

PADDY FIELD CONVERSION IN INDONESIA IN A CONTEMPORARY GEOGRAPHIC PERSPECTIVE: A CONCEPTUAL OVERVIEW OF HUMAN-NATURE DIALECTICS

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Received: 21 November 2020, Repaired: 19 June 2021, Approved: 05 July 2021

Abstrak

Pola, proses, alasan, serta dampak konversi sawah telah banyak diulas oleh para ahli dengan beragam sudut pandang. Namun sebagian besar ulasan tersebut lebih memahami sawah berdasarkan dimensi fisik-materialnya. Dengan menggunakan perspektif geografi kontemporer, tulisan ini memberi tinjauan konseptual secara kritis terhadap gejala konversi sawah melalui elaborasi terhadap dialektika manusia-alam sebagai tema sentral dalam disiplin geografi. Di dalam dialektika tersebut terkandung pula persoalan identitas, kesadaran ruang, dan tatanan spasial-simbolik yang mempengaruhi eksistensi petani beserta sawah yang dimilikinya. Tinjauan kritis ini menghasilkan argumentasi bahwa relasi antara petani dan sawah merupakan representasi suatu tatanan spasial-simbolik yang mengandung nilai, semangat, jati diri, serta tradisi kehidupan. Identitas dan eksistensi petani merupakan bagian dari eksistensi sawah. Sawah pun menjadi bagian dari pikiran dan kesadaran para petani. Konversi sawah akan mereduksi relasi eko-kultural di dalam tatanan tersebut dan menggantinya dengan sistem kapitalistik.

Kata kunci: *dialektika manusia-alam, geografi kontemporer, pertanian berkelanjutan, konversi sawah, tatanan spasial-simbolik*

Abstract

Experts from various perspectives have widely reviewed the patterns, processes, reasons, and impacts of paddy field conversion. However, most of these reviews tend to understand paddy fields from the physical-material dimension. By using the perspective of contemporary geography, this paper provides a critical conceptual overview of the conversion of paddy fields through the elaboration of human-nature dialectic as a central theme in the discipline of geography. The dialectic also contains identity, spatial awareness, and spatial-symbolic order issues that affect the existence of farmers and their paddy fields. This critical review results in the argument that the relationship between farmers and paddy fields represents a spatial-symbolic order that contains values, enthusiasm, identity, and living traditions. The identity and existence of farmers are part of the existence of paddy fields. Paddy fields have become part of the minds and consciousness of the farmers. The conversion of paddy fields will reduce the eco-cultural relations in this order and replace it with a capitalistic system.

Keywords: *contemporary geography, human-nature dialectic, paddy field conversion, spatial-symbolic order, sustainable agriculture*

INTRODUCTION

Paddy field conversion contains three critical aspects: changes in use, transfer of ownership, and capital flow into a plot of land (Rauch, 2014). One of the leading causes is the change in land value so that the existence of agricultural land in a particular location is considered inappropriate. Then, it turns into built-up areas. It describes the production of space that generates a new context and identity of human space (Friedmann, 2010)

Unfortunately, this process also suppresses agricultural activities and farmer's lives. The farmers lost the foundation and traditions of life that have been practiced for generations. Some of them press to open new agricultural land to survive and maintain the traditions, although they have to speculate steeper terrain (Huang, et al., 2012). These new agricultural lands give the impression that the area remains the locus of agricultural production.

Many scholars have reviewed paddy field conversion from various perspectives. However, most of them understand the land as a physical and economic object. In this case, the paddy field conversion is always associated with land availability (Axinn & Ghimire, 2011), economic value of land (Chakrabarti & Kundu, 2009), development impacts (Xu et al., 2010), implications on sustainable production (Quasem, 2011) and environmental degradation (Wang & Liu, 2013). In fact, in addition to containing physical and economic aspects, the land also has a cultural symbolic element (Plat, 2004). Therefore, this paper aims to explore the conceptual side of paddy field conversion based on its representative role, especially for farmers.

In the national development context in Indonesia, this study is urgent to accommodate more fundamental and comprehensive academic considerations regarding the concept of land conversion for the sake of agricultural sustainability policy. This policy has been reflected philosophically, sociologically, and juridically in Law Number 41 of 2009

concerning the Protection of Sustainable Agricultural Land (LP2B). The implementation of this law is regulated through Government Regulation Number 01/2011 concerning the Establishment and Conversion of Agricultural Land and Minister of Agriculture Regulation Number 07/2012 concerning Technical Guidelines on Criteria and Requirements for Area, Land and Reserved Land for Sustainable Food Agriculture.

From a philosophical, sociological, and juridical point of view, all of the above regulations reflect the government's priority on agricultural development within national food security, self-reliance, and sovereignty. These regulations are part of the government's efforts to control the rate of conversion of agricultural lands that continues to occur massively in various regions.

In general, the classical problems related to policy implementation are rooted in the dominant role of the bureaucracy and technocracy agents in the decision-making process. An evaluation study conducted by National Development Planning Agency in 2015 reveals how the implementation of the Sustainable of Food Agricultural Land (SFAL) in many regions remains partial; limited to the aspects of planning and stipulation. Meanwhile, other essential elements such as utilization, guidance, empowerment, and protection still run "business as usual" or even untouched. These neglected aspects provide wide opportunities to include hopes, awareness, knowledge, and social cohesion of local communities in policy formulation. They will strengthen social capital in a certain level of spatial awareness to resist the conversion of agricultural land in strategic locations (Fikri, 2020).

