

Title

Why does under-use/ abandonment of CPRs matter to the local community?: Case study of Tai district, Toyooka, Japan

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Abstract

In this paper focuses on the following fact; the communities often take desperate efforts to retain their CPR institution, despite the fact they decrease or cease to depend their livelihood on CPRs due to various changes in the post-‘productivist’ context. Despite its under-use or non-use, the relinquishment of CPRs entails emotional pains and communal disputes. We argue that these issues cannot be explained from conventional CPR theory due to its shortcomings in both of the trends of thought. To encapsulate the issue, we argue that we need to differentiate the fact that CPR institutions are ‘embedded’ into web of institutions inside the community as well as ‘embedded’ contextual factors outside of the community, which we will term as ‘fitted’ into the contextual factors. By making this distinction, we propose a life cycle of institution. We argue that ‘embedding’ of CPR institution occurs when there is a ‘fit’ to the contextual factors. However, even under the circumstances of ‘unfit’, institutions are difficult to change since they are deeply ‘embedded’. We argue that there is institution that is ‘unfit’ but still ‘embedded’ and these institutions create pain and conflict since it awakes fear of community dissolution. Finally, we will state the some of the implication that these findings have on the current environmental policy, like PES.

Key words: under-use/ abandonment, institution, embedding,

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1. Introduction: Is under-use/ abandonment an issue?

In many parts of the 'developed' countries, the rural communities, especially those dependent on primary production for their livelihoods, are going through a drastic change especially since 1980s due to various changes, such as intensification of competition, reduction of subsidies by the government, emergence of organic market, growing awareness of the consumers on the environmental sustainability (Holmes 2006). This is often termed as shift from 'productivist' context to that of 'post-productivist' context, i.e. shift from intensification of agricultural production to consumption of country-side (Marsden, Munton et al. 1996). Coinciding the changes, the CPRs in these countries, which are either locus of the agricultural production itself, like terraced paddy fields or heavily related to it like surrounding mountains for fodder collection, have been experiencing drastic changes, i.e. under-use and at times abandonment. The fundamental cause of this under-use/ abandonment is the decrease of communal livelihood dependence on the natural resources extracted from the CPRs (Wilson and Wilson 1997; Brown and Slee 2002; Short 2008).

Despite of this decrease of livelihood dependence, some communities take efforts to revalorize the CPRs using various government schemes or creating new symbolic values such as wildlife (Short 2000; Brown 2006; Lawrence, Molteno et al. 2010). Even in the cases where the community has to abandon the CPRs for food production, it does not go without emotional pains or communal dispute, nor does it mean that the community will stopped maintaining the CPRs according to my fieldwork that conducted in Japan². However, from conventional CPR theory the

² Tai district in Toyooka city stopped using the terraced paddy field for rice production in 2005, however; still keeps to maintain the CPRs through communal work called '*hi-yaku (day labour)*' in the district. Terraced paddy fields are privately owned but it has to be managed collectively due to technical issues in water channel system. The district is currently thinking of conserving this 'fallow' terraced paddy field as a feeding ground for the storks, which the flagship species for the environmental conservation policy in Toyooka city.

Emotional pains can be seen in the following interview from a female farmer, who was the last one to quit farming;

'I felt guilty when I quitting the rice farming in 2005. We stopped taking care of the terraced farm land that our ancestors toiled and inherited for many generations. We could not continue farming because many circumstances but.....not everything was bad after all, at least the storks came because we quitted farming and we did not do the land improvement² protecting the indigenous species.

At the same time the legitimacy of '*hi-yaku*' which is conducted to maintenance of CPRs is seriously challenged and causing a communal dispute, Question is raised on why the community have provide the labor to maintain the labor or on to what extent the community should do it. Since CPRs does not

reason for the maintaining the CPRs despite the decrease of dependence or non-dependence for livelihood, cannot be explained. In the following section, we will review the conventional CPRs theory, both i) collective action scholars based on game theory and new institutional economics and ii) entitlement scholar based on sociology and anthropology (Johnson 2004). In this section we will review both of strands of CPR theory. On one hand, we argue that from the perspective of the collective action scholars, the issue of under-use/ abandonment can be considered as resolution of collective action dilemma, whereas from the perspective of entitlement scholars, the issue can be considered as a resolution of power conflict inside the community. If it is a resolution of collective action dilemma and power conflict, why do agents take pains to revalorize the CPRs and maintain it? We argue that there are short-coming in the conventional CPR theory and they are turning blind eyes to certain aspect of CPR institution such as community formulation.

