Changing cultural landscape in post-productivism of rice field in Nyuh Kuning Village Bali

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Abstract. Natural landscape in developing countries is facing a challenge due to economic growth, a cultural shift, and population dynamics. Farm land where is close to urban areas tending to be converted into more economically valuable spaces. Watershed Pakerisan listed as World Heritage of UNESCO, rich of cultural value on its landscape, especially the Subak, a traditional irrigation system, has a close relationship to the philosophy of Hindu-Bali culture. Nyuh Kuning, a village (local terms is Banjar) located adjacent to the Pakerisan Watershed, and has a spatial pattern in synergic ally connected with tradition, culture, and their religion. Rice field not only for economical but also its place to worship the Goddess (Dewi Sri). Rice Field in Nyuh Kuning declined significantly along past 10 years. The changing landscape of Nyuh Kuning traced through serial of aerial photographs from 2005 until 2015. Along with the broad decline of rice field, villager’s attachment on their cultural space is also changing. An economic motive pronounces a winner in the bargaining between the motives of economic value and cultural value in the Nyuh Kuning. Villagers revealed arguments that necessities nowadays prosecute high consumption, both for household and for education. Therefore conversion of rice fields to become more economical is understandable among communities. Villagers rent the rice fields to foreigners (migrants), and then foreigners take rice-fields as personal assets, not for the villagers (ritual activities and the cultural traditions) any longer. In theoritical term, villager’s emotional bond to the cultural landscape in post—productivism of rice field, is weakened. Wawedangan Desa and its complex cultural values are not part of their identity anymore. However, place dependence become the reason why the shifting place attachment is happening. Functional economic bond is mentioned as place dependence dominats in villager’s attachment. Certainly it’s not a sustainable way in conserving cultural landscape. Learning from Nyuh Kuning case, new ideas need to conserve cultural landscape and at the same time increased the economic villagers. Through considering rice fields renters preferences and attachment land in Nyuh Kuning, rice field is an important element for their preferences to stay at Nyuh Kuning. Villas in Nyuh Kuning retaining rice field map as part of the villa’s character. Here we can see rice field not only culturally valuable but also as a tourist attraction, which can be sustained if the communities themselves manage it.
1. Introduction

Natural landscapes, particularly in developing countries such as Indonesia, are facing the development challenges due to economic growth, a cultural shift, and of the dynamics demography. Accessible rice field where is close to urban areas tend to be converted into places that more economically valuable, like villa, cafe, and rented to foreigner as a house. Such phenomena in urban studies referred to term 'post-productivity' [1] [2]. Leapfrog migration and urban growth to the suburbs and/or rural farmland; push changes to landscape to be a variety of urban amenities [3]. Moreover, the trend of rural tourist improved greatly. Tourist looking for a destination that is quiet, close to the natural landscape, in order to escape from the bustle of urban life.

Pakerisan Watershed listed as UNESCO World Heritage, rich of cultural value on its landscape. Subak, an irrigation system managed traditionally, based on philosophy of Balinese culture. Nyuh Kuning, a village located nearby to the Pakerisan Watershed, has declined in wide of rice field significantly in the last 10 years. Growing of tourism sector in Ubud Bali has brought an economic sectors shifted, from agriculture to tourism services. These situations drive the villagers to rent their rice filed and convert it into villas, hotels, and house for foreigners. Tha changing landscape in Nyuh Kuning as a pattern of how the development challenges have pressured the landscape character, which reflect phenomenon of post-productivity cultural landscape. Moreover, these phenomenon also faced by other villages, in Pakerisan Watershed. Along with the strengthening of the popularity of Subak System as a world heritage, it invites more and more tourist to Ubud Bali.

Development of urban area and will be succeed when its inline and supported by understanding, acceptance, and participation of the community [4]. In similar way, land use changes in rural areas, occur slowly or rapidly, strongly influenced by the local community perception. One of influential factor is the place attachment, which is an emotional bond that grows between an individual or group on the environment [5]. Place attachment as a complex phenomenon that is difficult to model. However the pattern can be observed through how to form people's behavior towards the environment. Attachment at a high level often-tangible form of community commitment is high, positive behavior in protecting and maintaining the environment [6]. If the community is tied to a place, they will tend to participate keep from environmental character changes occur. As an illustration Walker and Ryan in their study of rural communities Norway found that residents of small towns in Maine have a strong attachment to the natural features and rice fields in the middle of their neighborhood [7]. Residents who indicated a level of attachment tends to be high, they are significantly more supportive of preservation strategies in urban development, with a view to protecting the remaining landscape of rice fields.