The above understanding triggers skepticism to elaborate on the humanistic and symbolic dimensions of the relationship between farmers and paddy fields. It brings this paper to the ideas contained in contemporary geographic thought. In fact, from a more practical point of view, the choice to use the term "contemporary" in this

paper is also triggered by the discussion forum of "Land Conversion: Food (In) Security" in mid-2016 in Bandung City organized by the Research and Development Agency of the Ministry of Public Works and Public Housing. One panel expert has a critical opinion that reveals a need for depth elaboration on agricultural land conversion's reasons or hidden effects based on contemporary approaches to capture the current development issues and needs, mainly at the grassroots level.

Some of the characteristics of critical geography are (1) its persistence in carrying out the subjectivity and plurality of knowledge, (2) it is not oriented towards exclusive truth, (3) does not aim to provide empirical evidence, and (4) does not produce conclusions (Barnes, 2001). The modus of knowledge production is more reliant on discursive openness than theoretical establishment (Buttimer, 2003). There are fundamental changes in the philosophical and methodological aspects of geography (Gauthier and Taffe, 2002).

To explore the phenomenon of paddy field conversion, the first part of the discussion on this paper examines the characteristics of contemporary geography as the basis for this conceptual study. After that, this paper will describe paddy field conversion in Indonesia and discuss it due to the human-nature dialectic, which emphasizes.

RESEARCH METHOD

This research is conceptual research that aims to build a new understanding of paddy field conversion. The underlying main idea is space as a creator of human identity and existence. The view contains a continuous reciprocal relationship or dialectic between knowledge, experience, and space function, as described by the Irish geographer Anne Buttimer in Figure 1. Social institutions and technology facilitate the dialectic. Changes in both will affect the reciprocal relationship between humans and nature.

Farmers and paddy fields are two crucial elements in this paper. If farmers

represent human consciousness, then paddy fields represent living space. In this paper, the elaboration of the relationship between them focuses on the question: what is the essential meaning of paddy fields for farmers? These questions allow this research to unravel the connection between farmers and their fields to reflect the man-nature dialectic.

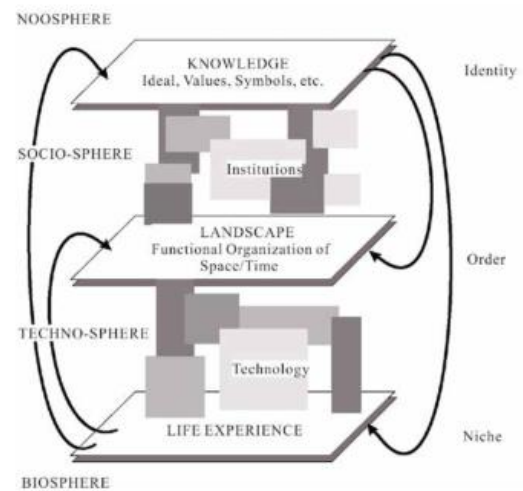


Figure 1. The structure of geographic awareness in understanding the human-nature dialectic (Source: Buttimer, 2015)

This research applies a literature study on scientific works in geography and related humanities disciplines, either books, articles, conference papers, or research reports. The main focus is to identify interdisciplinary views and ideas relevant to paddy field conversion in the context of human-environment relations. The next stage is to assemble and interpret these various ideas based on a conceptual framework on the relationship between human identity, existence, and consciousness in a particular space.

RESULT AND DISCUSSION

Understanding Contemporary Geography

Among philosophers, the term "contemporary" refers to the scientific discourse of the 20th century when the development of science - especially in the realm of the humanities - was very much

influenced by the spread of destructive oppression in society such as hunger, poverty, social injustice, environmental damage, and war. Many critical scholars discussed these social and ecological symptoms as promoting alternative ways of thinking that freed from the rigor of scientific procedures. This new approach is a "turning point" of scientific logic dominated by analytic philosophy that had taken root since the 18th century.

Concerning the discipline of geography, the developments above give rise to what Peet (1969) claimed to be a "new geography," which radically attempted to dismantle the incapability of scientific traditions in contributing significantly to society's improvement. The influence of Karl Marx's ideas through the writings of Harvey (1973) provides an analytical tool to study the spatial processes that run under the dominant power of specific political and economic structures. Meanwhile, Johnston (1986) classifies this kind of geography into "process-oriented structuralist geography" All processes occur in the context of a human-environment relationship as a manifestation of the socio-spatial dialectic (Soja, 1980).

As critical theory strengthened, the following stages of this development lead to the emergence of a "more humanistic critical geography" which understood humans as thinking-cultural beings (Blomley, 2006; Johnston, 1986). The intrinsic elements of humans such as values, mindset, awareness, experience, knowledge, symbols, existence, and identity became essential factors in explaining the human-environment relation in various spatial arrangements (Hickey and Lawson, 2005). Also, the involvement of these humanistic factors aims to gain meaning and a deep understanding of spatial phenomena as part of the natural dialectic of human beings within a specific socio-cultural scope.

