Spatial Correlation Analysis of Low-carbon Innovation: A Case Study of Manufacturing Patents in China" written by (Yang & Liu, 2020). This article explains that the influence of the spatial correlation network structure on low carbon innovation can provide information related to policy making in the development of cross-regional collaboration mechanisms for low carbon innovation. Based on the data of provincial manufacturing patent applications in China from 2004 to 2017, the main objective of the social network analysis approach (the proposed SNA is basically to empirically investigate the structural characteristics of the spatial correlation network and the factors that influence it. The focus of the main achievements In this study, China's manufacturing shows a significant characteristic of regional agglomeration and manufacturing provinces developed in the center, and some eastern provinces give the main spatial spillover effect, with this there is an imbalance between the eastern and western regions as a whole.The degree of openness is the main factor influencing correlation network With it there are opportunities for the construction of cross-regional collaborative mechanisms and green innovative development of spatial correlation networks.

With a similar article that has relevance to this cluster studied by (Tian et al., 2020) with the title "A Production-Living-Ecological Space Model for Land-Use Optimization: A Case Study of The Core Tumen River Region in China". This article discusses how the production-living-ecological space (PLES) is so important in terms of sustainable use of land resources and regional socio-economic development, and several studies have adopted the PLES-based evaluation index. The Multi Spatial Agent Based Optimization Model (MSABOM) becomes a determinant in terms of spatially optimal land use solutions based on small-scale land use preferences of stakeholders and resolves conflicts in resource allocation that are not optimal based on model agent behavior and decision-making environment. The results showed that first, MSABOM could significantly increase the optimization of PLES, increasing the land use rate by 1.22 times. Second, based on the understanding of existing practice, the optimal allocation plan obtained with the agent-based model is more suitable than that obtained with the non-

agent-based model. Third, multi-functional land use patterns can be allocated optimally in space and time, which is very useful for coordinating stakeholder participation and overcoming conflicts of interest in land use behavior. Fourth, the urban spatial development coefficient was successfully used in determining the dominant function and functional position of the PLES, which has a role to ensure a flexible development strategy for spatial planning.

There are similar articles related to this cluster which were researched by (Yusuf et al., 2021) with the title "Developing an Institutional Arrangement for a Whole of Government and Whole of Community Approach to Regional Adaptation to Sea Level Rise: The Hampton Roads Pilot Project". This article explains that adaptation to sea level rise (SLR) basically requires coordination among local, state, and federal entities as well as collaboration across governments, non-profit organizations, businesses, and residents. This coordination and collaboration is reflected in institutional arrangements that are linked to whole-of-government and community approaches to regional adaptation. This study tries to analyze the development of inter-local agreements, percent projects (interlocal agreement/ILA). This study provides an assessment of how the factors in the three phases of ILA development namely initiation, implementation, and execution affect the results and effectiveness. Building on participant observation, document analysis, participant surveys, and interviews with key informants, this study identifies factors that facilitate effective regional adaptation to SLR (encouragement, agreement) and factors that hinder adaptation efforts (funding, ease of delivery), then offers insight into the complexities of institutional collective action to address controversial issues as challenging as SLRs.

For the third cluster, the most dominant topic is effect. In this case the relevance is in the article written by (Slater & Claydon, 2020) with the title “Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies” regarding the effectiveness of plans through a working framework informed by implementation theory. The plans and policies in this regard are assessed to reflect the suitability of the document. Marine licensing decisions are considered to assess the extent to which these decisions reflect the policies adopted. Limited evidence of the policy's explicit influence on the decision is provided. The findings are complemented by interviews with key actors including applicants. It reveals a culture of conciliation and cooperation among decision makers. The analysis and reflection yielded positive and challenging conclusions for the development of future marine planning in the UK and elsewhere.

