

Motive and Conflict in the Disaster Recovery Process of Housing Reconstruction in Sri Lanka after the 2004 Indian Ocean Tsunami

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ABSTRACT

Normative solutions for the successful recovery from large-scale disasters have been presented by various research, but implementation requires a long process, and a mechanism for the process to continue is necessary. We consider the consistency among strategies of stakeholders such as government and NGOs. These players make decisions based on not only direct motives but various complex motives and interaction with other players. This paper considers interactive decision making as a game among stakeholders. As a case study, we analyze housing reconstruction project in Sri Lanka after the 2004 Indian Ocean Tsunami. There was relatively abundant financial support, but the recovery process did not work in a desirable direction. Regarding two important decisions defining the result of recovery, stakeholders' possible decisions are evaluated and, by using game theoretic approach, the reason of poor output and the conditions to shift the equilibrium to the one suitable for the long-term goal of recovery are discussed. These analyses showed that motive compatibility among stakeholders should be considered when designing a recovery process for severe disasters.

1. INTRODUCTION

Various recovery players including the government, affected people, NGOs, etc., share the common objective in recovery, but at the same time, they have a respective objective and motive (Bosher, 2011; Bankoff & Hilhorst, 2009; Werker, 2010). Each player's decision is dependent on not only their complex motives but also other players' decisions (Chamlee-Wright & Storr, 2009). Therefore, the recovery process can be understood as the result of interaction among players who choose the best strategy to achieve their objectives. Because long-term recovery outcomes are accumulated results of several phases in which various players' decisions are involved, it is needed for achieving intended recovery goals to understand players' complex motives and interaction among players (Amaratunga & Haigh, 2011). While past research has addressed several dimensions of sustainable recovery, the research has not clarified how sustainable recovery can be achieved in terms of players' motives (Joakim, 2013; Blaikie, 2009; Rodriguez et al., 2006).

Research on recovery players' motives and interaction is still in the beginning stages. In terms of short-term recovery, Coles and Zhuang (2011) analyzed interactions between international and local players for relief resource utilization using game theory. Regarding long-term recovery, Keraminiyage

(2011) evaluated the applicability of game theory concepts to housing reconstruction. However, the concrete analysis methodology was not suggested.

This research aims to present analysis framework for the long-term recovery process in terms of stakeholders' motives and their conflicts in interactive decision-making processes. For achieving expected outcomes, important decisions in the recovery process should be consistent with long-term goals. However, some decisions are distorted by complex motives or interaction among players. To guide such shortsighted decisions into the desirable decision, it is necessary to analyze related players' motives and their interactions. Based on the understanding of causes, the conditions of compatible decisions with desirable long-term goals will be suggested with a motive-based approach.

2. METHODOLOGY

As the subject of analysis, decisions in long-term recovery processes are selected on the basis of negative influences on final recovery outcomes. In regard to the main player of the decision and the involved player, complex motives and related goals are defined by a literature review. The priority order of motives is determined based on contexts. For the literature review, related research, reports by players, news, and survey results were reviewed. The result of research on the general tendencies in the motives

of recovery players are also considered because sometimes unspecified motives in players' reports or interviews can play an important role in decision making.

To establish the direct cause of the decisions, the interactive decision-making process among recovery players is analyzed as a game of players pursuing the best strategy. According to each player, the preference for possible decisions can be evaluated with priority order in motives. This preference information is applied to the analysis of interactive decisions among players. Finally, the conditions for shifting decisions from the actual decision to the desirable and motive-compatible direction are suggested.

3. HOUSING RECONSTRUCTION IN SRI LANKA AFTER THE 2004 TSUNAMI

As a case study, the recovery process of Sri Lanka after the 2004 Tsunami was considered. On December 26, 2004, an earthquake of magnitude 9.0 occurred off the Sumatran Coast, triggering a tsunami of unprecedented proportions. In Sri Lanka, the tsunami caused severe impacts including 35,322 people killed and 516,150 internally displaced people (Government of Sri Lanka & Development Partners, 2005). Because 26% of the population lived within one mile of the coast, damage in housing was severe (World Bank, 2005). There were 99,480 homes completely destroyed and 44,290 partially damaged, together comprising some 13% of homes in the affected districts (Lyons, 2009).

