Land use conflicts in developing countries : framing conflict resolution and prevention strategies to ensure economic growth and human welfare. The case of Chotiari water reservoir from Pakistan

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Le cas du barrage de Chotiari au Pakistan

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"We can't just sit around waiting for the global solution; there is a lot that can be done at a household level, at a community level, at a regional level."

Dr. Elinor Ostrom
(Recipient of the Nobel Prize in Economics in 2009)

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Introduction et problématique

Notre thèse porte sur les questions de résolution et de prévention des conflits d'usage du sol provoqués par des projets d'infrastructures dans les pays en développement, avec une application à la région du réservoir de Chotiari, au sud du Pakistan. Nous tentons d'évaluer les impacts de ces projets sur la vie sociale, économique et environnementale de la population locale et d'analyser les origines de ces conflits ainsi que la faiblesse du système gouvernemental. Cette question a récemment pris une place centrale dans la recherche économique, géographique, sociale et politique. Les confrontations au sujet de la construction des grands réservoirs et barrages entre le gouvernement et la population locale se trouvent au cœur des débats dans de nombreux pays du monde et surtout dans les pays en développement. Actuellement, la plupart de ces projets font face à des oppositions de la part des acteurs locaux, qui deviennent de plus en plus conscients de la nécessité de préserver leurs terres contre toute tentative d'expropriation et réclament plus de justice face à la violation de leurs droits et aux acquisitions foncières.

Nous constatons qu'en dépit des avantages procurés par ces opérations et des améliorations réalisées par les pouvoirs publics au niveau économique, ainsi que sur le mode de vie de la population locale, de nombreux projets d'infrastructures ont provoqué des tensions et des conflits d'usage entre les utilisateurs des espaces concernés par les projets en question et les autorités publiques. C'est le cas dans les pays en développement et plus particulièrement au Pakistan. Dans ce pays, nombreux sont les projets de développement économique mal étudiés ou préparés, qui impactent négativement le niveau de vie de la population locale, contrainte de déménager et d'abandonner ses activités économiques et sociales, qui constituent son seul moyen de revenu et de subsistance. Dès lors, la réalisation de ces projets est souvent contestée par une population frustrée, en colère, soucieuse de conserver ses terres et qui réclame le droit d'être bien informée avant la mise en place de n'importe quel type de projet. Cette déception conduit souvent à l'émergence de nombreux conflits, qui naissent non seulement à cause des malentendus entre la

population et le gouvernement, mais aussi des priorités des projets et des différents usages des sols programmés : construction de réservoirs ou barrages, industrialisation, construction d'aéroports et mise en place d'infrastructures routières…. La perte des terrains et le mauvais usage des sols que ces projets induisent ont de nombreuses conséquences sur la vie économique et sociale et sur la sécurité alimentaire des communautés locales. Ils maintiennent cette dernière dans la pauvreté et l'instabilité sociale, ce qui n'encourage pas la prospérité des activités des paysans et encore moins le développement rural et local.

C'est dans ce cadre que s'insère notre recherche qui a pour objectif d'analyser les conflits en relation avec la construction du réservoir de Chotiari, l'un des plus grands projets d'infrastructures générateurs de conflits d'usage au Pakistan. Les autorités publiques considèrent que ce projet est d'une extrême importance pour la région de Chotiari. Il est conçu pour augmenter la capacité de stockage des lacs existants dans la zone humide, dont la superficie est d'environ 18000 hectares. Son objectif principal est d'irriguer environ 0,12 millions d'hectares dans le pays et son coût de construction est susceptible d'atteindre environ 105 millions de dollars, avec l'aide financière de la Banque mondiale et du Fonds Saoudien de Développement. Mais depuis le début des travaux, ce projet est confronté à une forte opposition de la part de la population locale, qui estime qu'il entraine de nombreuses conséquences négatives sur la qualité de vie et réclame un droit à l'indemnisation.

Matériels et méthode de recherche

Notre recherche se base essentiellement sur l'identification et l'analyse des différentes caractéristiques du projet de réservoir et des impacts sociaux et environnementaux, qui ont généré de nombreux conflits entre la population et les pouvoirs publics. D'un point de vue méthodologique, nous avons mené une analyse sociale, économique et environnementale de la région afin d'évaluer les impacts de la construction du réservoir sur le mode de vie de la population de Chotiari, ainsi que sur son environnement.

Dans un premier temps, nous avons recensé les caractéristiques des principaux conflits d'usage dans les pays en voie de développement, à travers des exemples tirés de la littérature disponible et des études de cas. Par la suite, nous avons mené des enquêtes auprès d'experts en différentes spécialités et de différents milieux professionnels. Nous avons essayé d'analyser les comportements, les enjeux et les relations entre les parties prenantes au projet du réservoir, afin de bien comprendre la nature des intentions et des intérêts qui sont en rapport ou derrière la décision de la réalisation du projet et les principales causes et conséquences. Pour analyser la nature de ces relations, nous avons identifié et classé ces acteurs en fonction de leur d'appartenance. Ainsi, l'administration publique est représentée à plusieurs niveaux (national, provincial, régional et local), avec différentes positions politiques. De même, la population locale, les organisations commerciales, les politiciens et la catégorie riche de la société ont également été impliqués dans la zone d'étude, à différents niveaux d'intérêt, ce qui a rendu la gestion de ce projet plus complexe et génératrice de conflits.

Afin de comprendre le fondement des tensions et du conflit ainsi que ses conséquences, nous avons également recueilli des informations secondaires à partir de la presse quotidienne (depuis 1997-2011). Les articles des quotidiens nationaux ont été classés et analysés selon (i) l'origine de la situation ou du conflit, (ii) le mode d'action et (iii) les conséquences économiques, sociales ou environnementales du projet. D'autres données secondaires ont été recueillies par l'analyse de documents publiés par diverses organisations publiques et privées.

Cette méthode de travail nous a permis de mieux connaitre la région d'étude et de dégager les principaux conflits d'usage et les positions des parties prenantes. Elle nous a permis de visualiser, de quantifier et d'anticiper la dynamique des facteurs structurels et de proximité, qui ont généré, non seulement la montée des conflits d'usage des sols, mais aussi de nombreux troubles au niveau de la population locale.

Analyse des résultats et discussion

Analyse socioéconomique de la zone d'étude avant et après la construction du réservoir

D'après les informations et les données collectées sur le mode de vie des habitants nous avons montré qu'avant la construction du réservoir, la population locale vivait dans les villages, à l'intérieur de la zone du réservoir et les dunes voisines, depuis des générations. Elle pratiquait des activités économiques variées : la pêche, l'agriculture, l'élevage, la mécanique, etc. Généralement, les personnes qui ne possédaient pas des terres étaient dépendantes de la pêche et de l'élevage pour leur survie. Et même si ces personnes possédaient un faible niveau d'éducation et de compétence sociale, leur situation économique n'était pas si mauvaise. Le revenu moyen par mois de chaque famille, d'environ soixante euros, ne leur assurait pas une vie luxueuse, mais était suffisant pour subvenir aux principaux besoins de chaque famille.