2. Short-coming of the conventional CPR theory

2.1. Case of collective action scholars

Since the seminal work by Hardin (1968), the study of CPRs have gained popularity among multiple disciplines. Hardin argued that ‘commons’ with no property rights ascribed to anyone, results in over-exploitation and degradation of natural resources, i.e. ‘the tragedy of commons’. However since 1980s, the empirical work from various parts of the world showed counter-evidence to Hardin’s argument (ex. McCay and Acheson 1987; Wade 1988; Bromley and Cernea 1989; Ostrom 1990; Gibson, McKean et al. 2000). They argued that the Hardin’s argument cannot be termed ‘commons’ since in the commons the property rights do reside in the community and that local communities that CPRs reside in are capable of managing and controlling the natural resource of CPRs. These studies were conducted from two very distinct perspective, namely i) ‘collective action scholars’ based on game theory and new institutional economics and ii) ‘entitlement scholars’ based on sociology and anthropology (Johnson 2004). Despite some serious attempts to create meaningful conversation between these two stands of scholars inside the CRRs theory (Bardhan and Ray 2007), especially over the debate of social capital, still a great challenge lies ahead.

directly contribute for the livelihood, the ‘*hi-yaku*’ is often legitimized from the religious aspect, ‘we do not do ‘*hi-yaku*’ (creation of mountain path) for our livelihood but for our ancestors who come back during the ‘*bon*’ period (A period in August where ancestors are believed to come back according to the indigenous Buddhist belief in Japan. If there is no path how they are going to come back from the mountains.’

The First strand of CPR theory, the collective action scholars (ex. Wade 1988; Ostrom 1990; Baland and Platteau 1996), bases their assumption on rational choice model and collective action theory developed by Olson (1965). It views human agents as 'welfare maximizer' who is capable of crafting institutions to manage the CPRs in most optimal way (Bromley and Cernea 1989; Ostrom 1990; Gibson, McKean et al. 2000) which is often criticized of 'under-socialized' human agency (Granovetter 1992). For these scholars, often termed 'new' institutionalist, institutions are considered as just a constraints for the agents and not as a enabling factor (Vatn 2005). Institutions are constraints that enable to overcome the prisoners' dilemma and the collective action problem by diverting their incentive to over-use natural resources from the CPRs. However this argument on effective or rational management of CPRs is harshly criticized by some of the entitlement scholars saying that power relation involved in the creation of institution are ignored (Mosse 1997; Li 1999).

Moreover, collective action scholars argue that to construct robust CPR institution, attributes of the resources itself and attributes of the appropriators are important (Baland and Platteau 1996; Ostrom 2002). One of the attribute of the appropriators is 'salience', which refers to the fact that 'appropriators are dependent on the resource system for a major portion of livelihood (Ostrom 2002)'. Despite the fact that Ostrom mentions this condition as only robustness, most of the current CPR theory hold the presumption that there is a straightforward relationship between livelihood dependence and motivation for CPR maintenance (Brown and Slee 2002). In other words, motivation to construct CPR institutions is to manage/control/conservate the economic benefit stream created from the extracted resource. From this strand of study the issue of under-use/ abandonment resulting from the decrease of livelihood dependence is the resolution of collective action dilemma. However this simple understanding on the issue of it faces another criticism from the entitlement scholar that CPRs are not place to create economic benefit but also has symbolic meaning (Mosse 1997; 2006) and the conflict over resources entail conflict over meaning (Peters 1984), however they also fail to understand the issue of under-use/ abandonment as we shall see in the following.

2.2. Case of entitlement scholars

The second strand of CPR theory, entitlement scholars based on anthropology and sociology (ex. Mosse 1997; Leach, Mearns et al. 1999; Cleaver 2000; Jentoft 2000; Johnson 2001; Cleaver 2003; Acheson 2006) provide more sensitive argument on the symbolic aspect of CPR institutions (Mosse 1997), the power relations that entailed in the CPR institutions and the embeddedness of institution into historical moments and

social and political relations (McCay and Jentoft 1998) which are often overlooked in the 'collective action theory'. They argue that CPR institutions are embedded into social structure inside the community and it cannot be isolated from other institutions in the community (Peters 1987; McCay and Jentoft 1998; Cleaver 2000; Petrzelka and Bell 2000; Novek 2003). Moreover, the creation of institution cannot be considered as a result rational calculation on the optimal amount of collective actions and resource extraction but it is also a result of power relation, i.e. how the dominant group wants the game to be played out (Cleaver 2000; Agrawal 2001).

Despite their argument on the embeddedness of institutions and power relation, the entitlement has its own shortcomings; it ignores the fact that CPR institutions function to formulate communities and the fact that CPR institutions are 'embedded' into web of institutions inside the communities as well as contextual factors outside the community. This is mainly due to following rather narrow view on the embeddedness of the institution: i) over-focus on power relation inside the community and ii) problematic understanding of embeddedness and dis-embeddedness.