Largely as an outcome of the global media attention, "one of the largest relief and rehabilitation operations ever launched by humanitarian organizations around the world" became implemented in Sri Lanka (Rawal et al., 2005 as cited in Silva, 2009). The Sri Lankan government adopted two types of reconstruction programs for housing, the Donor Assisted Program for relocating houses and the Owner Driven Program for houses *in situ*. The Sri Lankan government was able to begin relocating 30,602 houses by external agencies with funds (Reconstruction and Development Agency [RADA], 2006).

While participation of INGOs in housing bridged the gap between required recovery resource and the limited capacity of the Sri Lankan government, as a result of long process, housing reconstruction by INGOs did not achieve much success. Housing construction by INGOs was much slower than the Owner Driven Program (RADA, 2006). Nonoccupation of new houses by tsunami victims reached 37% in Hambantota (Barenstein & Wickramagamage, 2009).

3.1. Decisions Hindered Recovery Outcomes

In this research, only relocation projects implemented by INGOs were considered because they reveal interactive relations between players during the recovery process. Based on the literature review, two main decisions that resulted in slow progress and a smaller number of constructed houses than expected are defined.

The first decision was the government's failure of relocation policy. The Sri Lankan government's failure of having a relocation policy at the initial planning phase of housing reconstruction resulted in negative impacts on the overall recovery process even after revision (Ingram, Franco, Rio, & Khazai, 2006). The Sri Lankan government introduced a uniform distance (100 m in the West and South and 200 m in the North and East) buffer zone quickly (Silva, 2009). The buffer zone policy incited massive relocation of people and had negative impacts on recovery. For instance, lack of consultation with people worsened livelihood conditions in the relocation site and resulted in a low occupancy rate after construction.

The other decision was the NGOs' temporary or permanent withdrawal during reconstruction implementation. This withdrawal resulted in a limited outcome in housing reconstruction as well. There were 65,000 pledges for donor driven made, but only 18% had been completed two years after the disaster (Ratnasooriya, Samarawickrama, & Imamura, 2007). Fulfillment of aid in housing below the initial plan induced the inevitable revisions of plans and became the reason of delayed housing recovery. Delay of the reconstruction schedule also induced low occupancy of new houses.

3.2. Involved Players in Decisions

As involved players with these two decisions, two players are defined: the Sri Lankan government and INGOs. In terms of the first decision, the government's initial relocation policy, INGOs that have a key part in implementation of housing relocation should be considered. It is about the same for the second decision, because the INGOs' decision to withdrawal is closely related to the government's policy revision. The government and INGOs are in interdependent relations in housing relocation projects.

4. ANALYSIS OF DECISIONS: RELOCATION PLAN

As the first step for analysis of the government's decision on relocation policy at the initial planning phase, involved players' motives and related goals were defined by a literature review.

4.1. Motives and Related Goals

4.1.1. Government of Sri Lanka

For the Sri Lankan government, the most direct motive for relocation was matching electorates' expectations. Political consideration influenced composition of disaster management organizations as well as relief resource distribution (Boano, 2009; Silva, 2009). Hasty relocation planning can be understood by the motive to show people the ability to control a chaotic situation.

The second motive in the relocation plan was vulnerability reduction. To cope with unregulated development on the coast, the government tried to introduce regulation policies since 1981 (Birkmann et al., 2010), but implementation was not successful. Repeated failure motivated the government to address the chronic problem of unplanned development (Mulligan & Shaw, 2007). However, because of the lack of experience in massive relocation or reconstruction, the government focused on only risk exposure reduction (Jayawardane, 2006).

Thirdly, effective resource utilization was another motive in decisions because of limited recovery budgets. However, relocation policy was inconsistent with this motive because of expensive budgets. When it is considered that the total loss from the disaster was up to 4.5% of GDP, an adaptation of the relocation plan shows that the government put two other motives before resource effectiveness (Lyons, 2009). Because the government put a political factor before actual damage distribution in relief resource distribution, it can be considered that the government places a high priority on matching electorates' expectations.

The priority among motives of the government can be defined, in order, as: matching electorates' expectations, vulnerability reduction, and effective resource utilization.

4.1.2. International NGOs

The Sri Lankan government's relocation plan could be implemented only with support of INGOs. Therefore, for analysis of the government's relocation decision, INGOs' decision to participate in relocation should be analyzed as well.