Actuellement, suite à la construction du réservoir, les familles ont été forcées de quitter leurs terres. Les experts, ainsi que la presse quotidienne, ont accusé les élus locaux et la catégorie la plus riche de la société (féodale), fortement impliqués dans le projet, de poursuivre des intérêts personnels et des intentions néfastes au dépend des autres, telles que la souscription des contrats de pêche et peut être aussi la volonté de déposséder la population locale de ses droits de propriété, etc. Les personnes affectées, qui réclament le droit à un maximum d'informations concernant le projet ainsi que la liste officielle détaillée des personnes ayant droit à des compensations (sous forme de maisons ou de terres) ou qui ont déjà été indemnisés, ont organisé plusieurs manifestations. Le manque de transparence et de responsabilité de la part des autorités publiques a augmenté la corruption au niveau local et a contribué au développement du conflit.

Analyse environnementale de la région d'étude : dégradation de l'écosystème

Les résultats montrent encore que le projet a non seulement provoqué d'importants impacts socio-économiques, mais également entraîné des destructions de long terme au niveau de l'environnement. Les habitats de la faune et la flore, qui se caractérisent par leur grande richesse, ont subi de nombreux dégâts et se trouvent fragmentés. De même, le volume

d'eau stockée dans le réservoir a submergé et détruit la forêt, les parcours et les terres, aboutissant ainsi à la perte de la biodiversité et des fourrages. La montée de l'eau est devenue une source de destruction des terres agricoles suite à son infiltration, et la salinité du sol provoque également la destruction de la végétation existante.

Une meilleure gestion de la zone humide de la région de Chotiari s'avère nécessaire, dès lors que plusieurs enquêtes révèlent les propriétés touristiques en environnementales de la région. Cette richesse écologique justifie l'existence de nombreuses espèces en voie de disparition, alors que plusieurs recherches et enquêtes ont signalé que Chotiari pourrait devenir la plus grande réserve de crocodiles et la station touristique la plus importante du pays, ce qui nécessite une meilleure politique de gestion et de conservation.

Analyse des réseaux d'acteurs: manque d'informations, corruptions, controverses et oppositions

L'analyse des données de la presse quotidienne et des enquêtes nous a permis de comprendre la nature de la relation entre les différents acteurs (population locale et pouvoirs publics), et d'identifier l'origine du conflit. En effet, l'enquête que nous avons menée montre que les personnes qui vivaient dans des villages dispersés dans la zone de Chotiari, dont le plus proche se situe à une distance de 35 kilomètres des centres urbains, souffraient d'un manque d'informations et de conseils de la part des pouvoirs publics concernant le projet, surtout avant le début des travaux. C'est une des raisons pour lesquelles la décision de construction du réservoir est contestée par la population locale, alors que les autres parties, qui ont des intérêts personnels, à savoir les administrations publiques avec l'appui des élus locaux et d'autres acteurs externes, approuvent la décision.

Notre enquête a également montré que, dans le cas du réservoir, c'est le gouvernement qui autorise et exerce lui même la corruption et le détournement des fonds. Depuis cinq décennies le pays encourage et réalise des projets de développement, mais sans mettre en place une politique nationale de réinstallation. Au Pakistan, les droits de propriété sont constitutionnellement établis de manière à permettre aux propriétaires de prendre les décisions concernant l'usage de leurs terres. Concernant les terres destinées à l'usage public, l'indemnisation doit prendre en considération leurs valeurs réelles, qui correspondent aux prix de marché actuel. Mais dans le cas du projet de Chotiari, aucune

enquête sérieuse n'a été menée pour évaluer des dommages qui ont touché les moyens de subsistance de la population locale, transmis, depuis des siècles d'une génération à une autre. Cette ignorance des droits des personnes affectées est due à l'implication de plusieurs parties telles que les politiciens et les fonctionnaires dans le projet de construction. C'est pour cette raison que la population, qui n'a pas été conseillée lors de la planification et la mise en œuvre du projet, est entrée en opposition plutôt que d'accepter la décision de construction.

La pression des autorités publiques et des bailleurs de fonds pour la mise en place du réservoir a incité la population locale à s'unir et à protester. Cette dernière, de plus en plus consciente de leurs intentions, a entamé un long chemin de confrontation et de prise de parole, qui s'est matérialisé de diverses manières, par des Conférences de presse, des lettres envoyées aux autorités publiques et des interventions dans les médias électroniques, ainsi que de nombreuses manifestations et réclamations. Pour soutenir les contestations populaires, les ONG, les journalistes et autres organisations volontaires ont également parcouru un long chemin. Ils continuent à se battre, non seulement pour s'opposer à la construction du réservoir mais aussi pour la préservation des zones humides de Chotiari, à travers la promotion d'un parc national qui constituerait un centre d'attrait touristique de forte importance. Au cours des années, cette opposition sur le projet de la part de la population locale et d'autres intervenants a fortement augmenté d'une manière remarquable surtout lorsqu'ils ont commencé à remarquer la corruption dans les opérations de compensation, sans oublier les impacts négatifs du projet sur les ressources naturelles telles que la mauvaise exploitation de l'eau ainsi que les dégradations environnementales et écologiques.

Ces évènements ont encouragé la population locale à la contestation et l'ont incité à créer des organisations communautaires de base (OCB), dont le rôle principal est d'assurer les moyens de subsistance, la compensation, la stabilité sociale et économique des familles déplacées ainsi que la préservation de l'environnement. La population locale a ainsi pu exprimer son opposition et démontrer les impacts socio-économiques et environnementaux du projet. Ainsi, le conflit n'a pas eu qu'un impact négatif, mais il a également incité les personnes affectées à s'organiser, à réagir de manière positive et à changer la situation qui a généré ces conflits.

Faiblesse de la gouvernance et violation des droits de la population

En nous fondant sur notre recherche documentaire et sur l'enquête effectuée auprès des personnes affectées et des autorités publiques, nous avons découvert la présence de nombreuses lacunes dans le système gouvernemental. Nous citerons ici quelques exemples de la mauvaise gouvernance et de la corruption. Parmi les principales défaillances, il importe de dire que depuis le début du projet de Chotiari, la révision des nombreux dégâts liés à l'acquisition des terres, des documents de compensation et des plans de réinstallation a été réalisée plusieurs fois par les autorités publiques, mais selon les donnée disponibles et la population locale, aucune publication n'a été diffusée. En effet, dès le début du projet de Chotiari, le gouvernement a fixé l'emplacement du site de réinstallation des familles déplacées dans la région de *Patipota,* située à environ 80 kilomètres au nord du réservoir. Certains travaux d'aménagement ont été réalisés, mais il a été finalement décidé que l'aménagement des sites n'était pas réalisable, et que le régime d'indemnisation doit être révisé. On constate également un manque de transparence en ce qui concerne les politiques, les programmes, les objectifs et la diffusion des informations; les rapports, les documents et renseignements relatifs au projet se trouvent en possession de divers organismes, à savoir, l'Agence de Réinstallation de Chotiari, la Comité de la Gestion Environnementale, les Fonds Saoudien de Développement, l'Autorité d'Irrigation et de Drainage du Sind, l'Autorité de Développement de l'Eau et de l'énergie et la Banque Mondiale. De même, les équipes de mission chargées de la visite de la région de Chotiari pendant l'exécution du projet, n'ont jamais partagé les données et les informations concernant le projet avec la population locale, les organisations communautaires ou les ONG, ce qui explique le manque d'information.

Concernant l'indemnisation, on note une inégalité flagrante dans la distribution des montants de l'indemnité. Selon les experts, l'indemnisation, fortement rabaissée, a été versée à seulement 260 familles sur un total de 993. Pour protester contre la violation de leurs droits, de nombreuses familles ont déposé plainte auprès des tribunaux de justice. Les tribunaux ont commencé à traiter cette affaire de corruption et de rémunération, mais l'ont abandonnée après le lancement de la construction, suite à l'implication des pouvoirs publics.