These entitlement scholars have a tendency to use the argument on embeddedness to explain the fact that CPRs institutions are embedded in the web of power relations inside the community and does not take into account its embeddedness into the contextual factors that are outside of community (Agrawal 2001). The contextual factors which defines what kind of institutions are feasible are often ignored (Edwards and Steins 1999). This ignorance may be stemming from the fact that 'entitlement scholars' rely on the problematic understanding of embeddedness vs. dis-embeddedness following Polanyi. His argument has been recently criticized of holding a dichotomous view on embedded livelihood economy vs. dis-embedded market economy (Appadurai 1986; Zelizer 1989; Ferguson 1992; Helgason and Palsson 1997). In embedded livelihood economy goods are produced and exchanged for its use in sustaining livelihood, whereas in the economized 'western' market economy, goods are produced and exchanged for the desire the gain profit, causing the dis-embedding of the economy from social and ecological system (Polanyi and Pearson 1977; Ichikawa 1997). Dis-embedding is considered as a kind of penetration of market economy homogenizing value system which is criticized as 'occidental construction of disembedded world' (Helgason and Palsson 1997 p. 451). Taking this argument further, Giddens defines dis-embedding as 'mechanism (that) depends on two conditions: evacuation of the traditional or customary contents of action, and the reorganizing of the social relations across board and time-space band (Giddens 1990)'. However, the factors that causes the dis-embedding is not just penetration of

globalized market, rather there are many different contextual factors which are outside of community and its control that accelerate the process of dis-embedding.

From this strand of thought, the issue of under-use/ abandonment can be only as a resolution of power conflict inside community. CPRs institutions are embedded into the contextual factors outside of the community as well as power relations inside the community. These factors are out of hand of community and they have no control over. We will term the embedding/ dis-embedding to refer to the relationship between the CPR institutions and web of institution inside the community, and we will term fit/ unfit to refer to the relationship between CPR institutions and contextual factors outside of community. This distinction between inside and outside the community, web of communal institutions and contextual ones are rather a descriptive, since in reality the boundaries of community is not clear-cut, and reconstituted through everyday practice. In the next section we will revisit the concept of institution using 'old' institutional economics and argue that there are multiple layers of institutions in the society to overcome some of the shortcoming that we have seen in this chapter.

3. Revisiting the concept of institutions

In this section, firstly the paper will provide a definition of institutions following the 'old' institutionalist and argue that there are multiple institutions in the society creating multiple deontics for the agents, sometime in concordance but sometimes in conflicting (Hodgson 1999; Archer 2003). Moreover, we argue that institutions are created to solve certain problems by setting out rules. However, those who encounter the ruled at the later stage will often be unaware of the history and rational behind it (Vatn 2005). In the following section, the paper will reveal the each step in the life cycle of institutions, proposed as the following. Although they are separately indicated in the figure, in reality, they occur as simultaneous process overlapping each other. Following steps are rather idealized model which discarded the complexity of reality.

[FIGURE 1]

STEP1: Creation of CPR institution as common knowledge formulation –

Institutions are formed to solve some problems such as resource conflict. We term this aspect as common knowledge formulation which entail three subsequent processes: i) creation of common knowledge, ii) internationalization of common knowledge, and iii) diffusion of common knowledge. We argue that through internalizing and sharing the common knowledge, human agencies are enabled as

well as constrained.

STEP 2: Embedding of CPR institutions as community formulation– Diffusion of institution occurs within certain spatial boundaries, often coinciding with community boundaries. Thus its diffusion has an effect of community formulation and strengthening the legitimacy of the power relation inside the community. Also when there is fit between the contextual factors, CPR institutions are merged into the other web of institutions inside the community.

STEP 3: Unfit but embedded CPR institutions – As the institution survives, the discrepancy between the CPR institution and contextual factors widens making the institutions obsolete and giving conflicting deontics to human agents. However, since it is deeply embedded, CPR institution cannot be easily changed just due to shift of contextual factors. Rather the communities form a desperate effort to revalorize it which does not go without challenges.

STEP 4: Disembedding of CPR institutions and its transformation – Finally the discrepancy widens to a point where revaluation is not possible creating a new institutions. However, human agents are not able to create institutions from clean slate rather have to start from remnant of institutions.

3.1. Definition of Institutions

In conventional CPRs theory, institutions are often defined as ‘rules, norms, and shared strategies’ (Crawford and Ostrom 1995). Further developing this notion of institutions, ‘old’ institutional economist, Vatn (2005) defines institutions as ‘the conventions, norms and formally sanctioned rules of a society. They provide expectation, stability and meaning essential to human existence and coordination. Institutions regularize life, support values and produce and protect interest. (p.60)’. According to him, institutions includes following attributes;

A: An Attribute is the characteristic of those whom the institution applies.

D: A Deontic defines what one may (permitted), must (obliged) or must not (forbidden) do.

I: An Aim describes action or outcomes to which the deontic is designed.

C: A Condition defines when, where, how or to what extend an Aim is permitted.

O: Or else defines the sanction for not following the rules. (Vatn 2005 p. 67)

These attributes tells ‘*A should do D because of reason I under condition C otherwise*

O will happen to him/her'. However, at current stage there is no guarantee that these institutions will be followed and will create the real action. Thus, Vatn applies the concept of 'internalization' developed by social constructionist, Berger and Luckman (1966), which is often ignored by the game theorist. For these institutions to function as navigator for human action, they have to be internalized each member until it becomes a 'natural order'. Once internalized the agents feel guilty or embarrassed when they do not follow the rules provided the institution making it as a self-policing mechanism .