However, the term "contemporary geography" does not frequently appear in the works of well-known geographers. Even if it does occur, it is more likely to be used to describe "present-day geography." Often the

term contemporary is an antonym of the past, traditional, or classical. This trend can be seen in Andreychouk (2008), which defines contemporary geography as "a science of the globasteme of our times." By quoting Puja Mondal's opinion, Akintola (2015) also emphasized that contemporary geography "deals with the existing patterns of spatial differentiation of phenomena."

These views suggest a contradiction between contemporary and historical geography. If contemporary geography deals with the present situation, then historical geography deals with the past. But the works of the element of time will change contemporary geography into historical geography. Over time, the present will turn into the past.

From another point of view, Johnston (2020) reveals the contemporary nuances of geography through increasingly diverse scientific developments marked by myriad ramifications. Various schools of thought in geography are still developing, including environmental, cultural, humanistic, spatial-quantitative, regional science, radicalism, realism, feminism, and postmodernism (Filani, 2006; Peet, 1998). However, behind this diversity and complexity, Johnston (2020) believes that three classical geographic metaphors have survived until now, namely (1) the world as a mosaic of patterns and forms, (2) the world as a machine, dan (3) the world as an organism.

Based on current challenges to strengthen the scientific identity of geography, Koskela (2001) also carry out the scoping of contemporary geography. He specifically mentioned four main challenges, namely sustainability, globalization, regionalism, and cyberspace. The four challenges confirm that contemporary geography is no longer concerned with the question of "what is geography," but with "which questions should geography answer" and "whether these questions are relevant to the present." Implicitly, the challenges also contain social, ethical, and spatial justice meanings.

To a certain extent, Johnston and Koskela's views are compatible with the

contemporary notions expressed by Peter Osborne. According to Osborne (2013), contemporary is a critical category that is conceptually selective. Not everything that exists today can be called contemporary. On the other hand, something contemporary is not always outside the historical things. For Osborne, the contemporary character is determined by the significant role an element plays in the current dynamics. The past still can be classified as contemporary as long as having such an important role.

Osborne's view is in line with the argument of the philosopher Henri Bergson about duration. Bergson (1965) argues that duration is always related to moving something perceived as stationary and frozen. Therefore, continued Bergson, duration reflects a continuous view, flows from the past to the present to the future.

Thus, when referring to Osborne's view, the contemporary nature of the discipline of geography is not determined by the time dimension of an object of study but by the conceptual content in the paradigm and scientific approach used to study the object. Current perspectives, concepts, or theories may use to review geographic symptoms in the past. In addition, new meanings which suit the present can revive old ideas in geographic studies.

On that basis, contemporary geography is a product of intellectual evolution in the discipline of geography. Barnes (2001) calls this evolution as cultural turns. Meanwhile, Peet (1998) believes this evolution is evidence of a permanent identity crisis in geography. The crisis is an implication of the nature of geography as an inclusive and synthetic discipline. The inclusiveness forces geographers to breakthrough scientific barriers. Meanwhile, the nature of synthesis requires geographers to integrate the results of scientific breakthroughs into holistic knowledge. Therefore, Knox and McCarthy (2005) argue that one of the main features of contemporary geography is the tendency to cross scientific boundaries.

Paddy Field Conversion in Indonesia

The conversion of paddy fields in Indonesia began to be seen significantly in the period 1990-2000, marked by the rate of decline on a national scale of 78,184 hectares per year (Wahyunto & Widiastuti, 2014). Since then, it has continued at a fluctuating rate. Based on the Decree of the Minister of Agrarian and Spatial Plan/Head of National Land Agency (BPN) Number 686/SK-PG.03.03/XII/2019, the national paddy field area is around 7.5 million hectares. This area is much smaller than the area in 1999, which reached 8.1 million hectares (BPS, 2000).

On average, in the past 20 years, there has been a reduction in paddy fields of around 30,000 hectares per year. Based on a 30-year simulation, Purbiyanti, et al. (2017) found that the conversion rate of paddy fields in Java was four times faster than elsewhere in Indonesia, around 8,346 hectares/year compared to 2,269 hectares/year. Meanwhile, reports from the Indonesian Ministry of Agriculture in 2016 and 2018 revealed a decrease in irrigated paddy fields by 141,530 hectares or more than 28,000 hectares/year.

In recent years, the government has promoted the opening of new paddy fields. Indonesian Agency for Agricultural Research and Development (2005) stated 139,302 hectares of new paddy fields during 1999-2002. Outside Java dominates about 87% (121,278 hectares). Unfortunately, according to the report, there was a much more expansive conversion of paddy fields in the same period, 563,159 hectares or four times of new paddy fields. Even on Java, the ratio was more than nine times. As for outside Java, it was "only" three times. Hence, paddy fields in Indonesia experienced negative growth nationally.

The negative trend is likely to continue due to the lack of the government's ability to open new paddy fields, which only cover 25% of the total converted paddy fields each year (Ministry of Agriculture, 2015). Moreover, there is a more complex problem of land availability as the transformation of the socio-economic structure due to rapid progress in industry and urban sectors.

Agricultural lands in the edge of industrial and urban areas are threatened instantly by the pressure to change ownership and functions (Sumaryanto, et al., 2001).