En réalité, il est nécessaire de souligner que la principale source de conflits provient des agents publiques et de leurs acteurs administratifs qui, en association avec les propriétaires locaux, ont utilisé leur pouvoir politique et financier pour exercer de nombreuses pressions sur les habitants de la zone du réservoir, ce qui explique la faiblesse du système gouvernemental au Pakistan. Cet échec de la gouvernance est aussi dû à la non-participation du public dans les plans de mise en œuvre, de réinstallation et de compensation ainsi qu'à l'inexistence d'un contrôle démocratique sur les organismes de planification et d'exécution du projet. A la lumière de ces résultats, il est temps de penser à jeter les bases d'une nouvelle gouvernance capable de résoudre ce type de conflits d'usage au Pakistan.

Conclusion et perspectives

Notre travail permet de tirer quelques conclusions sur la question des conflits d'usages liés à la construction d'infrastructures dans les pays en voie de développement, ainsi que de tracer des perspectives pour l'avenir. Seule une forte volonté politique et institutionnelle en faveur de mesures de lutte efficaces contre les contrevenants c'est-à-dire les personnes riches qui possèdent un pouvoir (autorités publiques, élus, etc.), permettra d'éviter les conflits d'usage au Pakistan. De même, il est nécessaire de renforcer la relation entre le milieu universitaire et les ONG afin de les impliquer dans le processus de révision des études de cas, où une procédure de suivi doit être strictement adoptée. Les décisions à l'égard des projets de développement comme le réservoir de Chotiari doivent prendre en considération l'accord de la population locale, que l'on doit informer et impliquer dans toutes les démarches de projet. Une telle position aidera à mettre en place des stratégies de meilleure gestion des conflits, essentiellement fondées sur la coopération et la décision collective de toutes les parties concernées.

En termes de gestion, la diffusion des connaissances sur le projet avant son lancement à travers le système démocratique peut être l'une des meilleures solutions pour éviter ces conflits à un stade précoce. C'est la responsabilité des acteurs administratifs, politiques et économiques, qui doivent gérer efficacement les affaires de l'Etat tout en impliquant les acteurs publics et la population locale dans la prise de décision, ce qui leur permet de

mieux exercer leurs droits et par la suite de régler les tensions avant qu'elles ne se transforment en conflits. Les initiatives juridiques telles que la mise en œuvre, la promotion des droits de propriété et la sensibilisation des utilisateurs de l'espace, doivent être poursuivies par le gouvernement fédéral du Pakistan afin de développer un système qui peut stimuler le changement et assurer la sécurité des populations locales. De même, avant de planifier un projet de développement, un système de recours liés à l'acquisition des terres, de compensation et de déménagement doit être clairement établi, de façon à ce que les personnes concernées puissent conserver ou retrouver leur niveau de vie antérieur et leur position sociale. Une telle stratégie permettra aux familles affectées par la construction des projets de développement d'être remboursées par le gouvernement des pertes économiques et sociales.

Il est à souligner enfin que les impacts négatifs de ce type de projet touchent non seulement les adultes d'aujourd'hui, mais compromettent aussi l'avenir des générations futures, dans leur mode et environnement de vie. Cela dit, seule une bonne gouvernance et un développement économique durable et mesuré sont capables d'éviter l'apparition de ce genre de conflits d'usages, contraires à toute progression sociale et économique. Aujourd'hui, force est de constater la mauvaise qualité de la gouvernance des autorités. Une mauvaise gestion des affaires, accentuée par les incohérences entre les différentes institutions impliquées, provoque des injustices envers la société locale. Une forme de gaspillage du temps et des énergies de cette population, qui aspire à vivre dignement et souhaite un avenir meilleur pour sa descendance. Bien gouverner ne consiste pas seulement à prendre les bonnes décisions au bon moment mais également à ce que ces décisions soient en accord avec les besoins et les volontés des populations. Autrement dit, il est légitimement demander aux gouverneurs du Pakistan de prendre en considération les aspirations de la population locale et de faire participer cette dernière aux prises de décisions, sur tout projet d'infrastructure la concernant. Plus de transparence favorisera surement le développement économique de toute la région, sa cohésion sociale et renforcera sa confiance dans ses dirigeants.

En conclusion et afin de contribuer à la prévention de ces conflits d'usage des sols au Pakistan, une bonne gouvernance constitue toujours une source de développement économique durable.

GENERAL INTRODUCTION

This thesis deals with land use conflicts, which arise along with decisions taken towards land use for development projects on the public or private lands in developing countries. In this regard, a key contribution of this research is not only provides qualitative estimation that can help in assessing regional development changes and sometimes losses due to this type of conflicts, but also it gives some insights over possible action in favor of a better governance of infrastructural development projects. Our work is part of a larger movement in social science literature, with authors claiming that conflicts over land use play a key role and hold a central position in sociology (Castro and Nielsen, 2001; Stephenson, 1981; Lewin, 1948), political sciences (Humphreys, 2005; Burton, 1993), management sciences (Owen et al., 2000), geography (Doyon, 2011; Darly, 2009; Campbell et al., 2000) and economics (Torre et al., 2010; Mann and Jeanneaux, 2009; Deininger and Castagnini, 2006).

Land use conflicts may be defined as competitive demands of present to future uses of the land, causing negative impact on other land uses. Land use conflicts are the forms of expressions of opposition to decision that leave part of the local population unsatisfied (Darly and Torre, 2013). Land use conflicts are social disputes that arise with involvement of the institutions, industries, development movements, developers, nongovernmental organizations, civil service and regulatory agencies, and often launched by the actions of a central actor introducing development projects. Mostly, the conflicts arise from the proposed changes, which perceived by some actors as contrary to their interests and wishes, like technological development and extension of infrastructure. Moreover, construction of big projects (roads, railways, airports, dams) and/or expansion of a business scale (industries, firms, warehouses, etc.) can produce the issue of negatively developed externalities like population displacement from their territory (Requier-Desjardins, 2009) decline of cultivable lands, deforestation and pollution (Pham et al., 2010). In most of the countries, the competition of land use for infrastructural projects results in conflicts of various types, which slow the pace of economic development.

Land use conflicts and economic development: evidences

It is assumed that conflicts are disagreements that tend to involve significant levels of emotion and are enmeshed in the identity of the groups and individuals involved. According to Jones et al. (2005), conflicts always vary in terms of their legal, political and institutional framework, economic constraints, social structure, stakeholder's interest, environmental situation, history behind the conflict, and geographical location. Although conflicts are considered as the obstacles to economic growth, but sometimes they have positive impacts also (Baron, 1991). For example, conflicts may bring-out the important problems in front of researchers and planners to encourage for consideration of new approaches; and/or increase the performance of conflict actors to unite and protest for their rights (Hirschman, 1970).

During twentieth century there have been many changes on land, the cultivated land has decreased, meadows have replaced to grain fields, livestock pressure has much lessened and transhumance has practically disappeared (Akhtar, 2012; Garcia-Ruiz and Teodoro, 1993). Same time, the constant pressure of population growth and urbanization (Marshall and Shortle, 2005) underlined the demand of more infrastructural development projects especially in developing countries (Singhal, 2009). Then it follows a great pressure on agricultural land[1] (Darly and Torre, 2013; Robertson, 2010; Deininger and Castagnini, 2006). Thus it may not be wrong to say that conflicts increase exponentially as the pressure increases on land.