But what Vatn is missing is the aspect of diffusion or being shared within a group people who this institution applies. Another institutional economist who also relies on the social constructionism, Aoki (2007) defines institution as 'self-sustaining, salient patten of social interactions, represented by meaningful rule that every agent knows and incorporated as agents' *shared belief* about how the game is played and to be played (p.6 emphasis added)'. This aspect is often termed as 'common knowledge' (Chwe 2001). It is a knowledge that '*I know that B will do D because of reason I.....and B know that I will do D because of reason I.....*'. This creates a 'mutually vulnerable' agents (Singleton and Taylor 1992) by creating a mutual sanctioning mechanism. 'Mutual vulnerability' is 'the condition of a group of actors each of whom values something which can be contributed or withheld by others in the group and can therefore be used to sanction against that actor' (Singleton and Taylor 1992 pp. 315). Moreover, it is the diffusion of institutions that lowers the transaction cost and the monitoring cost for the transgressors as the members trust each other, which is often termed as a positive effect of social capital (Paavola and Adger 2005).

In this paper, we term that term the first stage of institution as common knowledge, to emphasize: i) the internalization aspect into each human agents' mind by calling it as 'knowledge' and ii) the diffusion aspect within certain spatial boundary by calling it as 'common'. In this vein we constitute common knowledge as similar concept of that of Douglas' (1986) 'frame of reference' or Hodgson's (1999) 'habit of thought'. It is also important to note that creation of CPR institution involve power relation and struggle over resource and its meaning (Peters 1984; Mosse 1997; Cleaver 2003), it is not a simple result of rational calculation of effective resource use (Ishihara and Pascal 2009).

3.2. Multi-layeredness of institutions and community formulation

There are multiple layers of institutions (Bhaskar 1978; Hodgson 1999). This creates multiple deontics for each agents and multiple boundaries that they identify to . It is

important to distinguish the difference between the difference between the social structure and institution, two concepts which are often conflated. We define institution as special type of social structure that has a capacity to reconstitute human agency following Hodgson (1999) and some of the critical realist argument (Bhaskar 1978; Archer 2003). Not all social structures are institutions. For example institution at the third stage of the institution cycle, mentioned above, starts to lose this capacity and human agency. Human agents start to consider it as obsolete and refuse to conform to the in deontics of institution.

Since the diffusion of common knowledge occurs within specific special boundaries, it creates a boundary between 'us' and 'them', 'us' as those who share same common knowledge and 'them' as those who do not share different knowledge (Chwe 2001; Davis 2002). Especially when there is overlapping with web of institutions or coincidence of its membership, new institution fortifies the existing power relations and strengthens the boundaries between 'us' and 'them', it creates a sense of community (Etzioni 1996). In this paper, we will term 'community' to refer the situation where web of multiple institutions overlap each other creating a boundary between 'us' and 'them'. But it will occur only when the deontics of the institutions do not contradict each other and the membership of the institutions overlap each other and when there is a fit between the contextual factors and institutions itself. For example, strong boundaries like nation state is 'imagined' through multiple institutions, national standard language, legal systems, novels, official rituals, maps, population census and museums (Anderson 1983; Sakai 1983). This sense of belonging is strengthened to a point where nation state orders to ultimate self-sacrifice, like notorious Japanese '*Kamikaze*'. It is also supported by contextual factors, such as globalized *inter-'national'* community that support creation of state as nation state.

As one of the institutions, CPR institutions often function to formulate community by strengthening its solidarity (Petrzelka and Bell 2000) as well. CPR institutions fortify the existing power relations inside the community (Cleaver 2000; Agrawal 2001). This aspect is already well described by entitlement scholars, however what they are lacking in their understanding is the interplay between the contextual factors outside of the community and CPR institutions (Agrawal 2001) and its embeddedness. In this paper we will term contextual factors to refer to institutions that are outside of community boundaries and its control, not everything that is surrounding the CPRs. It is possible to distinguish two types of contextual factors, i) socio-economic factors and ii) ecological factors. We mean by socio-economic ones, ex. change in livelihood strategy, national agricultural policy or influence of globalization, or ecological one, ex.

decrease in certain type of natural resources or effect of climate change. At the birth of CPR institution, unfitness does is small enough for the CPR institution give salient deontics to agents solving a resource conflict and create collective action. As the unfitness increases, agent gets multiple conflicting deontics from different institutions and starts to question the legitimacy of the CPR institutions. This leads to compromise in the legitimacy of community itself since the CPR institutions are often fully merged into the community. However, the institution are not easily relinquished just because of the legitimacy is questioned; rather they survive over time because they can appropriate the legitimacy of other institutions inside the community.