1.1. The Role of Place Attachment

Attachment to place has a role in how people interpret and react to changes. Place attachment defined as an emotional bond among people and place components [8] [9]. The emotional bond is often referred as place identity, while the functional bond is mentioned as place dependence [10]. Place dependence describes functional bonds that people have to the places. This bond develops when places provide the conditions or features that meet people’s needs [11] [6] [12]. Meanwhile, place identity described as symbolic meanings given to a place as, or psychologically people invest value in it, so the place then becomes part of their identity. Place identity develops from memories, ideas and feelings which were associated with a place [13] [14] [12]. Breakwell’s Identity Process Theory (IPT) used to explain how places becomes part of people’s identities [15]. Refer to IPT, anything that provides people with feelings of distinctiveness, continuity, self-efficacy, and self-esteem can be assimilated into their identities [16]. People can also feel in control of their homes and communities, which is a prerequisite for developing bonds with the place [17]. In order to protect their identities from disruptions, people may engage in efforts to minimise or reduce place change [18].

1.2. Response to Place Change

Relationship between place attachment and place protective actions argued by Devine-Wright about the psychological response to place change [19]. This framework consists of five stages. The first stage
people develops awareness to the place change. In stages two and three, people interpret the implications of the change and evaluate the change as positive or negative. Different people within the same place might have differing views on this, depending on their place attachment. Strongly attached people are more likely to keep themselves abreast of place issues in the local area and to take action against changes that they have evaluated negatively. Proposed changes may be evaluated negatively if people believe that the changes threaten their place identity and/or place dependence. People may evaluate change as negative if they feel that it will stop a place from meeting their needs, thus threatening their place dependence. Alternatively, if place change is interpreted as having the potential to enhance a place, strongly attached people may evaluate the change positively. The fourth stage is deciding how to cope with the threat; includes thinking about how to respond to place change. The fifth stage is deciding what can be done and acting. People with stronger place attachment may be more likely to act oppositional behaviour.

The theory of planned behaviour (TPB) is used to predict whether people will decide to oppose the change. In this theory, people’s behavioural beliefs, normative beliefs and control beliefs affect their behavioural control. This framework is most often applied to predict people’s behavioural intentions which are then used to predict both self-reported and observed behaviour [21]. A meta-analysis of the TPB found that attitudes, subjective norms and perceived behavioural control accounted for 39% of the variance in intentions. Behavioural intentions and perceived behavioural control then accounted for 31% of the variance in self-reported behaviour and 30% in observed behaviour [22]. A small number of studies have used the TPB to examine civic engagement. Read et al. (2013) found that, while place attachment was correlated with windfarm opposition, it was the TPB, particularly subjective norms, which predicted intentions to oppose windfarm development [23]. Another study, of an adolescent and youth population, found that attitudes and perceived behavioural control were related to both offline and online civic engagement, but norms were not [23]. The TPB has also been found to predict intentions to engage in women’s rights protests, with attitudes appearing to be a much stronger predictor than norms or perceived behavioural control [24].

1.3. Aim and Hypotheses
As initial research, this study was aimed to describe and identify, cultural value on the landscape, its changing, and as well community attachment to the cultural landscape and response to landscape change. Refer to theories above It’s hypothesised that people with stronger place attachment would be more likely to interpret place change as negative and threatening.

2. Methods
Place attachment to landscape captured through field survey during the first week of Bali International Field School, 2015. Semi-structured interview techniques conducted along with casual and incidental contacts with villagers, teenagers, and also with foreigners who has live there. Respondents were selected randomly, through snowball sampling technique. Data proceed in content analysis, qualitatively, to interpret variances of landscape changing and construct the pattern of either place attachment and response to the change.
3. Results