In fact, land use conflicts explode sharply over issues linked to social inequalities. For example, such conflicts sparked by the takeover of land for public projects (Pham et al., 2010) in which land owners forcibly dispossessed from their resources (Ostrom and Nagendra, 2006). It is commonly understood that in rural areas most of the indigenous people share common-pool resources (CPR) with lack of social justice and recognized rights (Ostrom, 1990), which may be due to such people possess lower literacy level, less

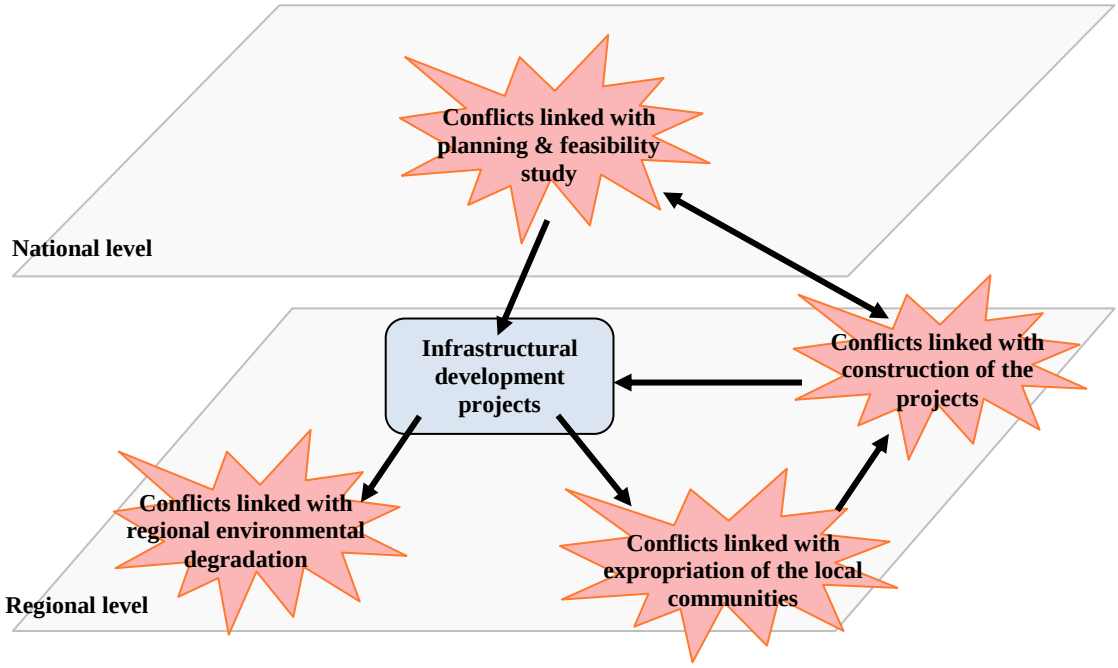
[1] Arguably, urban fringes need infrastructural projects to fulfill the increasing demands. For example: increasing population will increase demands of housing, public utilities, schools, hospitals, roads, parks, airports, railway stations, touristic resorts and camp grounds, sports arenas, cemeteries and crematories, offices and retail spaces for manufactured products and other infrastructural projects (Singhal, 2009; Garcia-Ruiz and Teodoro, 1993).

built-up, fewer infrastructures, lower human population density and unaware of rules and rights. In various developing countries, unclear ownership rights and regulation of the land (Ali and Nasir, 2010; Libecap, 1989), institutional behavior towards property rights[2] and land acquisition process are positively associated with decline in farm production and increase in conflicts of land use (Alam, 2006), thus such land use conflicts may limit land management practices.

Indeed, this type of conflicts are challenge for economists to analyze, because they are normally accruing when there is lack of coordination in the relations between stakeholders, i.e., public authorities, business firms and local population (Tinel, 2002). It is sometimes difficult to bring out the scale of incompatibility and governance at every stage of project implementation (Williamson, 1998), where we attempt to integrate the conflictive dimensions over a land use for public projects in the developing countries. Therefore, many of economic and social decisions towards infrastructural development projects made by public authorities have negative influences on their rural livelihood and natural resources in the developing world (Pham et al., 2010; Mataram, 2008; Wehrmann, 2008; Vainer, 2007; Humphreys, 2005; Barron et al., 2004; Cansen, 2004; Abro, 2001; Awakul and Ogunlana, 2002). Thus these disagreements resulted from the nondemocratic decisions and policy responsiveness of the institutional behaviors towards development projects. Consequently, it may be due to partial advice with local actors or violation of their rights towards land acquisitions, compensation and environmental protection (see figure 1).

[2] Theory of property rights deals with resource allocation and explains conflicts based on the economic interest and bargaining power of the actors involved in the procedure of allocation of these resources. These distributional conflicts can be intensified if there are known serious asymmetries between the competing actors for their individual claims (Libecap, 1989). Therefore, inconsistency between property rights and institutional behavior has created a favorable environment for land use conflicts (Alston et al. 2000).

Figure 1: How infrastructural development projects create conflicts of land use in the developing countries



Source: by the author, based on review of literature

The conflicts can be settled or resolved through different approaches according to degree to which they emphasize. Different conflict resolution approaches suggest diverse mechanisms, i.e., that it can be resolved based on the multiple land use objectives (Mwasi, 2001), collective action (Petit, 2002), diverse human demands (Mann and Jeanneaux, 2009), valuing the economic costs of land use (Pham et al., 2010), and by improving social interactions among actors (Owen et al., 2000). Despite defined legal frameworks in an economy the decision-making process does not seem able to resolve the opposition and competition over public utility projects, because it may be either due to loopholes in the governance structure or institutional failures or contradictions at local and/or national level. Therefore, as land use conflict resolution practitioner we believed that following the theory of conflict resolution will be considered as accepting a partial view of reality, because the traditional approaches of conflict resolution are reaching their limits. As Crane et al. (2009) have explored that politics of land use conflicts resolution approach ensure that all can't be negotiated, but there will always be winner and loser; similarly, Ostrom and Nagendra (2006) have also suggested that not all type of governance seemed to resolve the conflicts completely.

Precisely, land use conflicts in developing countries may be resolved by adopting the strategy prior to determine causes and consequences of the decision for use of land and the relationship between actors/stakeholders involved; and actualities of situations faced by local population, might have a higher probability of success. This encourages us to expose the actual phenomenon of our case study empirically. Before going to analyze the conflicts of land use (case study) it is important to be aware about the basic questions, i.e., what profile does conflict belong, what are its causes, who are the actors of the conflict as well as what are its dynamics of future occurrence, etc.

Case study selection and research questions

Generally, the confrontations over the construction of big reservoirs or dams have grown into intense policy debates in numerous countries around the world (UNEP, 2004). For this research, the case of Chotiari water reservoir project from Pakistan has been selected, which is one of the large infrastructural projects, which are facing opposition in the country. The characteristics of Chotiari water reservoir make this area interesting particularly for the study of land use conflict phenomena. For example, since construction the opposition drawn by displaced families to stop the construction, to relocate and compensate people before displacement. The reservoir area was characterized as wetlands, which are rare in the country. A major part of this wetland is owned by private owners who had to enjoy complete rights on their lands. Unfortunately they did not, because most of the owners were poor and illiterate, with little awareness of land use rights and ability to exercise of their power, and property right loopholes in the country (Alam, 2006). In developing countries like Pakistan it has been observed that law enforcement institutions are weakened (with the intervention of landlords, politicians and bureaucrats), which makes them impossible to establish the general interest over diversified interests (Khan, 2006). This all lead stakeholders suffer from each other, while keeping the "right" to bear annoyance to others' turn. Thus in this situation the conflicts find their places to enter and lead the stakeholders in antagonistic positions.