Paddy Fields Conversion as a Product of Human-Nature Spatial Dialectics

The paddy field conversion represents the relationship between humans and nature. For geographers, reading a land-use map is meant to examine human occupancy patterns on the earth's surface. This understanding is in line with the premise that land is where soil and humans meet. It brings humans as a vital factor in discussing land use both in demographic and cognitive aspects. Plat (2004) understands the cognitive element as one of the dimensions of land, namely the sense of place. Various economic valuation methods have never considered this kind of dimension (Vries & Voß, 2018), so policymakers often overlook it.

Therefore, the definition of space must comprise the manifestation of human existence, not only as a physical container of human life. Human is not only viewed as a homogeneous group but also as unique individuals. The fundamental issues related to identity, life values, awareness, tradition, and lifestyle are increasingly coming to the fore. All that produces a unique and independent spatial imagination individually. This imagination then leads to the specification of human-nature correspondence (Buttimer, 2015).

Paddy represents human awareness in interacting with the encircled natural environment. This awareness stimulates the ability of humans, especially farmers, to combine natural elements (water, soil, climate) to establish life traditions. However, this awareness can change due to new ideas, knowledge, and experiences that can modify farmer-field relations. It brings a profound consequence to the farmers dealing with various contradictions to maintain or sell their fields. These contradictions relate to the social, cultural, political context alteration and the physical-natural environment in the farmers' spatial structure.

No matter the decisions, the farmers will determine the existence of the paddy fields. The decision of one single farmer will affect the other farmers. A farmer's decision to sell a plot of his paddy field, which does not even reach 0.5 hectares, is a starting point for converting paddy fields on a large scale. The achievement of food security is at stake in that decision. Furthermore, the decision also risks the sustainability of agricultural traditions.

Farmers and Paddy Fields: from "ILand" to "my land"

The global community has widely recognized the brand *iPhone*. One that stands out is the lowercase "i" in front of "Phone." Even so, there are still some who write it with the capital "I." In this regard, one of the frequently asked questions is what does the "i" actually mean? This question opens up exciting possibilities for conducting a critical analysis of human attachment to one particular object.

To elaborate, we can start with the uppercase "I" as a self-denoting pronoun. The "I" always emphasizes the existence and liveliness of a subject. It is not just a letter but a word that means "me-ness," which towards self-awareness, selfhood, and selfishness.

How about "phone"? In English, it has a role as either a noun or a verb. However, when referring to the *iPod*, *iPad*, and *iMac*, it is clear that the term "phone" in *iPhone* is a noun. "Phone" is a subject. As a result, if we use the capital letters "I," the *iPhone* combines two subjects, I and phone, representing a person and an object, respectively. Both exist and are active.

Now let's move briefly to "my phone." Unlike the "I," the word "my" does not represent a subject. Like most other adjectives, the role of "my" is to describe a noun in a sentence, not the self. Thus, the meaning of "iPhone" is fundamentally different from "my phone." On the latter, "phone" is more highlighted than "my." Almost all meanings are only about "phone," not about "my" as a person. There is no intention to explore the personal aspect of

"my." As a possessive adjective, "my" cannot come alone in a sentence. It means that it does not explain the existence and uniqueness of human beings, both intangible and intangible. The reality of the phone always obscures the presence of "my."

Even though we have known that the "i" on *iPhone* stands for the internet (Plummer, 2016), we can still apply the understanding above to elaborate land issues, especially on the relationship between humans and nature. More specifically, it is about the relationship between farmers and paddy fields.

Referring to "iPhone" and "my phone," the terms "ILand" and "my land" can explain the relationship between farmers and paddy fields. The concept of self-identity is applicable to explore the difference between the two as an entry point for examining the association between identity and space. Self-identity becomes one of the main topics in the discourse of poststructuralism and postmodernism (Reaves, 2001), which also colored the discipline of geography in the 1980s (Woodward, et al., 2009). It shows that geographical studies have penetrated the self-awareness factor in their analysis.

The term "I" relates to the self-concept at the core of George Herbert Mead's discussion of behavioral psychology (Blumer, 1994; Ahmadi, 2008). Herbert Blumer used the self-concept as an intellectual foundation to build the Symbolic Interaction Theory in subsequent developments. Blumer (1986) believes that there is a connection between human actions and the significant meaning of a specific object. Meaning is formed in the human mind when he interacts with his environment. This interaction allows the process of interpretation circularly that may provide feedbacks leading to the modification of meaning. Referring to Mead's opinion, Blumer (1994) also reminds us how critical human consciousness is in such a process. For him, consciousness is a continuous movement of the mind connected with various symbolic objects.

The symbols play a fundamental role in identifying and notifying the self.

Thus, human actions and existence are not determined solely by their rational logic but also by "other logics." Lacan (1977) and Freud (1977) define the other reason as the ego and social consciousness. As Lacan said, the surrounded symbolic order will determine the position of humans as active actors. As stated by Lacan, various symbols enclose human life in economic, religion, power, or culture. They interweave each other to establish a specific order and context of life. Lacan believes that every human activity can be categorized as "meaningful action" only related to these symbols. Identity as a mirror of self-awareness and existence is not free from environmental influences.