3.1. Nyuh Kuning’s Cultural Landscape

Nyuh Kuning is a traditional village (Banjar) also titled as Desa Pakraman, an autonomous village, which has three main major components: a main temple, open public space, and cemetery. Nyuh Kuning is located just south of the most popular tourist destination in Ubud Bali, Monkey Forest. South Gate of Monkey Forest can be accessed by passing Nyuh Kuning village. While its location only next to Ubud City Centre. Villagers have string dependence to Ubud Centre for their daily life. Pura Agung (the Great Temple of Ubud) and Ubud Market is located only 2 km from Nyuh Kuning. These strong physical and functional connection have made Nyuh Kuning directly affected by the tourism growth in Ubud Center. In the other hand, Nyuh Kuning itself attract tourist through its quiet neighborhood, cheap homestay, traditional Balinese architecture, and ethnical sculpture and traditional ornament along the street village. Nyuh Kuning flanked by two rivers, the Wos River on west, and Tunduh River on east. The village lies from north to south. Formerly Nyuh Kuning identic with extensive landscape of rice field and a row of yellow coconut trees. Irrigation is managed through the Subak system. Subak is a traditional ecologically sustainable irrigation system that has bonded Balinese agrarian society. The water managements are under the authority of a Subak temple priest. Rice is seen as the gift from God. Therefore, Subak System also has significant role in relationship between humans, environment, and the gods. Rituals in Subak temple promote a harmonious relationship between people and their environment through the active engagement of people with ritual concepts that emphasize dependence on the life-sustaining forces of the natural world.

As a Pakraman village, Nyuh Kuning headed by a Bendesa. Nyuh Kuning has Pura Kahyangan Tiga (Three Main Temples) and Setra (cemetary). This different to common traditional village in Bali, which is consists of hamlets, one temple, and shared cemetary. Therefore Nyuh Kuning also called Banjar Pakraman (autonomous village). Pakraman derived from two words, “Pa” which means that the benchmark and spiritual guide; and "grama”, which means living space and its environment as the meaning of words ‘village’. So, Pakraman is a living environment, a place for teaching and living, wheres community arranged to follow the spiritual rules, follow the guidance of Hinduism rules.

3.2. Cultural Value on The Landscape

Spatial order of Pakraman village follows Hinduism philosophy. The World is classified into Bhuwana Agung (big-world) and Bhuwana Alit (small-world). Bhuwana Agung as macrocosm of the village, a man-made environment including buildings, neighborhoods, and so forth. Bhuwana Alit is human body who live inside Bhuwana Agung. Relationship between the Bhuwana Agung and Bhuwana Alit illustrate as a fetus inside the womb. Womb as a place for life, provide protection for the growing fetus. Therefore artificial environment (village) must be arranged in order to provide protection for people who live inside it.

Tri Hita Karana conception underlying the balance between macro cosmos (universe) and micro cosmos (human being). Tri Hita Karana lead people to keep the environment in harmonize order, among those three elements: Atma, Prana, and Anga. Atma is Almighty God; Prana is the force that drives the universe; Angga is the elements of Panca Maha Bhuta. Panca Maha Bhuta consists of five elements of human body, Apah (water or liquid), Pertiwi (soil), Bayu (wind), Teja (heat substance or light), and Akasa (space or ether) [25]. Tri Hita Karana philosophy applied on spatial order of the village: Atma elements manifested as temples, Prana is the living area (housing), and Angga is open area including rice-field. Nyuh Kuning Village’s spatial order follows conception of Tri Hita Karana, which is classified into three concentric zones. Atma is located in the central part of the village as the most sacred area, characterized by the presence of Temple, sacred banyan tree, and open space as a place to hold traditional and spiritual ceremonies. Prana zones intended to shelter villagers termed Karang Ayahan, residential area passed down inheritance according to local tradition. The land in this zone cannot be bought and sold, but only inhibited by family members. Angga zone intangibles open land for gardens / forests and fields, where villagers produce goods through gardening and farming. Land in the zone of
the latter is commonly referred as Wawedangan, can be owned by individuals and can be traded. Rice field to be a part of this last zone and since the 11th century has become a part of the rural landscape at once part of economic and cultural activity. Rice field irrigation system managed traditionally through the Subak system. There is a Subak Temple, Pura Ulun Carik, at north part of the village, where is farmers used to be pray, put offerings in order to establish harmony communication with God and begging agricultural succeed.