This research approach is essentially empirical in objective to define land use conflicts created by the infrastructural projects; specifically to assess the impacts of Chotiari water

reservoir on the social, economic and environmental values, and livelihoods of local population. Therefore the researchers who are engaged in land use conflict research need a fundamental shift in thinking. Thus based on the case study results we try to provide land use conflict resolution and prevention measures on rights-based orientations, which necessitate the collection and weighing of evidence in relation to a set of rules and making judgments which take precedent and community expectations into account. Specifically it is hypothesized that without inputs and involvement of regional population for the construction of a development project like Chotiari reservoir, leads disagreements and conflicts, where the limited degree of counseling to indigenous people increases in conflicts (might be higher that one would expect otherwise). This research supposed to breach the gap between principle actors and the outside stakeholders in order to resolve existing conflicts over land use and to reduce its chances to take place in upcoming projects. This work provides answers to the following questions; that how to identify the different competitions over the uses of a piece of land with respect to available resources, economic activities, governance structure and their impacts on the territory; do those competitions/conflicts have links with the characteristics of the territory; is the responsibility for conflict attributed to particular stakeholders or institutions; and what solutions that are found or proposed to resolve these conflicts in general as well as the case study perspectives?

Those questions need to look back on the empirical research on conflicts of land use, which further examine the practical arrangements that generate the opposition in different geographic locations by the involvement of different actors (their actions, the reasons for the opposition, etc.). We recognize that the conflict analysis does not yet occupy the deserving place in economic science, thus those questions deserve to be treated by integrating variable conflict. These questions lead us to observe systematically the conflictive dimension of infrastructural development projects, especially in the developing countries. The conflict is therefore not a coincidence, but reveals a friction inevitable in different set of interests (divergent and contradictory) between stakeholders, whether individuals or institutions of various kinds. Such conflicts are not only result of complex preferences of stakeholders, but also the result of flaws in management of public projects coherent with territorial governance (Torre and Traversac, 2011; Baron and Bonnassieux, 2011; Doyon, 2011). Therefore, such conflicts can be measured from the evidences by the

increase in the number of petitions from administrative tribunals in against the planning and development decisions (Barre et al., 2006) and from the appositions, agitations or protest shown by the indigenous people (where the projects are initiated) through media such as newspapers (Darly, 2009), as well as it can be seen through increasing number of associations/organizations for the protection of life, livelihood and the environment (Magsi, 2012; Lecourt, 2003; Charlier, 1999).

Methodological approach and empirical settings

In order to accomplish the objectives and to answer the questions of this empirical research, the data has been collected through various sources. Primarily, the structured interviews have been conducted from selected experts of diverse professional backgrounds (see Annex A). In this regard we have selected 32 experts[3] from; (i) administrators of water and irrigation sectors from both federal and provincial governments; (ii) researchers and legal experts from different universities and legal administrations; (iii) private organizations from different NGOs and the journalists; as well as (iv) family heads, landlords from affected families. These interviews were conducted with semi-planned questionnaire (see Annex D), where some questions were omitted in order to be asked according to the expert's position, situation and/or experiences on the project, because not all the experts belonged to the same professional backgrounds. These interviews have been conducted in order to collect data on main variables, e.g., pre-conflict situations of the area and position of the actors, behavioral approaches of the institutions towards land acquisition and compensation process and the post conflict situations with consequences of the reservoir.

In order to extract the causes and consequences of conflicts created by Chotiari reservoir, the secondary information was gathered through daily press. Thus we have selected ten

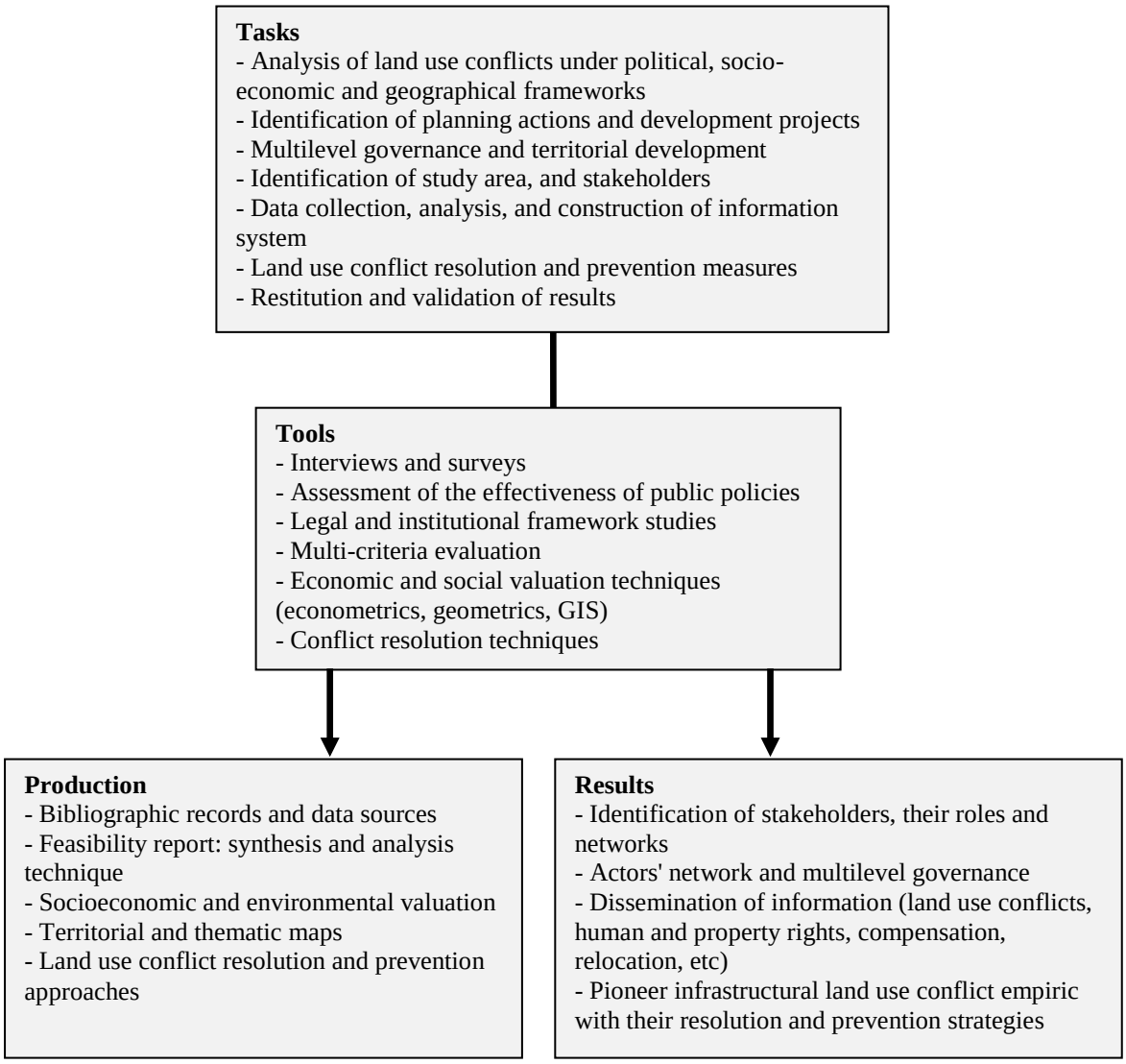
[3] The limited number of experts were interviewed because of time limitations (the process of interviews were highly time taking to contact for appointments and to pay visit to interviewee) and financial limitations (in the time of interviews the selected experts were resided in different parts of the country, thus it was obliged to move for different cities and to reside for few days till finalise the interviews). Moreover, few affected households and feudal from the Chotiari region had been selected in order to compare the actualities on the project and to remove the prejudices on the case study as well as pay visit to the project area and to observe the consequences of the project.