Concerning identity, Anti-Essentialism thought rejects a stable and uniform identity across space and time (Moodod, 2008). Identity is a product, not something that is readily available to discover (Harrison, 2014). Various actors can refashion the identity based on specific references, modes, and interests. It may be formed by oneself according to the cross-biography as described by Giddens (1991). It may also be produced hegemonically by power, as Said (1978) defined through the concept of The Other. The important note is that each individual's self-identity cannot be separated from social processes, starting from the family, kinship, community, ethnicity, profession, to the nation.

Referring to the ideas above, "ILand" and "my land" can also be understood as the symbolic order. Both represent the relationship between humans and their living space. If "ILand" represents an emotionally and culturally embedded relationship, then "my land" shows a more pragmatic relationship. In functional relationships, there is no emotional connection between humans and space. Everything is more instrumental. If "ILand" reflects human-nature integration, then "my land" reflects human-nature interaction (Figure 2).

Figure 2a shows how the identity of farmers is part of the existence of paddy fields. The loss of paddy fields will lose the farmers' identity. On the other hand, paddy fields are also part of the minds and awareness of the farmers. Their sustainability is determined mainly by the desire and ability of farmers to maintain their identity as farmers. Without farmers, paddy fields will lose their meaning both functionally and symbolically.

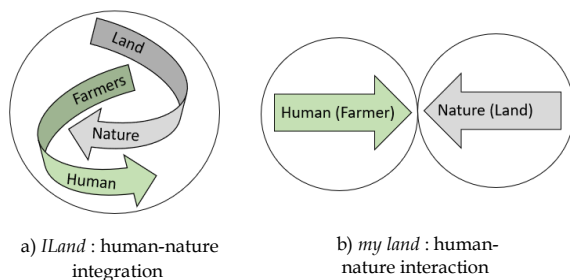


Figure 2. ILand and my land as a symbolic order

There is an enduring relationship between farmers and paddy fields that is strung together in the long period. They are bounded structurally based on intrinsic values so that they can reinforce each other's identity. The identity of the farmer is attached to his field, and vice versa. Therefore, paddy fields cannot be seen only from material aspects such as area, fertility, soil type, location, or price, but also its role and symbolic meaning in identity formation. Paddy fields are a network or structure of life in which farmers are an inseparable part.

So is the case with the farmers. They are not just a type of livelihood. Also, they are not individuals that can be simply summed up and then presented as statistical reports in tabular form. Far more than that, the farmers represent a process of cognition. According to Santiago's Cognition Theory initiated by Humberto Maturana, cognition may produce a reflective awareness at a certain level of complexity. It allows humans to build self-concepts and formulate values and beliefs to translate their living space into something meaningful (Mingers, 1991). This

kind of awareness produces a unique sense of place for each farmer. Then, the farmers construct their world subjectively according to imagination, perception, experience, and knowledge.

Paddy fields are the core of the world of farmers. Therefore, paddy fields are not a physical environment that is detachable from the consciousness of farmers. Besides, paddy fields are not just "areas of operation" for farmers to gain economic outcomes. Referring to Capra (2004), paddy fields are a medium for farmers to inherit values and the meaning of life across generations. Even if a farmer does not own a paddy field, he can still carry out the inheritance process as long as he lives in an area with vast paddy fields.

Borrowing the understanding from Giddens (1979), paddy fields are the basis for ensuring the continuity of the reproduction of the socio-cultural system, which will extend to the reproduction of the economic system. Therefore, as a spatial category, paddy fields are physical and human landscapes or even symbolic landscapes. Ignoring the humanistic dimension of paddy fields means reducing the existence of farmers. Tim Marshal explained it as follows:

The land on which we live has always shaped us. It has shaped the wars, the power, politics, and social development of the peoples that now inhabit nearly every part of the earth. Technology may seem to overcome the distances between us in both mental and physical space, but it is not easy to forget that the land where we live, work, and raise our children is hugely important (Marshal, 2015:1)

Unfortunately, the reduction seems to be getting more and more prominent nowadays. Since the past centuries, capitalism has labeled land as a factor of production to encourage economic growth. The size and price of land are the main attributes. The farmers also have suffered a similar fate. The embedding of the term "labor" confirms their position only as a factor of production. Their existence is

determined more by the number, skill level, and exchange value rather than the tradition and value of life.

There is a narrow understanding that positions agricultural activities only as a source of income and food for the family and the state. The relationship between the farmer and paddy field is just as an instrumental relationship. Paddy fields are nothing but economic assets. Worse still, it is only understood as a matter of ownership. The transfer of ownership of paddy fields is a reasonable consequence of the reduced value and benefits of the factors of production.

The paradigm of production factors triggers a change in the relationship between farmers and paddy fields from "ILand" to "my land." Farmers' views on paddy fields have also changed from cultural to production values. The vast expanse of paddy fields is fragmented into plots of land ownership. Each plot is assigned a particular economic value through a pricing mechanism depending, for example, on the distance from highways or economic facilities. Finally, the paddy produced from the fields is also "monetized."

As a result, the paddy fields become an economic commodity that is worthy of being traded. Most paddy fields by the roadside are treated, such as merchandise offered along shopping mall corridors, waiting for buyers. It is a situation where the identity of farmers is no longer determined by themselves but by other parties. The outsiders, especially the government and investors, superficially understand farmers just as one category of work, such as factory workers, employees, and traders.