In addition, there are articles related to this cluster whose author is (Zhang et al., 2021) with the title “Reduction of carbon emissions through resource-saving and environment-friendly regional economic integration-Evidence from Wuhan metropolitan area, China”. This article explains that regional integration is basically an important element of China's decarbonization and sustainability strategy. This study uses the extended Durbin Spatial Model and district-level panel data, to estimate the effectiveness of the regional economic integration pilot scheme on carbon emissions related to how land use is applied in the Wuhan metropolitan area. Intra-regional and spillover effects on urban development, policy environment, and regional interactions were measured from 2001 to 2015, covering the same pre- and post-policy periods. Based on the results of this study indicate that there is a high potential for regional integration in reducing carbon emissions related to land use. It is based on the findings showing that the level of carbon emissions in 48 districts in the Wuhan metropolitan area is spatially correlated and shows a form of grouping pattern. Regional economic relevance reveals gradual spatial diffusion from the city center to the periphery. Then the findings expand the relevant literature

by showing that the development status of urban areas, districts, and types of resource exchange relationships determine the emission reduction potential in a region and the direction of economic and environmental spillover effects. The findings further demonstrate the close relationship between low emission strategies, urban migration plans, and land development policies, indicating the need for a coordinated approach to define effective regional-specific policy instruments.

Furthermore, with a similar article that has a relationship with this cluster studied by (Wang et al., 2020) with the title "Multiple objective-oriented land supply for sustainable transportation: A perspective from industrial dependence, dominance and restrictions of 127 cities in the Yangtze River Economic Belt of China". It is explained in this article that land transportation is basically an important factor in achieving material flows between regions. China itself has reached a new normal for economic development, but on the other hand the conflict between supply and demand for its land resources persists. So in this case there needs to be an increase in the suitability and effectiveness of providing transportation land. This study considers industry, socio-economic and ecological benefits as well as planning to determine the dependence of the city, dominant modes, and restrictions on urban transportation. Based on the main findings of the study, it is shown that the cities that should be prioritized for the provision of transportation land are generally located in the upper reaches of the Yangtze River, and it is recommended that these cities are mainly supplied with road land. Most of the cities that should not be prioritized for providing land transportation are in the lower reaches of the Yangtze River and usually require different types of land supply for transportation.

b. Dominant Theme in the Study of the Effectiveness of Regional Development Planning

In this section, in identifying the dominant theme that will be discussed through previous research, the relevance of which is on the theme of Effectiveness of Regional Development Planning, in this case the topic of words that are more dominant is found by looking at the color density that occurs. Using the concept of Density Visualization, it will be easier to identify relevant topics to be discussed in the current research, in contrast to the use of Network Visualization which sometimes has the same position in the topic of discussion, and the use of Network Visualization makes it difficult for authors to identify the findings of the topic.

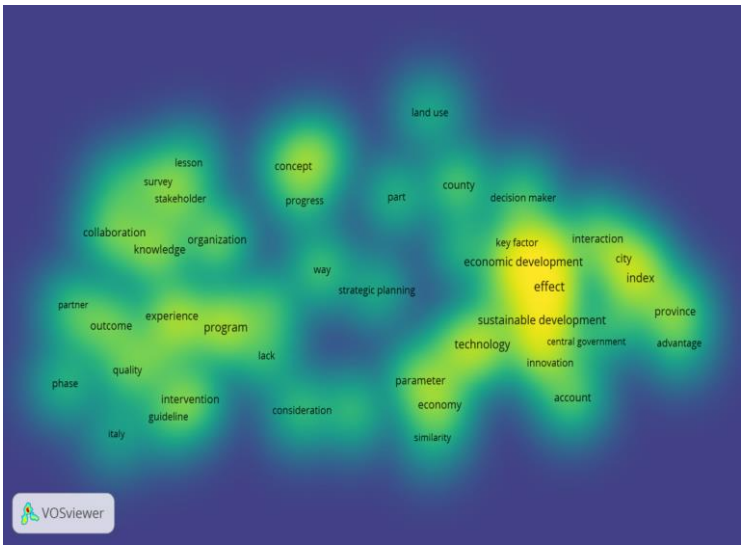

Figure 3. About the density of themes or dominant

In the picture above, the most dominant effect is economic development and sustainable development. This gives an indication that the most discussed discussion is related to this theme. Where this has shown that the topic of discussion appears in bold colors, so that these results are the dominant themes to be discussed by previous research and are interrelated to the theme of Effectiveness of Regional Development Planning. The concept of effect, economic development and sustainable development clearly dominates in this study because it is more often used by previous researchers in making articles that they have published and in accordance with the themes that will be discussed by further research. For other concepts, it is a supporting concept or concept which has a discussion goal that is in line so that it supports the existing dominant concept, and vice versa.