most reliable regional dailies out of 21, which publish in local language (Sindhi), and six most accessible national dallies out of 30, which publishes in either Urdu or in English languages, since 1997-2011 (see Annex B). The newspapers have been selected on the basis of their reliability in terms of their news publishing through first-hand information and easily reachable to the far-flung areas of the province. The news/articles were selected from regional or national dailies through a pre-defined criterion[4]. Although, this data collection technique is not very commonly applied but in land use conflict analysis it is imperative source to understand the public voice on pre-, during-, and post-conflict situations (Torre et al., 2010; Awakul and Ogunlana, 2002; Rucht and Neidhardt, 1999). Due to lack of digital libraries or online access to regional dailies, therefore, the offices of selected regional news press have been personally visited, where the papers were also collected from the offices of local community based organizations (CBOs). The articles/news published in the national dailies were collected by downloading directly from their sites. Moreover, additional secondary data have been collected by analyzing published material by various public and private organizations. It is also considered to extract litigations related to conflicts of land use of Chotiari reservoir, in order to prove econometrically the correlation between nature of the petitions by local population, resolution measures/effectiveness and wellbeing of the society. But due to ineffective judicial system (Khan, 2006) and restrictions to access the courts database, we did not succeed to use this analytical mechanism.

The review for deep analysis of tensions and conflicts over the use of Chotiari land has been conducted in the library of SAD-APT, INRA AgroParisTech. During the analysis important care has been taken to avoid unreliable information. This methodological approach is considered on the bases of our study tasks, where each of the tasks is then characterized by the products and the results they produce (see figure 2).

[4] A standard selection procedure of articles was unmanageable due to different languages (Sindhi, Urdu and English); in this regard the news/articles have been searched by specific keywords. Where the selected keywords followed by the word "Chotiari" are as: affectees, agriculture, benefits, conflicts, costs, dam, development, displacement, ecology, economy, environment, fishing, press-conference, project, protest, rehabilitation, reservoir, and wetlands.

Figure 2: Mind map of methodological approach



Structure of the thesis

This thesis provides the qualitative estimation of causes and consequences of land use conflicts created by infrastructural projects in the developing countries, especially by Chotiari water reservoir project in Pakistan. More precisely, to report characteristics before and after the reservoir construction with impacts on indigenous population; to clarify the links between stakeholders at various phases and each stage of governance; and to recommend its resolution measures. The research is composed of the articles (parts/sections), dealing with the phenomenon under different hypothetical perspectives

based on the public decision-making, the opinions of experts and the daily press (public voice). Each section having a complete sense of explanation can be read independently.

The first part is devoted to the analytical reading of economic theories of land use conflicts over infrastructural projects in the developing world. This section provides comprehensive review to understand the definition, dynamics and main features of land use conflicts in developing world. It provides methodology to design land use conflict resolution strategies and preventive measures. Here we have also provided specific recent examples of land use conflicts created by some development related infrastructural projects from developing countries, in order to expose the correlation of conflicts over land while establishing infrastructural projects. This section further identifies the heterogenic results of the previous literature concerning the appearance of conflicting events related to institutional decisions and behavior, especially in infrastructural projects. Generally, the infrastructural projects are considered as economic production of public goods, where the conflict cannot then come as an "error", unless flawed decision model has been implemented or enforced. Therefore, by integrating the inability to obtain an optimal solution in the context of land use decision, we see that a decision towards well-being for collective choice is a complex concept, which does not generate a perfect and unique decision model. The section concludes by pointing out that the opposition has a power conflict adjustment of public action (Pelletier et al., 2007; Jeanneaux, 2006).

The following three articles are empirical in nature and provide the results of research conducted on a particular case study of Chotiari water reservoir. It is necessary to clarify that we recognize conflict as an act of commitment marked by its irreversibility (Kirat and Torre, 2007).

The second part of the thesis analyzes the description of the case study (situation and location of the territory and the economic actors in the reservoir area). The aim of the section is to understand the characteristics of the project, its impacts on economic, social and environmental values, and livelihoods of local population. This part also describes how the tensions (pre-stage of conflicts) germinated from the project in its surroundings. It also highlights the root causes of the conflicts, the governance and policy implications of the project. In this section we have disclosed that how local populations have united and fight

for their rights on different platforms by shaping community based organizations (CBOs). Moreover, deeper insights on the decision to superposition of the project have been provided in the next part of the thesis.

The third part focuses on the networks of stakeholders and their actions and oppositions during the project decision-making, construction and displacement of local population. Further, it also discloses the conflicts of Chotiari reservoir project across the region and sheds light on the relationship of the actors with the process of decision and implementation of the project. Areas with little easy, in turn, are more or less forced to host events and infrastructures become places of accumulation of poverty but also of tension and even violent struggle, lack of means of expression or strong possibility of use the right technologies and influential social networks. The section results how public officials and institutional inconsistencies created dissimilar power distribution and significant land use conflicts in the region. It also highlights that how different actors have played their role to struggles to show their power to implement and to oppose the project, and how they have violated the rights of indigenous people. The same part provides a review of relevant theories from the area of the economics of property rights for intergenerational land distribution and conflicts, on the basis of land use among different actors. In addition, analyses over multilevel governance and provision of preventive policy recommendations have been made in the following part.

Fourth part is devoted to multi-level governance and socio-spatial evaluations of the case study, where the area studied is always the Chotiari water reservoir from Pakistan. This section focuses on the dynamics of stakeholders relationships from community to international scales, and is based on an approach in terms of Proximity analysis, be there Geographical or Organized proximity. This analysis aims to investigate that how strong the governance is/should be to mitigate for conflict resolution. It also provides comprehensive strategies towards conflict preventive policy recommendations to be applied for similar issues in the developing countries. The multi-level governance analyses aimed to observe institutional powers and behaviors to the indigenous populations as well as to disclose the management practices being performed in the country. The section also reveals that how the public authorities have ignored the international laws while constructing a development project in the country. This is seemed as the trend of territorial governance in developing

countries today, and we claim that it could be modified by mobilizing different proximities for the sake of territorial development of less developed areas.