Like the government, INGOs aim for vulnerability reduction, but INGOs' goals are focused on supporting the most vulnerable people (International Federation of Red Cross and Red Crescent Societies [IFRC], 2008). For instance, the government's initial housing policy, which gave one house for one destroyed house without consideration of the number of owned houses, did

correspond with the INGOs' goals (Vaes & Goddeeris, 2012). So additional assessment on beneficiaries was applied by INGOs. Therefore, the government's relocation policy was not consistent with INGOs' goals.

INGOs also consider effective resource utilization as a main motive. To maximize the impact of a limited budget, for example, International Federation of Red Cross and Red Crescent Societies (IFRC) tried to improve the design by feedback from community meeting (IFRC, 2007). In comparison with the motive to reduce vulnerability, INGOs put vulnerability reduction above it. Such priority was revealed at the soil tests of the Belgian Red Cross because they were conducted only to show the capability and willingness to undertake relocation work for the government despite a waste of budget. On this criterion in effectiveness, uniform distance relocation was not preferred for a minimum relocation plan.

In spite of these contrary motives, INGOs undertook construction in relocation to meet another motive, matching donors' expectations. For INGOs, disasters have become an important opportunity for fundraising, and participation in disaster work is crucial to profiles (Lyons, 2009). Therefore, INGOs felt pressure to show their capabilities of doing projects (IFRC, 2007).

The priority among motives of INGOs can be defined, in order as: matching donors' expectations, vulnerability reduction, and effective resource utilization.

4.2. Analysis of Interactive Decisions

4.2.1. Evaluation of Possible Decisions

INGOs joined the government's relocation plan with the uniform distance buffer zone. However, it was an incompatible decision with INGOs' vulnerability reduction motive. To meet that motive, it can be considered as a possible option that INGOs asked the government to develop detailed criteria for relocation even if it takes time. Four possible decision sets can be considered like below.

Decision set: (Sri Lankan Government, INGO)

1. (Uniform distance relocation plan, Join in)
2. (Uniform distance relocation plan, Not join)
3. (Minimum distance relocation plan, Join in)
4. (Minimum distance relocation plan, Not join)

According to the Sri Lankan government's motives, each decision set can be evaluated. First of all, in terms of matching electorates' expectations, two

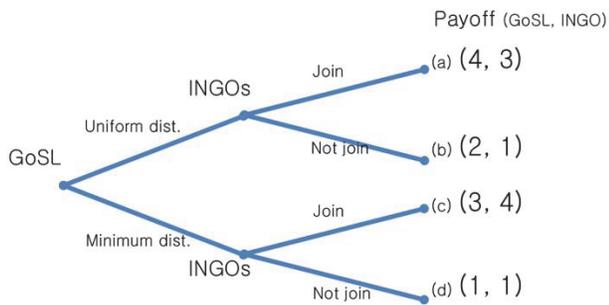


Figure 1. Extensive form game in decisions on relocation plan

goals can be defined as “quick response for showing situation control” and “capability to proceed recovery continuously based on ‘quick response,’” preference are decided as $(a)=(b)>(c)=(d)$. According to “capability to proceed recovery,” preference can be defined as $(a)=(c)>(b)=(d)$. Secondly, regarding vulnerability reduction especially in the risk exposure reduction goal, the order of decisions is decided as $(a)=(b)>(c)=(d)$. Thirdly, for effective resource utilization, preference is decided as $(a)=(c)>(b)=(d)$. After considering all the factors, the government’s preference order of decision sets is decided as $(a)>(c)>(b)>(d)$.

INGOs’ preference can be decided as same manner. For matching donors’ expectations focusing on undertake recovery work, preference is decided as $(a)=(c)>(b)=(d)$. Secondly, according to effective resource utilization focusing budget investment, preference is $(c)>(b)=(d)>(a)$. Finally, for vulnerability reduction focusing on helping the most vulnerable people, the order is decided as $(c)>(a)>(d)=(b)$. Taken together, INGOs’ preference is in order of $(c)>(a)>(b)=(d)$.

4.2.2. Analysis of Strategies

The government and INGOs sequentially made decisions for housing reconstruction at relocation sites. This relationship can be represented by extensive form game between two players like Figure 1. In this figure, preference was represented as amount of payoff. Payoff number shows only order among options.