Relinquishing CPR institutions entails sense of loss and guilt despite the fact that CPRs does not contribute to the livelihood of local community because CPRs institutions are merged into other community institution and its relinquishment creates a fear of resolution of community itself. In some instances, the community takes an endeavor sustain the CPR institution by revalorizing it, i.e attaching another meaning to the CPRs (Brown 2006; Lawrence, Molteno et al. 2010). This is due to the fact that CPR institutions are unfit to the contextual factors but embedded in community. This is an aspect that entitlement scholars have missed. We overcome this shortcoming by arguing that i) CPR institutions functions to formulate community in collaboration with other institutions and ii) it is fully merged into the community. Figure 2 shows relationship between institution, community and context in a very descriptive way. We would like to re-iterate the fact that boundaries of the communities are not fixed but reconstructed everyday through various interactions and the distinction between community and context is for descriptive purpose.

[FIGURE 2]

4. Lifecycle of institution

4.1. Creation of CPR institution as common knowledge formulation

The creation institutions involves following three sub-steps:

- i) Formation of common knowledge: *A should do D because of reason I under condition C otherwise O will happen to him/her*
- ii) Internalization of common knowledge: *I will feel guilty or embarrassed if I do not do D under condition C*
- iii) Diffusion of common knowledge: *I know that B will do D because of reason I.....and B know that I will do D because of reason I.....*

It is becoming clearer even among 'super-rational' game theorists that individual agents do not always act according to their own preferences but that they take into account other agents preferences and the effects of their actions, thus acknowledging the issue of interdependency (Gächter and Fehr 1999). We call such understanding of the preferences of the others common knowledge (Chwe 1999; 2001) and consider common knowledge to be similar concept to that of 'habit of thought' proposed by Veblen and further developed by Hodgson (Veblen 1899; Hodgson 1997). However we prefer to use the term common knowledge to put an emphasis on the aspect of being defused (Chwe 2001; Davis 2002). It orders to solve the resource conflicts, institutions orders the agents to certain manner under certain circumstances, i.e. *A should do D because of reason I under condition C otherwise O will happen to him/her* (Vatn 2005).

However, creation of common knowledge, especially that of CPRs, are not result of rational calculation as the most game-theorists assume. There are three reason to against rational choice model. Firstly creation of common knowledge is a process of negotiation and conflicts inside the community involving power relations inside it (Cleaver 2003; Mosse 2006; Ishihara and Pascal 2009). Secondly, the agents are not able to create a new common knowledge from clean slate, because they are constraints by the past common knowledge or the remnant of it. The 'old' common knowledge, even if they are obsolete, are deeply internalized into each agency discarding some of the choices as 'unthinkable' (Bourdieu 1971) working on the moral or emotional dimensions. Thirdly, the contextual factor defines what kind of institutions are feasible (Edwards and Steins 1999). Agents utilize the remnant of 'old' common knowledge and the contextual factors to create alternative 'discourses coalition' (Hajer 1995).

Once created it should be internalized until it becomes a 'natural order' (Berger and Luckmann 1966). Once fully internalized, the violation of institutions invokes a sense of guilt or embarrassment by working on moral dimension, making the outside sanctioning mechanism unnecessary (Etzioni 1988). It will be fully self-sustaining and self-policing, often termed as 'automaton' or the 'iron-cage' of modern era by Weber (1930). However the perceive this way if falls into the pitfall of 'over-socialized' human agency (Granovetter 1992) but also ignores the fact that since multiple level of institution it is difficult to fully 'internalize' one institutions (Bhaskar 1978). For example, at one level, CPR institution might tell you to work on Sunday for the community but at another level, your instinct tells you to rest for the work that starts

from Monday. Although internalization is necessary, we argue that diffusion of the common knowledge, which creating a mutual sanctioning system, is necessary.

By diffusing the common knowledge, the agents are able to understand what the other will do and increasing the probability of certain outcome/ collective action to happen. This situation enables the agents to trust each other knowing that they share same type of common knowledge and follow the same pattern of behavior reducing the transaction cost of collective action. Common knowledge becomes a background assumption for intersubjective interpretation of social reality (Jentoft, McCay et al. 1998). In other words, 'mutually vulnerable' agents (Singleton and Taylor 1992) can be constituted through diffusion.

4.2. Embedding of CPR institutions as community formulation

Embedding of institution occurs through following two sub-steps:

- i) Formulation of community boundaries: *We know that A share common knowledge K but B does not.*
- ii) Mergence of CPR institution into other institution inside the community: *We do D for the reason I but also for reason \hat{I} (which comes from common knowledge K' inside the community)*

The diffusion of institutions occurs within certain special boundaries, creating a sense of 'us', who share the value system, i.e. common knowledge, with a sense of belonging and sense of 'them' as those who share different one (Etzioni 1996). When there is a multiple institutions overlapping each other, the sense of boundaries are enhance to a level that could be termed as 'community'. In this sense product of imagination as Anderson (1983) argues but at the same time it is not just in the head of the human agents but it is 'objectified' as a building, monuments and public grave yards (Chwe 2001) which fortifies certain type of social memory.