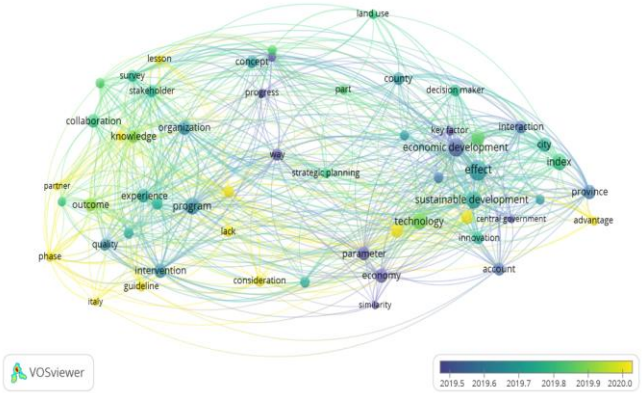

Figure 4. It doesn't need to be used if the article is in the last year and about what year's publication we took the data

Regarding the publication in the picture above, namely in 2019 and 2020, from this there are several colors that can be seen. And the most published data results in 2020, because the article was used the most as data.

c. Dominant Author in the Study of the Effectiveness of Regional Development Planning.

In this section, the use of Author Network Visualization to facilitate researchers through the results of the findings of the article where the researcher from the article has a relationship in the discussion of the theme of this article. In this section, the authors have the same ideas as other writers/researchers. Indirectly from the authors who are netted into the author network visualization, the topic of discussion is related to the theme of Effectiveness of Regional Development Planning. It can be seen in Figure 5 which in this case has shown a set of discussion topics through the gathering of several authors who did research in their articles.

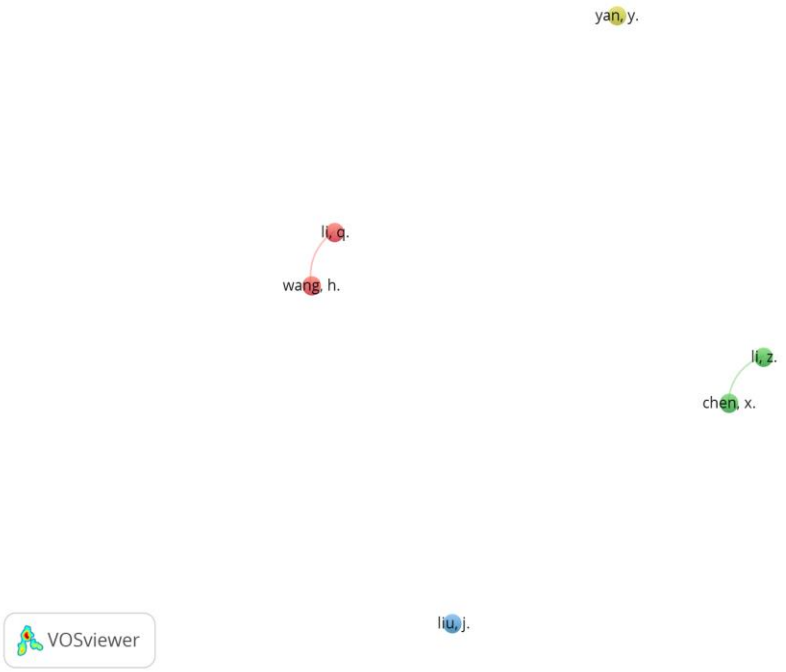

Figure 5. Author data mapping with Network Visualization model

In mapping author data through network visualization, it can be seen in Figure 5 where there are several authors who have been clarified into 3 clusters generated through the results of research research articles. Seen from the resulting color has 3 colors in the cluster data mapping. In research with the theme of Effectiveness of Regional Development Planning, there are 3 clusters in the discussion that use network visualization, in which all authors have different positions in conducting research on their articles. In this case, it means that they from the three

authors have different problems in making articles that will be studied in further research. With the differences in authors in each cluster, it can be understood that each author has the same discussion related to the theme taken by the next researcher but differs in taking the sub-themes.