For INGOs, the decision to join the relocation became the dominant strategy that gives higher payoff than not to join, regardless of the government’s decision. The government can maximize payoff by selecting the uniform distance relocation plan. However, each player’s reasonable decision (a) resulted in negative impact on long-term recovery by introducing an inappropriate policy without enough consultation with people in a hurry. In the viewpoint of long-term vulnerability reduction, the decision set (c) is the most desirable case.

4.2.3. Conditions to Shift Decisions

First of all, for shifting actual decisions to the desirable one, much research suggested normative solutions to change motive or related goals directly related to decisions (Ingram et al., 2006; Coles & Zhuang, 2011). Regarding the Sri Lankan government’s decision on relocation, policymaker’s recognition that forced relocation should be minimized by consultation with people, which can be one of the normative solutions. Such recognition can change only the motive of vulnerability reduction and is not enough to change the decision because the strongest motive to match electorates’ expectations will not be changed.

On the other hand, in terms of interaction among players, the desirable decision set is same with the decision of maximum payoff for INGOs. If INGOs tried to increase their own payoff by threatening the government to select a minimum distance relocation policy, INGOs could change the government’s decision because of budget dependence on INGOs. The reason why threats could not be made was because of competition among INGOs for undertaking recovery work. According to UN-Habitat (2011), among the 500 new agencies that arrived in Sri Lanka, about 100 agencies had developed housing components into their programs and induced exceptional competition for participation. In the context of strong motives for fundraising, exclusion of other INGOs in recovery work gives the position of advantage. So it hampered voluntary coordination among INGOs. Eventually, INGOs lost the chance to enhance payoff by issuing a credible threat to the government.

According to game theory, credibility in threats can be introduced by a change of players (Shin, 2002). For instance, cooperative systems among INGOs in the housing field could be the solution to introduce credibility by changing the players in negotiation with the government. As a unified player, they could pursue maximizing the payoff for INGOs. Moreover they can contribute to enhancing effectiveness for advising an inexperienced government on policymaking immediately after disaster.

5. ANALYSIS OF DECISIONS: WITHDRAWAL OF PROJECTS

INGOs’ temporary or permanent withdrawal is another decision that hampered long-term outcomes in housing. It gradually occurred between the introduction of the buffer zone in January 2005 and the announcement of a new housing policy in May 2006. Before the analysis of motives on this decision, context changes induced by previous decisions should be considered above all because they

changed internal motives as well as external contexts.

5.1. Motives and Related Goals

5.1.1. Change in Context

Regarding changes in external context, first of all, lack of feasibility in the initial relocation plan was revealed. Assessment of coastal hazards and tsunami impacts revealed inappropriateness in the initial relocation criteria (Samaranayake, 2007). A lack of suitable land for relocation became the direct cause for policy revision (IFRC, 2006). Moreover, another earthquake of magnitude 8.6 in March 2005, which was not accompanied by tsunami, raised a question on objectives of a buffer zone (Hyndman, 2009).

Secondly, resumed civil war in December 2005 hampered progress of recovery projects. Distorted relief resource distribution by political consideration worsened the socioeconomic disparities and led to ethnic conflict, which caused delay of recovery in the North and East areas (Ingram et al. 2006).

Thirdly, a new president was elected in November 2005 based on worsen disparities during recovery. The new president quickly distanced himself from the previous presidency by changing his predecessor's government tsunami response body. Then, he announced in February 2006 that the buffer zone would be relaxed and the setback standards of the Coastal Zone Management Plan of 1997 would be revived. (The Sunday Times, 2006, as cited in Hyndman, 2009)

5.1.2. Government of Sri Lanka

While the Sri Lankan government was not a decision-maker of the project withdrawal, its revision of the relocation policy the INGOs' decision. The relocation policy revision can be considered by complex motives.

The most significant change in motive, vulnerability reduction, was that the government started to take various aspects of vulnerability into account based on scientific assessment and revealed limitations in relocation. Assessment of socioeconomic impacts by relocation served as momentum to reconsider the guidelines for development in the coastal zone (Samaranayake, 2007).

Secondly, the motive, matching electorates' expectations led to policy change based on accumulated limitations of the previous plan. The new regime had strong motive to solve the accumulated problems in recovery. The Revised Tsunami Housing Policy that expanded housing support from 98,525 to 120,000 in May 2006 can be

understood as the intention to match electorates' expectations (RADA, 2006). The government put this motive above vulnerability reduction because, after the revision of relocation criteria, the government gave people the chance to decide whether to relocate or not.