At the same time, the CPR institutions are merged into web of other institutions inside the community enhancing its solidarity (Jentoft 2000; Petrzelka and Bell 2000). Often various institutions inside the community overlap the membership making it easy to merge, although there is no insistence where there is a total concordance. The mergence takes place to a point where agents starts to think that '*We do D for the reason I but also for reason \hat{I}* '. CPRs often have multiple use and non-use purposes (Edwards and Steele 1998). As a result, when legitimacy of CPRs is challenged due to change in the contextual factors, the community is capable of 'appropriate' other type of legitimacy \hat{I} relying on different institution (*institution K'*) to sustain the CPR

institutions.

It is also important to note that there are multiple layers of such boundaries. Which boundary comes salient as community heavily depended on the relationship between the contextual factors and CPR institution. We should not hold *a priori* definition of community rather consider it a formulated and reformulated in our daily life (Jentoft, McCay et al. 1998). Moreover, it is not just the CPR institution that functions to form community. And even after the community formulation and mergence of CPR institution into the web of institutions inside the community, at times agents bring in institutions of different level to justify their claim and challenge the common knowledge at community intentionally and un-intentionally.

4.3. Unfit but embedded CPR institutions

Once institutions are embedded, they are bequeathed from past generation to present generation and never full accord with requirement of present (Veblen 1899; Hodgson 1999). Even in the instance of unfit, institutions are difficult to change because they are embedded. However this does not mean that legitimacy of institutions are not questioned. The agents start to experience unexpected outcomes which are not in accordance with the common knowledge that they have internalized, due to unfit between the contextual factors and CPR institution (Hodgson 1999) and starts to transgress intentionally or un-intentionally. We argue that this step is where institutions are unfit against the contextual factors but embedded into other institution inside the community making the CPR institutions obsolete but sustaining:

- i) Conflicting deontics: *We should do D under the condition C but why? Instead should I not do D'?*
- ii) Revalorization of CPR institutions: *We do D for not reason I but for \hat{i} and \hat{i}'*

Agent starts to experience that *outcome I* does not occur even if he/she follow *deontic D* and starts to question legitimacy of CPR institutions. The agent gets conflicting deontics from institutions from different level. For sustaining livelihood, he/she have to take a rest on Sunday, but for the community, he/she have to work to create path in the CPRs. When there is a fit, the agent may have been excused from work on Monday, but as the times goes by it becomes difficult for the agent to be excused due to harsh market competition etc.

However, the institutional transformation is difficult to occur due to the fact that it is deeply embedded into the community and the change results in the change of power

relations, often igniting the fear of community dissolution. As we have seen in the previous section on the embedding, the CPR institutions are often embedded into other institutions in the community and fully merged. When they are merged, the community can utilize legitimacy of other institution (\hat{r}) to re-legitimize the CPR institution.

Moreover, to overcome the conflicting deontics, communities take desperate effort to revalorize the CPR institutions through mobilizing legitimacy of the other institutions or accruing new benefits, both economic and symbolic (Brown and Slee 2002; Brown 2006; Lawrence, Molteno et al. 2010). However, the revalorization does not go without challenges, since it does not fundamentally solve the uncomfortable situation where different institutions telling the agents to do different things. As the unfitness increases and institutional failure continues, CPR institutions starts to be dis-embedded from the web of institutions inside the community and the community boundaries to be reconstructed, bringing us back to the first step.

5. Situating underuse/ abandonment of CPRs

By elaborating the life cycle of institution that incorporates the ignored aspect of conventional CPRs theory, we are able to understand why people do not relinquish CPRs despite the fact that they do not use the CPRs for their livelihoods in 'post-productivist' context. From the argument in the previous section, we argued that there is possible to have a stage in the life of institution where there is an unfit with the contextual factors outside of the context but embedded into web of institutions inside the community. The change of speed is different among the contextual factors and web of institutions inside the community. They are unfit due to various contextual changes which include the changes in the agricultural subsidies system and progression of globalization due to WTO process and demographic changes due to emigration to urbanized areas just to name the few (Wilson and Wilson 1997; Short 2000; Holmes 2006). This caused under-use due to decrease in the livelihood dependence to a point where causing some negative externalities or loss of ecosystem is experienced.