Irrigation System and Social Cohesion of Farmer

Gertz (1983) and Braudel (1979) states that the paddy field is one of the tremendous human works in the history of civilization. Referring to Wittfogel (1955), a hydraulic society contains a basic idea of its origin. He believes that the hydraulic community is a society with high creativity that can control natural mechanisms. This

creativity encourages changes in attitudes, modes, and environmental management towards a more complex of social institutions. Then, the society requires a stable social structure that is controlled hierarchically by a dominant authority. Every effort to increase paddy production requires an increasingly centralized power (Meer, 1979).

The hydraulic community is associated with the management of rivers and irrigation networks. The irrigation system plays a vital role in maintaining dynamic inundation to enrich the oxygen and nutrient content in the soil (Geertz, 1983; Braudel, 1979). The wet nature will preserve soil fertility so that paddy fields can produce in the long term.

One of the critical conditions for maintaining wet properties is the stability of the water supply. Water must be stored as a reserve when its availability in nature is running low. The irrigation system holds and raises the water level in certain parts of the river to regulate its distribution evenly. But some of the paddy fields are very far from the river. To irrigate these fields, farmers have to build canals to complement the natural streams of the river.

All of the above work must be carried out jointly by all farmers in specific settlement units. Building a river dam requires a lot of labor. The distribution of water also needs agreement among the farmers to provide fairness and satisfaction for all. Even though every farmer has a plot, the collectiveness of all farmers determines the success of cultivation. So the effort to irrigate paddy fields for sustainable production will be arduous without togetherness, harmony, and social balance. It is why farmers are known as a community with solid and extensive social ties beyond the boundaries of kinship (Sumardjo, 2002).

Farmers in Indonesia are not like farmers in the United States who own extensive land. A segment of a river that crosses agricultural land in the United States can be claimed as private property so that landowners get more water rights than other farmers (Diamond, 2014). In Indonesia, this

trend does not apply because farmers have small land.

Even though the paddy fields are small, the farmers know that they live on a spacious arable plain. They integrate themselves and their fields into a continuous space that consists of arable lands, paddy fields, and water sources. The irrigation canal system reinforces this awareness of spatial continuity towards mutual benefit. On the other hand, if water sources are managed individually, such as water wells in each plot, the awareness will weaken. Therefore, the source and method of managing water will determine the spatial organization of the paddy fields (Figure 3).

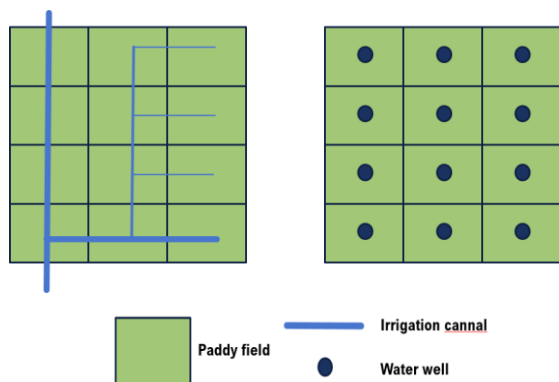


Figure 3. Type of irrigation as spatial organization of paddy fields

The river flows as the basis for spatial continuity have been culturally embedded in various community groups in Indonesia. Sundanese people, for example, have a *lemah-cai* concept as a reflection of traditional awareness of the integration of land and water as a source of life. They also recognize the idea of *luhur-handap* which reflects the ecological integration between upstream and downstream (Sumardjo, 2002). This kind of intergration is also indicated by the toponymy of *hulu* (upstream) and *hilir* (downstream) which are commonly found in Sumatra and Kalimantan such as Palembang Ulu-Palembang Ilir, Indragiri Hulu-Indragiri Hilir, and Kapuas Hulu-Kapuas Hilir. In North Tapanuli, the term *tanah basah* or "watered land" is part of the *Huta* concept, emphasizing religious-ecological aspects in managing living space (Simanjuntak, 2015).

In areas with a strong paddy field tradition, such as Java and Bali, the arable land has a sacred value equivalent to a woman's womb (Ricklefs, 2013; Wessing, 2008). The myth of Dewi Sri becomes a symbol of the sanctity of the arable land as a place for sowing, nurturing, and developing the seeds of life. The flow of water that crosses arable land is like a strand of the placenta that supplies the nutrition for the seeds. It cannot be interrupted or even disconnected.

In the past, irrigation networks relied heavily on natural infrastructure, mainly through river streams and ditches, which had limited range. Currently, the scope of irrigation services is much broader, supported by modern reservoirs and technical irrigation canals. The modern irrigation system can stretch across several villages, districts, and even provinces. The system integrates many farmer groups who are widely dispersed and may not know each other. Moreover, it assembles the paddy fields into one eco-cultural entity.

Therefore, the irrigation system maintains the stability of the water supply and is also a part of the social system. Irrigation networks are a social glue (Haynes & Nijkamp, 2006) that can strengthen social cohesion among farmers. Irrigation is a vital component to increase the collective bargaining power of farmers to maintain paddy fields. It indicates that farmers in areas without irrigation may have lower collectivities.