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PART I

LAND USE CONFLICTS IN DEVELOPING COUNTRIES: RESOLUTION AND PREVENTION STRATEGIES

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Abstract

This article is about to contribute clarity in the research on land use conflicts. It discusses the tools of conflict analysis and methods for their resolution and prevention on the basis of existing conflicts in the developing countries, which entailed the expropriation of homes, farm businesses and other productive resources in rural settings. We first define the fundamental analytical issues towards better understanding the definition of conflicts, their dynamics and contestations around them. We then present main features of land use conflicts in developing world. Finally, we offer a discussion on the land governance and to determine the causes and consequences of land use conflict (conflict tree) and relationship between conflict actors (conflict map) to design resolution strategies and ends with preventive measures in detail.

Keywords: Developing countries; governance; land use conflict; prevention; resolution

Introduction

It is commonly assumed that conflicts are disagreements that tend to involve significant levels of emotion and are enmeshed in the identity of the groups and individuals involved, a significant part of these can be lowered with a little tolerance and consideration. Moreover, the disputes and deep rooted conflicts also exist with the variety of intensity and complexity (Owen et al., 2000). Whereas, disputes can normally be defined as disagreements generated by interests and positions of the actors over a resource use, which have been described as being either distributional (regarding the allocation of resources) or constitutional (disagreements over basic rights), on the other hand, deep-rooted conflicts are those conflicts that involve basic needs which cannot be compromised or suppressed (Susskind and Cruikshank, 1987). Such conflicts tend to be very difficult to settle or resolve, and often incur very high social and economic costs.

Furthermore, there will probably be always conflicts of interest between the different users of any piece of land. Land conflicts are indeed a wide spread phenomenon, and can occur at any time or place (Wehrmann, 2008). During twentieth century there have been many changes in land in the world, the area of cultivated land has decreased (Garcia-Ruiz and Teodoro, 1993), meadows have replaced to grain fields, livestock pressure has much lessened and transhumance has practically disappeared.

During the same period the constant pressure of population growth and urbanization (Marshall and Shortle, 2005) underlines the demand of more infrastructural development projects especially in developing countries (Singhal, 2009). Thus it follows a great pressure on agricultural land (Deininger and Castagnini, 2006), especially the setting of new infrastructures including; reservoir construction for irrigation or power production, improvement of international roads, development of tourism, or urbanization and construction of hotels, ski sorts or camp grounds (Garcia-Ruiz and Teodoro, 1993). Such use of land for project construction entailed the expropriation of homes, farm businesses and other productive resources in many regions. There can appear strong incompatibilities between development projects and wills or expectations of local populations. Besides the land use conflicts, such conditions might detonate in to food conflicts in the world, if proper attention has not been paid.

Lot of changes takes place when a major infrastructural project like a dam is constructed, where land use changes often generate conflicts. Many large construction project practices suggest that conflict is a major and frequent problem between construction projects and groups outside projects. Thus, initiation of large construction projects can make local inhabitants frustrated and angry, where the issue can even be more critical in case of partial advice and no counseling (Awakul and Ogunlana, 2002). In the developing countries local inhabitants are usually not being counseled or even not asked for their views on the decisions on the initiation of the projects that are going to affect them (by occupying their lands or relocating them or even both), which leads aggravation and unrest. Such frustrations often lead to project opposition, where these types of issues further transformed into conflicts. In fact, many researchers have tried to explore land use conflicts (Darly and Torre, 2013; Mann and Jeanneaux, 2009; Campbell et al., 2000) and evaluations (Torre et al., 2010; Deininger and Castagnini, 2006), but there are little references to the use of methodologies providing support for resolution (Owen et al., 2000; Burton, 1993) and prevention (Swanström and Weissmann, 2005) of land use conflicts. In this regard, we are identifying the conflictive events in different piece of land and derive a general condition of conflicts and planning strategies to resolve existing conflicts and to suggest preventive measures.

For contributing clarity on this research of land use conflict resolution and prevention, it has become important to specify fundamental analytical issues towards a better understanding of contemporary discourses in and contestation around land use conflicts. Therefore, the paper is structured as follows. Next section provides review of literature with particular emphasis on the definition and its dynamics, conceptual framework, survey methodology and descriptive evidences on land use conflicts. There is then a discussion on the land governance, land use conflict resolution strategy and ends with preventive measures in detail. Final section concludes and suggests policy implications for future land use.

I. Today's land use conflicts in developing world

There have been great improvements through economic development projects worldwide over past few years, but it cannot be ignored that such projects sometimes cause tensions and conflicts over land use in the surroundings. Whereas, in the developing countries conflicts are always linked to social inequalities, and almost occur on natural resource use policy. It is because, such countries possess some factors like low level of literacy, less media access, population pressure, incompatible planned projects, injustice and political interference. Such factors are not only favorable to tensions, but also lead local population towards conflicts and violence. However, a change in land use not only hampers the socio-economic benefits but also affects local people's livelihood.

I.1. Defining tensions and conflicts

For a contemporary society, the causes, consequences and control of tension is a great issue. However, tensions are interpersonal in nature, which take place within stakeholder groups, organizations or networks of people, but the potential may rise or fall with intensity of crisis. It is therefore not a relevant analytical category, because it has few fixed content and is in fact related to different situations as well as to different levels of intensity (Torre et al., 2010). Tensions are defined as oppositions between stakeholders on resource use (either produced by some human agents or by the nature), which are very common in human relationships. On the other hand, conflict can be defined as frictions which results incompatibilities.

Conflicts may steam from injustices and discriminations on resource use. Thus we can state that the emergence of a conflict followed an explicit commitment of the actors, resulting in a shift to various types of actions: threats, assaults, litigations, technical actions, prohibitive signals, media coverage through press or TV etc. It should however be noted that the occurrence of conflict is not subject to the prior existence of tensions (Torre et al., 2010; Schelling, 1960). The concept of conflict describes a type of relationship between actors, and refers to a situation between them, their behavior, their attitudes and perceptions. Conflict exists when two or more actors/parties are mobilized to obtain

incompatible goals where the other party is perceived to stand in the way of these goals (Wehrmann, 2008).

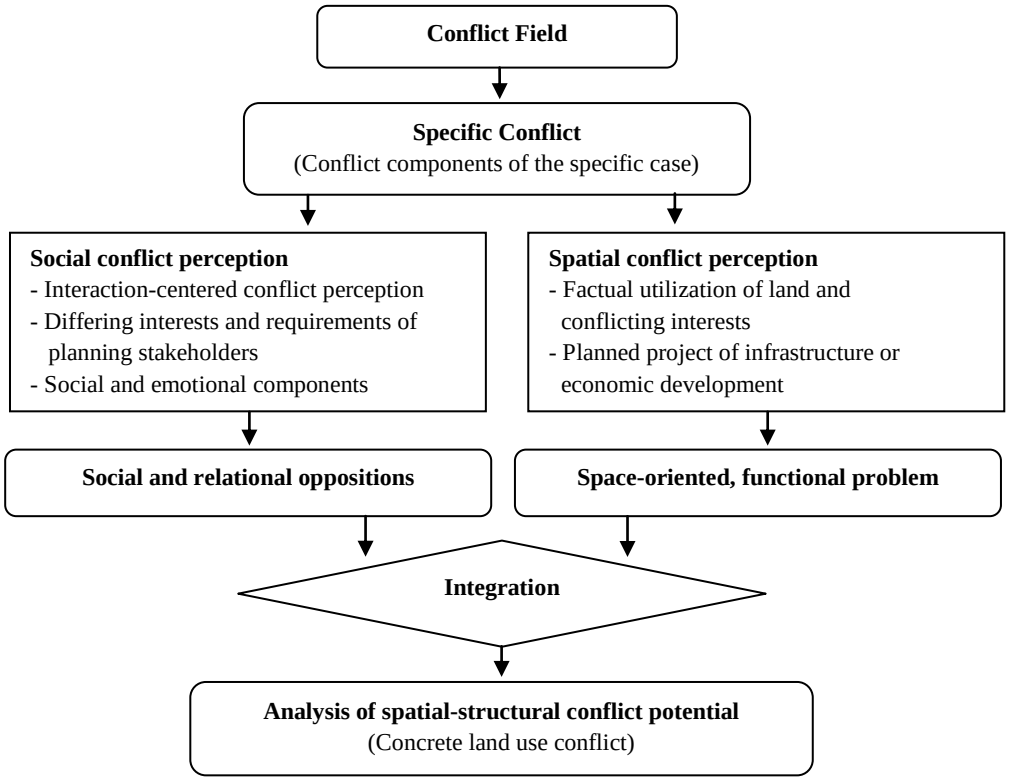
Conflict occurs in many different spheres (geographic, economic, political, and/or social) between individuals, groups or states, and at different levels from the personal to the global. Conflict must exhibit all of these components and must take place between identifiable actors; otherwise applying the concept of conflict will be a misleading object (Schelling, 1960). A number of factors must be taken into account in order to analyze the conflict, including the conditions which create favorable environments for its emergence; the causes which precipitate the conflict, the expression of conflict, the dynamics of conflict, and the consequences and legacies from conflict (UNDP, 2004).