To determine the dominant author, researchers can use author density visualization. Which in this case can make it easier for further researchers to get a dominant author to conduct the next research study. By looking at the color density produced by author density, researchers can determine the theme of the effectiveness of regional development planning by using the author who is more dominant in the article being studied. It can be seen in Figure 6 on the author's data mapping with the Density Visualization model.

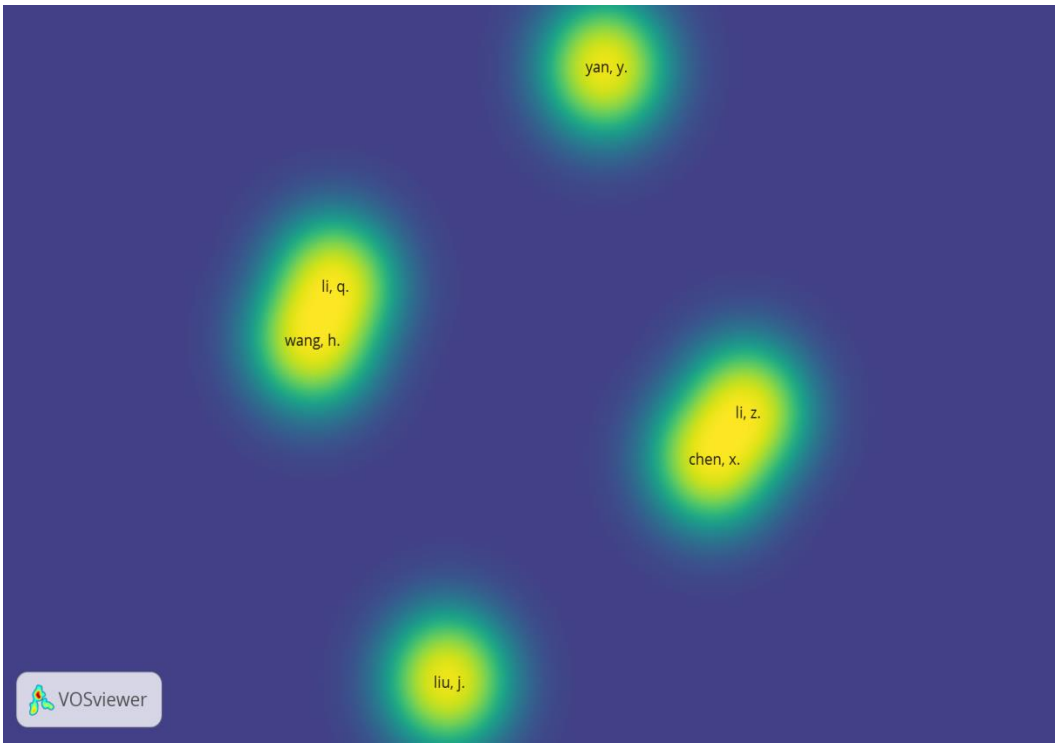

Figure 6. Mapping Author data with Density Visualization model.

Based on Figure 6, there is no author who is most dominant in producing research studies related to the discussion on the theme of Effectiveness of Regional Development Planning. However, in mapping the author using the density visualization method, there is no author who dominates in reviewing according to the theme of Effectiveness of Regional Development Planning. All of them have the same position in reviewing scientific articles. Because the authors in the picture above both have an important position in making findings that will be used in subsequent research. As well as the relevance of the case study of the Effectiveness of Regional Development Planning which has similarities to the existence of a relationship with the themes

discussed. Furthermore, it can be seen in the grouping of authors in the study area of Effectiveness of Regional Development Planning.

Table 2. Author Grouping

Cluster	Author Name	Total
Cluster 1	yes, y. li, q. money, h. li, z. chen, x. liu, j.	6

In this author's mapping, it consists of 1 Cluster which is dominated by li, q., wang, h., li, z., chen, x. Because in the above image mapping, it shows li, q., wang, h., li, z., chen, x. is the lightest and most dominant color. These four authors have an important position in writing articles that discuss the theme of Effectiveness of Regional Development Planning.

