第V部門 MULTI ACTOR DECISION IN CONFLICT SITUATION: A CASE OF COMMUNITY DISASTER RISK MITIGATION IN ICHI-NOSE COMMUNITY, TOTTORI PREFECTURE, JAPAN

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## Introduction

In decision making process, the most important aspect is to consider each of actor's preferences and bringing them in a common platform. Often multiple players with different interests evolve in conflicts. Thus conflict resolution is a fascinating task for planners, managers and decision makers. The major concern is that the decision must be acceptable by the beneficiaries or end users.

GMCR (Graph Model for Conflict Resolution) model is used to understand and to structure the conflict in our proposed case study area. It is based on game theory which is further extended by Prof. Niall M. Fraser and Keith W. Hipel (Figure.1) This model gives some insights to understand the problems within which the possible strategic interaction among the decision makers (DMs) can be extremely analyzed in order to ascertain the possible compromise resolutions, or equilibria.

## Applying GMCR II to Ichi- nose community disaster mitigation conflict

This paper intends to illustrate the conflict in decision making process, like in Ichi-nose Community, Chizu, Tottori Prefecture where landslide and flood are major problems. This prefecture is also in earthquake prone area. In order to resolve their problems different actors are identified in participatory planning process. The main actors are community, local company and local Government. The GMCR model is used to systematically describe the process of changes in the structure of this conflict. The historical dispute is modeled to know how those mistakes were made in past and how to avoid it in future. Sensitivity analysis is also done to asses the robustness of stability results.

Further in case of participatory negotiation analysis, it is proposed to use an asymmetric equilibrium model, where one of the players has ability to force his decision to other. This is known as Stackelberg Equilibrium where the player who holds the powerful position is called the leader and the other player, who reacts to the leader's decision, is called the follower.

It is also proposed to incorporate time variable and social network approach in this model which leads to rather complex model involving player's attitude change in context of changing socio – political condition



Figure1. Graph Model for Conflict Resolution