Paddy Field Conversion, Spatial-Symbolic Order, and Sustainable Agriculture

Figure 4 shows the general process of land-use change starting from penetration to succession. The process implicitly shows the evolution of the symbolic order of paddy farming along with the conversion of paddy fields. The symbolic order represents a continuous reciprocal relationship between (1) arable plains, (2) paddy fields, (3) irrigation water, and (4) farmers. If there is a disturbance in one component, it can damage the overall order.

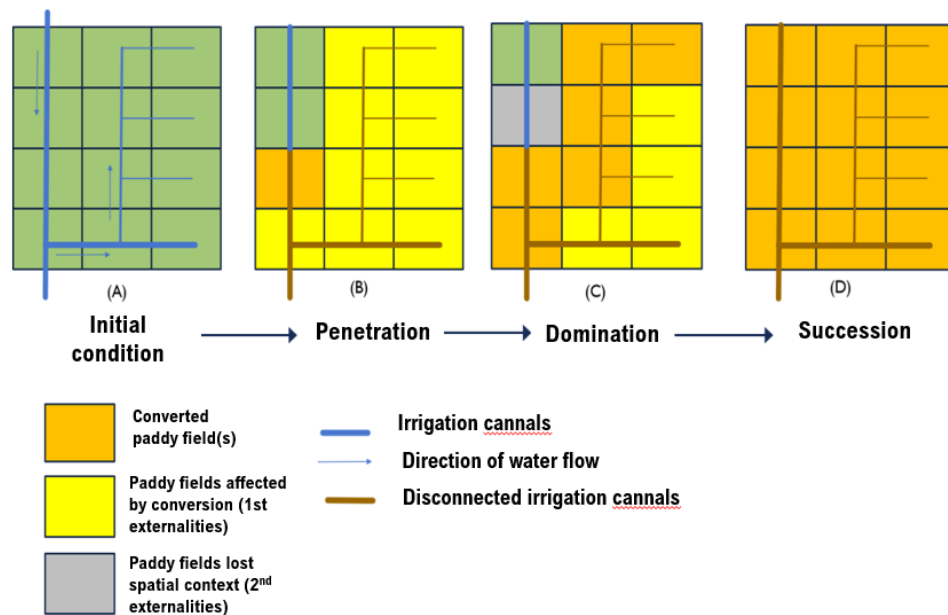


Figure 4. Spatial externalities of paddy field conversion

Figure 4 also shows the spatial externalities due to the conversion of paddy fields, as described by Platt (2004). Although the conversion only occurs in a particular plot belonging to one farmer, several neighboring farmers will suffer the impact. The conversion of a single field can cut off the flow of water or change the agricultural environment. Then, neighboring farmers may lose the opportunity to farm, even though they have a strong desire.

This spatial externality hints at the fractured bond between farmers and paddy fields. Disruption of water flow due to conversion can weaken relations between farmers. The remaining fields are no longer suitable for growing rice. Despite still recognized as a paddy field based on their physical characteristics or status, the nuance and condition of paddy fields no longer look like previous years. The imagination embedded for years in farmers' minds about paddy fields as "the green rug of life" has increasingly faded. The arena is no longer there. Even if it remains there, it is not entirely green anymore.

Paddy fields as "green rugs" are spatial contexts. The rug represents a comfortable and quiet place that can integrate human life. If the color of the rug changes or fades, the spatial context changes

as well. Sensitivity, creativity, and intention to blend into space will also be reduced or at least modified.

Changes in the spatial context become the second externality. Farmers who do not lose their fields and do not experience water supply disruptions may also feel it. The paddy fields are still there, and the water is still flowing. However, the new spatial context leads to misunderstandings about the presence of paddy fields. Paddy fields are a strange phenomenon in the emergence of non-agricultural symbols. They lose their identity and existence.

Instead, farmers try to adapt to the new context. They attempt to build a new identity that was no longer associated and defined by the paddy fields. In contrast, this new identity is now associated with some unfamiliar symbols of life such as industries, shopping malls, hotels, etc. Urban practices replaced agricultural traditions. The children of the farmers prefer to be urban workers rather to sustain agrarian tradition. Some of them choose to become traders, motorcycle taxi drivers, and other professions that are free from paddy fields. Thus, this adaptation leads to the spread of non-land-based traditions, which meant marginalizing agriculture.