But it is not these negative externalities that these communities often refuses to relinquish the CPR institution. It is rather, as we have argued in the previous sections, because of its embeddedness in the web of institutions of community and it inflicts the fear of community resolution upon relinquishment that they do not wish to abandon it. This is why it entails emotional pains and communal disputes to abandon CPRs. At this stage, communities take painful effort revalorize the CPRs through crating

symbolic benefit like wildlife (Lawrence, Molteno et al. 2010) and landscapes. But reliance on the symbolic benefit poses a serious question. Firstly the conservation or the maintenance of the CPRs is not free, it involves tough labor³. Does the revalorizing through symbolic benefit enable the agents overcome the conflicting deontics. Especially, the deontics of livelihood, i.e. imperatives of sustaining livelihood, is strong. Currently there are arguments on the loss of ecosystem service or the multi-functionality provided by these CPRs and to set up a mechanism of payment (PES) to cover the cost of tough labor. However, the monetary compensation is not without problem, since it put a monetary value to something which was done for money, creating 'crowding-out' effect (Frey and Oberholzer-Gee 1997)⁴

Secondly, revalorization often involves institutions from outside of community, contextual factors, such as governments involvement, NGOs, or urban population as forest volunteers. The conceptualization of life cycle of institution shows that the endurance of CPR institution or its sustainability depends on fact that they are deeply embedded in the web of institutions inside the community and the fact that CPRs institution becomes multi-faced being, like community enabling the CPR institutions to appropriate legitimacy of other institutions. But these outsiders are difficult to incorporated into this web since they are 'out-siders'. Moreover, these institution has only one purpose, such as conservation of wildlife or beautiful landscape, and do not have a daily interactions like that of community. This situation poses a serious question to sustainability of these new endeavors.

6. Conclusion

This paper identified some of the pitfalls of the conventional CPR theory. Conventional theory cannot explain under-use/ abandonment of CPRs that are occurring in post-productivist context in various parts of 'developed' countries,

³ The labor is tough and time consuming. For example in Tai-district, there are communal works nearly every week-end during the summer season. Thus it can be a source of conflict inside the community and the following statement by the village chief indicates that the elites in the community are well aware of the fact that economic benefits are essential for CPR conservation.

If we are going to register our terraced paddy field as Ramsar site we do we gain? It would be difficult for us to persuade the village if it does not bring any (economic) gain and we just have to work to maintain it. You know, its not free to maintain it. Is the city going to pay some kind of subsidies? (Village chief (Ku-cho) at a meeting with the city gov. staff on the negotiation for Ramsar site, Aug 2010)

⁴ When I asked the village leaders why they do not set up fines for those household which do provide labor for the communal work, they said, 'If I could pay and let go, I will rather pay the fines and stay at home, since we can only set up about 2000-3000yen at max. Do you think a day work under the sun, especially during the hottest seasons, will match the such kind of fine? It is not about money.'

especially to the fact that many of community do not use the CPRs to sustain their livelihood but do not relinquish it easily it entails emotional pains and communal conflicts. On one hand, the collective action scholar held the presumption that CPRs are maintained for the livelihood and the decrease of dependence could only be considered as a resolution of collective action problem. On the other, entitlement scholars who harshly criticize the fact that, collective action scholars are ignorant on the power relations involved in the CPR institutions and how they are embedded in the web of institutions inside the community, holds a problematic vision on the concept of embeddedness. We argued in this paper that they do not either see the interplay between the contextual factors and the CPR institutions. To avoid the confusion, the paper have proposed to use the term embed/ dis-embed to identify the aspect that CPR institutions are merged into the web of institutions inside the community and to use the term fit/ unfit to refer to the aspect that contextual factors that are outside of community have effect on CPR institution. However it is important to note that the distinction between the community and contextual factor is not clear cut in reality. This paper provided a clear cut model for descriptive purpose.

After distinguishing these two points, we have proposed a life cycle of institutions composed of following 4steps. First step, institutions are created as rule that agents should follow at certain circumstances termed as common knowledge. It is a common knowledge because it should be internalized into each individual as well as mutually held and shared within the certain spatial boundaries. Step 2 involves community formulation and embedding process. Since the diffusion occurs within spatial boundaries, it creates a sense of 'us' and 'them'. When CPR institution overlaps with other institution in the community, it function to strengthen the boundary between 'us' and 'them' fortifying the community identity. Moreover, CPR institutions are merged and embedded into the web of institutions inside the community making the appropriation of legitimacy from other institutions possible. It is this multi-facedness of CPR institution that ensures the sustainability of CPR institution but by the same token, it is difficult to react to changes. Once embedded into the community, CPR institutions are difficult to change despite the changes in the contextual factors. This leads us to third step which is termed as unfit but embedded institution. At this stage, community makes desperate effort to revalorize the CPRs by creating new values to solve the issue of conflicting deontics. However, this does not go without agents do not challenge the CPR institutions. Since agents receive conflicting deontics, they transgress the rules by bringing in different legitimacy further widening the discrepancy between CPR institutions and others and at one point transformation of institution starts.

By providing this life cycle of institution, we have attempted to situate the issue of under-use/ abandonment. The paper has argued that CPRs in 'post-productivist' context is facing a situation of 'unfit' but 'embedded' institution. That's why the community feels the emotional pains and communal conflicts due to the fear of community resolution and takes an effort to revalorize it. But revalorization is full of challenges, fundamentally to the fact that CPR do not contribute to livelihood. If the stability of CPR institutions lies in its multi-facedness and embeddedness, this poses a serious question to some of the attempts to rescue the CPRs through creating payment mechanism or involving multi-stakeholder.