Besides Tri Hita Karana conception, also there is "Tri Anga" conception than give guidance for village spatial order. Tri Angga means three physical values, namely the Utama Angga (head); Madya Angga (body); and Nista Angga (feet) [26]. Main elements of the universe in the form of Swah Loka Anga, Madya or Bhuah Loka Angga, Nista Loka or Bhur Loka. Key elements in a region such as Mountain, associate as Utama Angga. In a village, Utama Angga interpreted as place for God, Madya Angga for settlements, and the Nista Angga for cemetery. Tri Angga in Nyuh Kuning applied as follows: (1) Utama Angga elements, there are Kahyangan Tiga (three main temples): Pura Desa is located in the northern part of the village; Puseh temple is situated at same location with Pura Desa; Pura Dalem is located at the southeast part of village. (2) Madya Angga elements: there are neighborhoods at the center of village. (3) Nista Angga elements: a cemetery located adjacent to Pura.
Dalem and Pura Taman, a pond for ceremonial related to purifying soul and heirlooms, which is located at south part of the village.

There is also Earth's axis conception, *Kaja* - *Kelod* (North - South) and axis of sunrise - sunset (east - west) which both merged into philosophy *Sanga Mandala* [26]. Implementation on a village, Sanga Mandala concept: put the activities of *Mandala* that is sacred (Pura Desa) in the northern area; *Madya Mandala* form Pura Puseh, neighborhoods to a central area; and *Nistaning Mandala* is a grave and Pura Dalem found in the southern area. According to its function, the concept of the regional division of *Sanga Mandala* of Mandala form of sacred and spiritual activities; *Madya Mandala* as space worldly activities such as economic, social and housing; *Nistaning Mandala* for activities such dirty-containing waste landfills, disposal channels for rainwater and graves. Sanga Mandala be saw on laying any religious site. Pura Desa and Pura Puseh to worship the god placed in the *Utama Mandala* (north), settlement placed in Madya Mandala (middle of the village), and the graves and a pool to wash the sacred peralatn located in *Nista Mandala* (south). The assertion west as the area marked by the placement *Nista Mandala* Pure Dalem Alit and a small cemetery.

3.3. Changing Landscape

Changing landscape in Nyuh Kuning explored through interpretation of aerial photographs, in 2005, 2009, 2013, and 2015. The interpretation is conducted by classifying visual image (textures and colours) that indicate land cover character. This technique is quite easy to do as a form of land cover can be identified one another based on their color: the residential area is brown and red, garden / forest green with texture grove, and the fields are gray (not embedded) and green textured grain (already planted rice). Land cover image compared between years 2005 - 2015 have showed that landscape changes occurred on lands garden / forest some point turn out to be awake and open field (the garden). Significant changes were observed in rice field were, which is reduced significantly in the last 10 years. Rice field formerly scattered on the north side of the village and longitudinally on the east side of the village. Being on relatively gentle terrain around the Tunduh river flow from the fountain Monkey Forest. West side of the village there is a *Wos* river, with a larger dimension than another river, but has a steep topography and the river level is below a depth of over 7 meters of elevation settlements Nyuh Kuning. Steep topography may have to be obstacle, so the west side of the village is not used as rice fields but it still left as forest.

![Figure 3. Rice field distribution in 2005, 2009, 2013, and 2015 (left to right)](image-url)

In 2005 aerial photograph shows there are at least five zones of rice fields in Nyuh Kuning. In 2009 plots of rice fields split by hotel / villa, and finally in 2015 the remaining three zones rice fields two of
them no longer as the fields of production, but as an aesthetical garden for villa which offer a quite rural atmosphere for their guests.

3.4. Place Attachment

There are three patterns of place attachment to the landscape which is categorized as follows: (1) Adult Citizens, (2) Youth Citizens (Taruna-Taruni), and (3) Settler who live in Nyuh Kuning. Their place attachment are different each other, have been affected by various factors. Adult citizens have a strong attachment once adhering to the tenets of Tri Hita Karana, living in harmony with God, with nature and with others. Taruni-Taruni have a strong attachment to the landscape of the village was influenced by a childhood memory, about a quiet village and playing around in rice fields. Youth generation affected by contemporary views on environmental sustainability that was gained from formal education. Meanwhile, Settlers or foreign newcomers have a strong attachment to the landscape of rice fields, because of their preference to stay and live in rural scene, close to the green rice fields.