On the other hand, change of relocation criteria was not consistent with the motive for *effective resource utilization* because it can interrupt ongoing projects with funds. At that time, the government suffered from budget constraints even to provide infrastructure at relocation sites (Belgian Red Cross (CRB), 2009). Nevertheless, the relocation policy was revised. It shows that the government put the other two motives before effective resource utilization.

The priority among motives of the government can be defined, in order, as: matching electorates' expectations, vulnerability reduction, and effective resource utilization.

5.1.3. International NGOs

Regarding the motive, matching donors' expectations, after confirming the participation in reconstruction, the goal was changed from participation itself to making the project's outcomes. For instance, Red Cross partners were under increasing pressure from donors and the media to demonstrate their use of resources (IFRC, 2007). When it is considered to make visible outcomes in housing, the reconstruction project should be kept.

On the other hand, the motive that became the direct reason for project withdrawal was effective resource utilization. Because the characteristics of housing reconstruction required a long investment, it was hard to collect investment once the project was stopped, meaning that stopping the investment could have been the best strategy for INGOs when there was the possibility of project cancellation by the government. It also corresponds with the survey result on INGOs that NGOs focus primarily on short-term accountability (Ebrahim, 2003).

Another motive related to project withdrawal was vulnerability reduction. The resumed conflict had shift the attention of INGOs from tsunami recovery to the emerging internally displaced people crisis (IFRC, 2008). The 2005 Kashmir earthquake encouraged some INGOs to divert attention to the new flashpoint before they had completed their mission in Sri Lanka. Of the total pledge of US \$3.1 billion, only US \$1.7 billion had been actually committed by 2007 (Silva, 2009). Therefore, INGOs' project withdrawal was the result of both motives to prevent waste of budget and to support new vulnerable people. Within these motives, vulnerability reduction can be considered as a high priority based on that additional criterion was

applied to find more vulnerable people during implementation.

All things taken together, the priority among motives of INGOs can be defined, in order, as: vulnerability reduction, effective resource utilization, and matching donors expectations.

5.2. Analysis of Interactive Decisions

5.2.1. Evaluation of Possible Decisions

The relationship between the government and INGOs can be represented by an extensive form game between two players. Five possible decision sets can be considered, like below.

Decisions set: (INGO, Sri Lankan Government, INGO)

1. (Progress project, Keep project,—)
2. (Progress project, Stop project,—)
3. (Hold on project, Keep project, Resume)
4. (Hold on project, Keep project, Stop)
5. (Hold on project, Stop project,—)

Each decision set can be evaluated according to motives of the government. First of all, in terms of matching electorates' expectations, two goals can be defined as "quick progress of recovery" and "capability to proceed recovery continuously." Based on "quick progress," preferences are decided as $(a) > (c) > (b) > (e) > (d)$. According to "capability to proceed recovery," preferences can be defined as $(a) > (c) = (e) > (b) > (d)$. Secondly, regarding vulnerability reduction focusing on "reduce socioeconomic impact by unnecessary relocation," the order of decision is $(a) = (c) > (e) > (d) > (b)$. Thirdly, for "effective resource utilization" focusing on keeping the recovery budget by aid, preference is decided as $(a) = (c) > (b) = (e) > (d)$. Therefore, the government's preference order of decision sets is decided as $(a) > (c) > (e) > (b) > (d)$.

INGOs' preferences can be determined as well. For vulnerability reduction focusing on helping the most vulnerable people, the order is decided as $(c) > (d) = (e) > (a) > (b)$. Secondly, according to effective resource utilization focusing on budget investment, preference is $(c) > (a) > (d) = (e) > (b)$. Finally, for matching donors' expectations focusing on undertaking recovery work, preference is decided as $(a) > (c) > (e) > (d) > (b)$. When put together, INGOs' preference is in order of $(c) > (d) > (a) > (e) > (b)$.

5.2.2. Analysis of Strategies

Government and INGOs sequentially made decisions on the progress of housing reconstruction project at the relocation site. This relationship can be

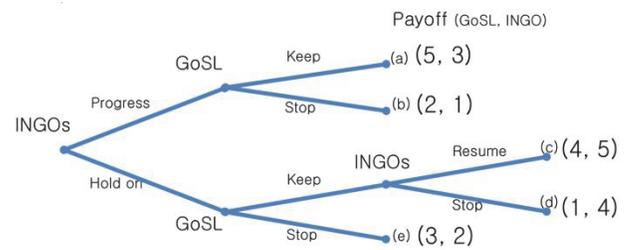


Figure 2. Extensive form game in decisions on withdrawal of projects

represented by extensive form game between two players, like Figure 2.