CONCLUSION

The reviewer of articles conducted in this study with the theme of the effectiveness of regional development planning covering 3 cluster, has reviewed 130 articles taken from 132 articles which were obtained from the Scopus database. The results of the review using VOSviewer show that there are several dominant concepts in each existing cluster. In cluster 1, the related concepts are Lesson, Survey, Stakeholder, Collaboration, Knowledge, Organization, Partner, Outcome, Experience, Program, Phase, Quality, Lack, Intervention, Guiledine, Italy, Consideration. Meanwhile in cluster 2, it discusses Land Use, Concept, Progress, Part, County Way. And for cluster 3, it discusses more about Strategic Planning, Parameters, Economy, Similarity, Technology, Decision Maker, Key Factors, Economic Development, Effects, Sustainable Development, Central Government, Innovation, Account, Interaction, City, Index, Province, Advantage. This is also in accordance with what has been studied previously by the researcher so that in this case it can help researchers in finding information about the theme being studied. Based on the results of this study, it was found that there are several topics that have strong ties to regional development planning, namely decision making, decision support, land use, stakeholders, and coordination. From the results obtained through previous research, is that the main key in regional development planning is to make good use of the existing land, to obtain careful planning for sustainable development. The limitation in this study is related to the source of the data obtained, where the articles reviewed are only sourced from the Scopus data base, so this study does not have data that can be compared. For this reason, it is hoped that further research will need to use a comparative analysis approach involving the Scopus database and the Web of Science (WoS).

REFERENCES

Boffardi, R., De Simone, L., De Pascale, A., Ioppolo, G., & Arbolino, R. (2021). Best-compromise solutions for waste management: Decision support system for policymaking. *Waste Management*, *121*, 441–451. https://doi.org/10.1016/j.wasman.2020.12.012

Briassoulis, H. (2019). Combating land degradation and desertification: The land-use planning quandary. *Land*, *8*(2). https://doi.org/10.3390/land8020027

Chernyakhovskaya, L. R., Nizamutdinov, M. M., Oreshnikov, V. V, & Atnabaeva, A. R. (2019). Approach to the organization of decision support in the formulation of innovative regional development strategies based on adaptive-simulation model. *Business Informatics*, *13*(3), 20–34. https://doi.org/10.17323/1998-0663.2019.3.20.34

Colavitti, A. M., & Serra, S. (2020). Non financial compensation for the redevelopment of the historic urban landscape: the case study of Villasor in Sardinia (Italy). *City, Territory and Architecture*, *7*(1). https://doi.org/10.1186/s40410-020-00124-9

Dobravec, V., Matak, N., Sakulin, C., & Krajačić, G. (2021). Multilevel governance energy planning and policy: a view on local energy initiatives. *Energy, Sustainability and Society*, *11*(1). https://doi.org/10.1186/s13705-020-00277-y

Enoguanbhor, E. C., Gollnow, F., Nielsen, J. O., Lakes, T., & Walker, B. B. (2019). Land cover change in the Abuja City-Region, Nigeria: Integrating GIS and remotely sensed data to support land use planning. *Sustainability (Switzerland)*, *11*(5). https://doi.org/10.3390/su11051313

Guzman, L. A., Escobar, F., Peña, J., & Cardona, R. (2020). A cellular automata-based land-use model as an integrated spatial decision support system for urban planning in developing cities: The case of the Bogotá region. *Land Use Policy*, *92*. https://doi.org/10.1016/j.landusepol.2019.104445

Hargreaves, A. J., Farmani, R., Ward, S., & Butler, D. (2019). Modelling the future impacts of urban spatial planning on the viability of alternative water supply. *Water Research*, *162*, 200–213. https://doi.org/10.1016/j.watres.2019.06.029

Huang, Q., Song, W., & Song, C. (2020). Consolidating the layout of rural settlements using system dynamics and the multi-agent system. *Journal of Cleaner Production*, *274*. https://doi.org/10.1016/j.jclepro.2020.123150

Lagendijk, A., Velde, M. V. D., & Kuijpers, M. (2021). Looking for causes of effects in cases: Evaluating intermunicipal collaboration in the Netherlands applying QCA. *Zeitschrift Fur Wirtschaftsgeographie*, *64*(3), 149–164. https://doi.org/10.1515/zfw-2019-0020