Local residents have grown strong firmness in order philosophy Pakraman as the principle of Tri Hita Karana. Harmony with God actually pursued through preserving Tria Angga sacred elements in village. Harmony with nature conservation outlined in the order of the elements of the landscape of villages by Sanga Mandala composition. Harmony with human beings embodied in respect personal interest and respects each other’s privacy. Deliberation held before agreeing to the collective affairs of the villagers. Their strong attachment looked out of their shared commitment to keep village fabric of space correspond Hindu Bali philosophies. So the composition and layout Pura Karang Ayahan still maintained until now. Meanwhile, the conversion of rice fields, whether, reflects loss of community attachment to the cultural landscape. According to the results of interviews with Bendesa (village head) and some local residents in mind that over the function of rice field is not simple enough to be translated as an attachment disengagement of citizens to the cultural landscape. It is the result of a bargaining process of citizens in applying the concept of Tri Hita Karana in situations of post-productivits of rice field. Villagers strive to maintain harmony and the environment at the same time also seeking harmony with their fellow citizens. As stated by Mesch and Manor (1998) [28] that place attachment is not only a person's attachment to the place, but it could be someone attachment to other people in the place, and the local cultural values. As has been stated previously that Rice field as Wewedangan area is the space for economic activities, in which people utilize this land for production process, and are owned by individuals. Any decision (rent it, sell, and making land villa / hotel) is included in the scope of personal decision. Bendesa indeed involved in any land transactions Wewedangan, however Bendesa has no power to prevent the owner to rent it, because he also must preserve harmony with the neighbors by respecting citizens' private interests and not intervene rice fields transactions.

Taruna-Taruni revealed that their attachment against childhood memories and the stories about the picturesque of Nyuh Kuning village at past, when many rice fields and quiet still existed. Their place attachment are not much built by economic motives, but still the sophistication ideal Balinese Landscape in many rural landscapes they hear from parents, school subjects, and mass media, also about Subak system on the village landscape.

Foreign resident who live in Nyuh Kuning, to get the experience of living in rural areas in a quiet and close to nature, as well as personal preferences and residential satisfaction as there had been theorized by Kaltenborn and Bjerke [28]. One interesting point of attachment pattern of foreign residents, who live in Nyuh Kuning, is a strong place attachment to the landscape of rice fields. Place attachment they appear on the commitment to protect remaining rice fields. Foreign residents seek to close the access road access to the village into the remaining rice fields, rice fields by hiring down the road access to the fields and then build the houses and private yard. Closed road access to the rice fields would deter other buyers/ tenants to access the remaining rice field. On one side of the action is therefore preserve fields, but on the other hand the access movement and visual villages Nyuh Kuning against paddy is closed,
thereby landscape of rice fields can no longer be perceived as part of the Nyuh Kuning landscape, and for cultural rituals related to agriculture. As Hummon stated that place attachment level will appear on the level of their engagement helped preserve the landscape \cite{27}; Such was evident in the pattern of attachment of foreign nationals in Nyuh Kuning in protecting the remaining rice field. However, they can be regarded as a privatization of rice field landscape in Nyuh Kuning, for the sake of foreigner satisfaction. Certainly these understandable because of their attachment built above personal preferences, without thinking about how the landscape of rice field should be part of the Nyuh Kuning culture.

![Figure 4. Access toward the remaining rice field blocked by private yard (left); Rice field has been made as villa’s garden (right).](image)

However in the case of a commitment to the preservation of the rural landscape of rice fields would be more comprehensive if accompanied by large-scale social action and cross-community commitment. Rural communities in general have a tendency to have strong social relationships with one another in the case of Nyuh Kuning more leads to lax protection of rice land conversion. It the conception of the philosophy of Balinese spatial order. Wawedangan village where rice fields are, bearada in the possession of private citizens and other residents with disabilities to intervene affairs of other citizens, especially considered renting rice field is a reasonable for others to boost their economies.. However shifting economic sector to be part of the culture, but in case there Nyuh Kuning cultural values are sacrificed. The tradition of offering to the god of rice, religious rituals related to agriculture, and traditional institutions in the management of Subak be vanished from the village. In addition, Pura Ulun Carik, a Subak Temple in Nyuh Kuning losing its role amongst Nyuh Kuning communities.