In the viewpoint of INGOs, the decision to keep the project on was the dominant strategy that gives higher payoff regardless of the government's decisions. Even though it induces delay of the recovery process, temporary withdrawal of INGOs was a reasonable decision to maximize their own payoff.

For INGOs, it is important to keep the motive for continuous investment during long-term recovery. However, in housing reconstruction, uncertainty in changing relocation criteria lowered the expected payoff from further investment. Moreover, in terms of INGOs' goal to support the most vulnerable people, the government's beneficiaries selection was inconsistent with INGOs' criteria. On the other hand, another chance to help vulnerable people in the resumed civil war or another international disaster became the reason why many INGOs decided to divert the housing projects' budgets to other works.

5.2.3. Conditions to Shift Decisions

The key issue for sustainability of long-term recovery processes can be how to motivate INGOs to maintain their investment for recovery.

First of all, as a normative solution for INGOs' withdrawal during implementation of long-term recovery project, commitment of INGOs for local development is considered. However, for long-term recovery, like housing and infrastructure, INGOs' motive to keep their investment was influenced by the government's recovery policy that could define INGOs' expected payoff. Without a proper policy that could meet the motive of INGOs to support vulnerable people, INGOs would consider diverting the budget to other fields or disaster cases to maximize their motive.

Measures to enhance INGOs' payoff by keeping their investment in long-term projects had to be considered as a motive-compatible solution. One of the factors influencing expected payoff was uncertainty in policy revision. The government did not share information on how much the buffer zone

would be reduced with people and INGOs, and such uncertainty decreased INGOs' payoff from persisting in the housing project. It became a fundamental reason for withdrawal of INGOs from the housing projects. As a measure to reduce uncertainty in long-term recovery, the government could consider allowing INGOs to participate in policymaking processes or share information with INGOs. INGOs' participation in recovery policymaking can reduce the uncertainty of policy revision and increase the expected payoff in long-term investment by reflecting their own criteria in planning.

6. CONCLUSION

The long-term recovery process was analyzed by various stakeholders' motives and their conflicts in an interactive decision-making process. The conditions for improvement of long-term recovery output were suggested in terms of motive compatibility. As a case study, the recovery process of Sri Lanka after the 2004 tsunami was analyzed. Two key decisions for limited achievement of long-term recovery goals were defined.

Firstly, the Sri Lankan government's hasty introduction of uniform distance relocation was the result of complex conditions and motives including their own political conflict, lack of relocation experience, and INGOs' competition for recovery participation. A normative solution for changing the direct motive for decision, like supplementation of experience, can be an impractical solution because of the low frequency of large-scale disasters. When the interactive decision among players is considered, improving the government's initial recovery policy can be achieved by issuing a credible threat from INGOs. In Sri Lanka, the reason why INGOs could not make a credible threat was competition among INGOs over the capacity of coordination. A coordination system among INGOs in the housing field can be the solution to introduce credibility.

Secondly, INGOs' projects withdrawal was defined as decision induced by the delay of the whole recovery process in Sri Lanka. Such a decision was made based on motives and conditions, including accumulated limitation of uniform relocation plan, political regime change, and emergence of new vulnerable people. As a direct measure for motives of withdrawal, increasing commitment of INGOs for local society can be considered. But when it comes into conflict with other motives, like pursuing budget effectiveness and supporting vulnerable people, it cannot change the actual decision. As a motive-compatible solution, the Sri Lankan government can prevent INGOs' from withdrawal during recovery by

increasing INGOs' expected payoff in long-term participation. It can be possible by involving INGOs in recovery policy-making.

In terms of the recovery process, it was revealed that the failure in the initial phase had a lasting effect on players' motives. For instance, the government's exclusion of INGOs in the initial planning demotivated continuous participation in long-term recovery. It led to the decline in outcomes. Although the government had gradually widened their understanding of vulnerability and expanded consultation with INGOs in decision making, INGOs withdrawal was not prevented successfully. It shows the importance of the early planning phase for achieving a sustainable, long-term recovery process.

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