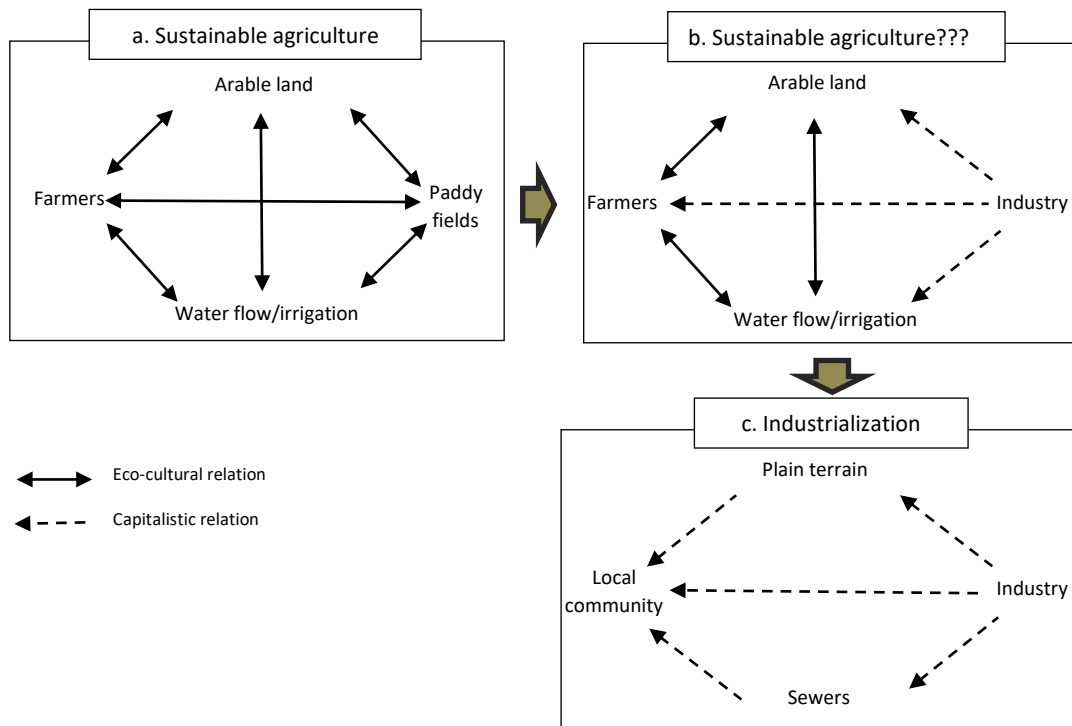


Figure 5. Conversion of paddy fields and changes in the spatial-symbolic order from sustainable agriculture to industrialization

The conversion of paddy fields in one plot is the beginning of the collapse of the symbolic spatial order of sustainable agriculture which consists of arable land, paddy fields, water, and farmers (Figure 5a). The conversion introduces "industry" as a new element in the symbolic order replacing "paddy fields" (Figure 5b). In contrast to paddy fields, the industry does not create an eco-cultural integration with farmers, arable land, or irrigation. The capitalistic economic perspective is the new basis for modifying the relationship between industry and the other three elements. The space of life offered by industry is very different from that provided by paddy fields.

In this new symbolic order, the attribute "arable" attached to "land" has no significance for the industry. Then, the land is only understood as a vast suitable plain for industrial expansion, likewise with the water and farmers. They are driven to minimize industrial costs. The industry may turn irrigation canals into sewers. It no longer plays as a vital component of social

glue. The identity of farmers has also changed to "local community," which is often limited to defining their number only, both as residents and as labor.

The new symbolic order has reached perfection with totally different components: plain terrain, industry, sewers, and local communities (Figure 5c). Any relationship within this new order is based on and controlled by industrial interest. It means that industrialization is formed. On the other hand, the dream of sustainable agriculture and food security is increasingly unattainable.

CONCLUSION

As a synthetic and inclusive discipline, the development of geography has led to the fusion of human identity and space. This fusion is a reflection of the man-nature integration as the core of the discipline. There are various mechanisms of human-nature dialogues that full of acceptances, resistance, and contradictions in a spontaneous, random, and unexpected

pattern. Social law cannot be separated from natural law and vice versa. Hence, human existence will also be determined by how they unite themselves with nature. Nature will be interpreted and treated according to human consciousness, experience, and knowledge.

Paddy fields are a manifestation of human-nature integration. For the farmers, paddy fields are stages or an arena of life rather than physical containers only. Farmers are not just a livelihood, but self-existence. The relationship between paddy fields and farmers represents a spatial-symbolic order containing values, passion, identity, and living traditions. This arrangement is the foundation of sustainable agriculture. The conversion of paddy fields will undermine such spatial-symbolic order.

The policymaker cannot overcome paddy field conversion if only focus on food production issues without involving the awareness and existence of farmers as the main actors. Philosophical strength, sociological sensitivity, and juridical credibility are the basis for understanding the depth of meaning in the relation between farmers and their paddy fields according to the characteristics of a particular space. The conversion of paddy fields is an implication of the choice of ideology and the alignment of development on the uniqueness of eco-cultural relations in a specific spatial order.

By understanding the spatial-symbolic order centered on paddy fields, the conversion is a spatial externality stimulated by changes in the spatial context due to capitalization in development progress. Therefore, agricultural sustainability requires an integrated policy at the ideological level, especially regarding land and irrigation issues, towards strengthening farmers' and paddy fields' existence simultaneously. For this reason, a fundamental reorientation or reformulation of policies related to land and irrigation is necessary or even mandatory to oversee the implementation of Law Number 41 of 2009 concerning the Protection of Sustainable Agricultural Land. Such a policy must understand rice fields beyond the practical

level as a production area but at the ideological level as the basis for the existence of farmers.

ACKNOWLEDGEMENT

The authors would like to thank the Ministry of Research and Technology/National Research and Innovation Agency (BRIN) and the Directorate of Research and Development Universitas Indonesia for the valuable opportunities and research funding through the National Innovation System Research Incentive Program (Insinas) Batch 2 in 2020 under the Assignment Agreement Number: NKB-3163/UN2.RST/ HKP.05.00/2020

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