4. Conclusion
Nyuh Kuning village cultural landscape facing the challenge of shifting economic sectors of the economic base of agriculture into the tourism sector. These situation makes the value of the agricultural economy lagging behind the tourism sector. As a consequence, citizens releasing rice field switching functions for the more economically valuable, which is sold or leased to be built hotels and villas. Furthermore, this pattern makes the loss of the cultural landscape character Nyuh Kuning which was originally identic as typical rural landscape in Ubud Bali. Nyuh Kuning village developed into a tourist village, but the expense of the natural landscapes of rice fields and traditions which was originally as a part of culture in Nyuh Kuning since the 11th century.

Foreigners have attachments that are specific to the existence of rice fields. However their attachment based on the personal preferences of the resident satisfaction without attachment to make the local cultural landscape views privatize rice field. They preserve rice fields to the personal interests of their
villa. Their strong commitment to protect hinders rice paddy fields to become part of the cultural landscape Nyuh Kuning. Local residents Nyuh Kuning village has a strong attachment on the application of the principle of Tri Hita Karana, in order to preserve harmony with the God, Nature and fellow man. Wewedangan, where rice fields located, in cultural settings controlled Bali as personal space and as part of an effort to maintain harmony with each other, the citizens do not participate in providing control over the conversion of rice fields. Bendesa did not take advantage of the authorities to prevent the conversion of rice fields into a hotel and villas. One aspect of the application of Tri Hita Karana in Nyuh Kuning was a gap to let policy for maintaining the rice field as character of Nyuh Kuning Landscape, further compromising the traditional order and Subak system along with the usual tradition in Subak Temple.

Along with the increasingly popular Pakerisan Watershed as UNESCO World Heritage tourists visit more massive, and certainly completeness of tourist facilities will continue to grow. With such a trend, it could be over the function of rice fields, as happened in Nyuh Kuning, will be a challenge for other villages in Pakerisan Watershed. Learning from Nyuh Kuning, can understand the economic motive is to be winning in bargaining between the motives of economic value and cultural value. One of the arguments with residents revealed that the necessities of life these days demand a high level of consumption, both for household necessities and education. For the conversion of rice fields to become more economical regarded as reasonable for residents to sell or rent them to foreigners. Foreigners looking at rice field as a personal asset and protects rice field for personal use, not for the village (rituals and cultural traditions of the people). Such a situation results in economic activity and cultural rituals related to agriculture in Nyuh Kuning be disconnected. Foreigners hire and utilize rice field on the basis of place attachment only on their rice field itself, although it is at strong attachment level. But it was not enough to preserve the rice field as a cultural landscape in Nyuh Kuning. Although too debatable to say the attachment of local residents against the cultural landscape is too weak, but it is surely the attachment is defeated by the attachment of citizens on the economic value. In theoretical term, villager’s emotional bond to the cultural landscape in post—productivism of rice field, is weakened. Wawedangan Desa and its complex cultural values are not part of their identity anymore. However, place dependence become the reason why the shifting place attachment is happening. Functional economic bond is mentioned as place dependence dominates [10] in villager’s mind. Learning from this pattern, new ideas need to be built to preserve the culture and at the same time increased the economic citizens. Viewing place dependence of foreigner to the rice-field landscape in Nyuh Kuning. Villas in Nyuh Kuning retaining rice field map as part of the park's villa. Here we can see rice field not only culturally valuable but also valuable to be appointed as a tourist attraction.

If the current state of land simplified rice field successfully utilized by foreigners to a high economic value to the villa, paddy remains as part of the garden villa, and the only thing missing is the rituals and traditions related to farming. The loss of traditions related to agriculture because of land managed by the party that has attachment only on rice field, but not to the cultural landscape. The situation would be different villa and guesthouse managed by the party who has attachment more extensively on cultural values. Villa guest house can be still built as tourist facilities, access to the rice field remains open to residents of the village, rice fields remain as scenery for villa and guest house around him, and rituals and traditions related to farming can continue to be as not only as part of the cultural values, simultaneously also become a tourist attraction. Illustration of this, the cultural landscape will be more sustainable if the fields managed by the Nyuh Kuning, not foreigners. Surely, villager’s attachment against the landscape of rice fields need to be reinforced and supported with managerial and business capabilities to manage rice field independently, without rent it to foreigners.
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