Mastroianni, E., Lancaster, J., Korkmann, B., Opdyke, A., & Beitelmal, W. (2021). Mitigating infrastructure disaster losses through asset management practices in the Middle East and North Africa region. *International Journal of Disaster Risk Reduction*, *53*. https://doi.org/10.1016/j.ijdrr.2020.102011

Niedźwiecka-Filipiak, I., Rubaszek, J., Potyrala, J., & Filipiak, P. (2019). The method of planning green infrastructure system with the use of Landscape-Functional Units (Method LaFU) and its implementation in the Wrocław functional area (Poland). *Sustainability (Switzerland)*, *11*(2). https://doi.org/10.3390/su11020394

Oden, M., & Sciara, G. C. (2020). The salience of megaregional geographies for inter-metropolitan transportation planning and policy making. *Transportation Research Part D: Transport and Environment*, *80*. https://doi.org/10.1016/j.trd.2020.102262

Oktaviana Putri, A., Sirojuzilam, S., & Kadir, A. (2018). Analisis Pelaksanaan Perencanaan Pembangunan Di Kelurahan Sei Putih Tengah Kecamatan Medan Petisah Kota Medan. *Publikauma : Jurnal Administrasi Publik Universitas Medan Area*, *6*(1), 58. https://doi.org/10.31289/publika.v6i1.1527

Radebe, N., & Maphela, B. (2019). Effectiveness of the local economic development strategy of Emakhazeni local municipality, South Africa. *International Journal of Entrepreneurship*, *23*(4). https://www.scopus.com/inward/record.uri?eid=2-s2.0-85081205250&partnerID=40&md5=b5980c3e5907f9b319dbcf9449f6509d

Slater, A.-M., & Claydon, J. (2020). Marine spatial planning in the UK: A review of the progress and effectiveness of the plans and their policies. *Environmental Law Review*, *22*(2), 85–107. https://doi.org/10.1177/1461452920927340

Tian, F., Li, M., Han, X., Liu, H., & Mo, B. (2020). A Production–Living–Ecological Space Model for Land-Use Optimisation: A case study of the core Tumen River region in China. *Ecological Modelling*, *437*. https://doi.org/10.1016/j.ecolmodel.2020.109310

von Haaren, C., & Vollheyde, A.-L. (2019). Landscape planning in Germany: Not loved by all, but badly needed. *International Review for Spatial Planning and Sustainable Development*, *7*(4), 148–166. https://doi.org/10.14246/irspsda.7.4_148

Wang, L., Wang, K., Zhang, J., Zhang, D., Wu, X., & Zhang, L. (2020). Multiple objective-oriented land supply for sustainable transportation: A perspective from industrial dependence, dominance and restrictions of 127 cities in the Yangtze River Economic Belt of China. *Land Use Policy*, *99*. https://doi.org/10.1016/j.landusepol.2020.105069

Xu, H., & Yan, Y. (2021). Integrated Planning Model of Land-Use Layout and Transportation Network Design for Regional Urbanization in China Based on TOD Theory. *Journal of Urban Planning and Development*, *147*(2). https://doi.org/10.1061/(ASCE)UP.1943-5444.0000676

Yang, C., & Liu, S. (2020). Spatial correlation analysis of low-carbon innovation: A case study of manufacturing patents in China. *Journal of Cleaner Production*, *273*. https://doi.org/10.1016/j.jclepro.2020.122893

Yusuf, J.-E., Nicula, J. G., St. John III, B., Jordan, M. M., Covi, M., Considine, C., Saitgalina, M., & Behr, J. (2021). Developing an Institutional Arrangement for a Whole-of-Government and Whole-of-Community Approach to Regional Adaptation to Sea Level Rise: The Hampton Roads Pilot Project. *International Journal of Public Administration*. https://doi.org/10.1080/01900692.2020.1866601

Zhang, A., Wen, L., Chatalova, L., & Gao, X. (2021). Reduction of carbon emissions through resource-saving and environment-friendly regional economic integration – Evidence from Wuhan metropolitan area, China. *Technological Forecasting and Social Change*, *166*. https://doi.org/10.1016/j.techfore.2021.120590