FIGURE 1

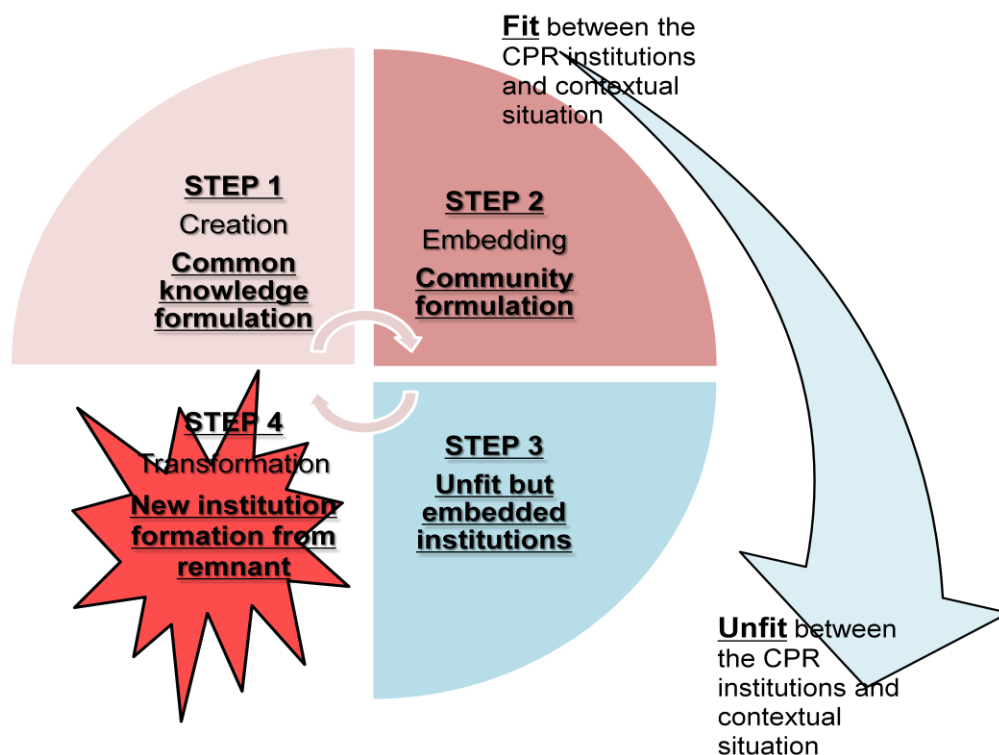
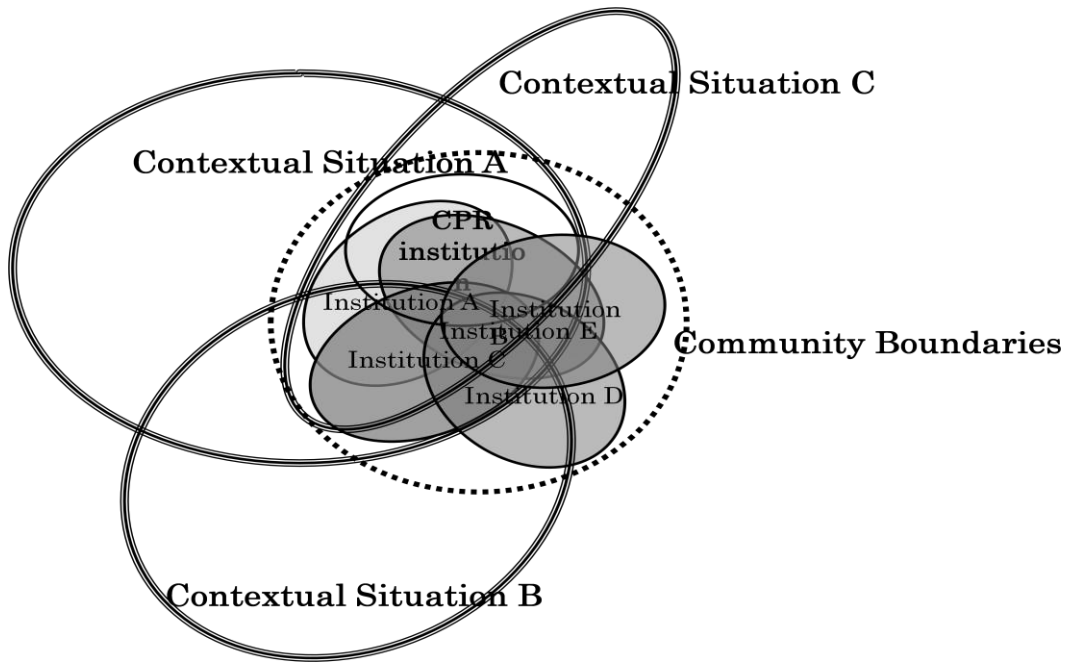


FIGURE 2



Error! Bookmark not defined.

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