I.1.1. Dynamics of conflict analysis

In general, issues are different from grassroots to national level, but it is crucial to identify appropriate focus on conflict analysis. Moreover, conflicts are not static situations, some conflicts seem to be straightforward and easy to deal with, while the others not (Swanström and Weissmann, 2005). Similarly, it will become more complicated when any other party tells the story of its side, which may create difficulties in first party's interpretations, and it becomes difficult to judge whether, who is right or who is wrong? Unfortunately, such misleading and deceptive conducts push the actual situation too far from mediation.

However, the opportunity windows can be identified by the help of understanding dynamics of conflict concepts, through which we can assess different possible developments and think through appropriate responses. Conflict analysis occupies an important place in social science literature (Caron and Torre, 2006) and is subjected to a systematic study of the causes, actors, conflict profile and its dynamics. In this regard it is important to understand the conflict concept (see figure 3), its various components, situations of actors evolved and their perceptions, to move towards integration of these perceptions for further analytical treatments.

Figure 3: Interdependency of land use conflict analysis to general cases



Source: Modified from Busch, 2009

The concept of the conflict identification described in the above general model indicates that there is always mutuality within spatial and social conflict perceptions, even in general cases. The nature of land use conflict requires that spatial elements must be integrated to the collaborative decision-making process. In order to develop a consensus between the stakeholders, one has to build a common platform, thus the conflict could effectively be analyzed.

As in other cases, conflict analysis identifies the key factors relating to conflict and the linkages between them, pointing to sources and dynamics of conflict resolution. Preferably this includes a baseline analysis performed during the planning stage of the intervention, as well as the updates of conflict monitoring over time. Apart from that for comparison a current or updated analysis at the time of the evaluation is also needed (OECD, 2008). Whereas, the beginning steps towards understanding the conflict up-date is the conflict sensitive and intensive evaluation process.

I.2. Defining land use conflicts

Land use conflicts may be defined as competitive demands for present to future uses of the land, causing negative impact on other land uses. Land use conflicts are social disputes (Deininger and Castagnini, 2006) that raised by involvement of the institutions, industries, development movements, developers, nongovernmental organizations, civil service and regulatory agencies, and often launched by the actions of a central actor introducing development projects. In most of the cases, large land-use conflicts are linked with the setting of infrastructures by public or semi-public authorities.

In the developing countries, land use conflicts explode sharply over issues linked to social inequalities. In rural areas, these clashes are sparked more when owner forcibly dispossessed from natural resources, i.e., land, water or forests (Ostrom and Nagendra, 2006). While in urban areas, these conflicts are prompted by the takeover of land for benefits of government investments, or mitigating and offsetting the impacts of development proposals.

I.2.1. Land use conflict identification

Conflicts always vary in terms of their legal, political and institutional framework, economic constraints and pressures, social structure, stakeholder's interest, environmental situation, history behind the conflict (Jones et al., 2005) and for their geographical location. Land use conflicts may also be of different types according to the involvement of stakeholders and their temporal and spatial scale: their spatial and social concern may vary related to the involvement of local actors and to their ability to recruit new participants or supporters in the upcoming stages. Broadly speaking, the conflicts can be compound and complex, but they can be categorized as; the conflicts related to personal differences or preferences with small individual actions (interpersonal conflicts) and the conflicts related to distribution of power among groups (structural conflicts), which are strongly linked to public decisions with a great social impact (Hirschman, 1970).

The interpersonal conflict is the situation in which actors are experiencing difficulty in using the same resource or working with each other. Such types of conflicts usually occur due to incompatibility in personal needs or goals, with small and of a light duration. On the other hand, the structural conflict is output of tensions, which arises when groups began competing for scarce resources or concerning great public decisions (Huggins et al., 2005). The theory of structural conflict has its own usefulness because it provides a conceivable explanation for a large agglomeration of economic, social, and politic vectors that influences groups, which eventually be clashed in conflict (Carle and Ross, 2006). For example, see table 1, in which relations between structural conflicts related to land use conflicts are highlighted.

Table 1: Structural conflicts may relate to land use conflicts

Socially	- Unrepresentative social structures: inequality and unjustness. - Different levels of education or income: use of illegal channels and non negotiated ways. - Insecure tenancy or ownership: exploitation of natural resources.
Economically	- Government policies ignoring ownership norms and local people needs. - Misuse of economic and political power of commercial companies. - Biases structures towards certain stakeholders: some institutions are inherently political. - Strategic decisions, without considering value of current activities on the land.
Culturally	- Different values and definitions held by indigenous people and migrants. - Negative views between one another groups. - Some groups exploit racial, religious, cultural or language differences and intolerance.
Legally	- Legal systems misuses: over favor to certain stakeholders. - Inaccessibility: Poverty and geographic distance may prevent people to get access to legal system.

Source: Modified after Jones et al., 2005

Conflicts on land use supposed to have negative effects on individual households as well as on the nation's economy, are occurring in many forms when there are clash of interests between different actors for use of same piece of land. Indeed, land use conflict is a serious issue of the century. Oppositions due to urban sprawl, clash of traditional ideas on rural

land uses (Mann and Jeanneaux, 2009), population growth and clash of interests on new project construction (mining, highways, airports, industries, hydraulic projects, etc.) are prominent examples of the land use conflicts.

In general, land use conflicts are being practiced in places where competition and expectation of land use exist, as well as where the decision on future land uses may face the risk to favor only selected stakeholders. The conflicts also emerge when the legal rights of land owners have misused and the economic benefits of the land use will be too far from its present uses. However, the chain of structural conflicts described in the above table is more related to the conflicts over land use, which is the result of misuse of stakeholder's power. For example, in some situations, different types of land users compete for the same space, with diverse kinds of land uses with confronting objectives (Nawaz and Sattar, 2008). In conclusion, we can define that land use conflict is the result of the competition towards actual to future use of the land, which will have a higher probability confrontation.

I.3. Land use conflicts in developing countries: main features

The issue of land use conflicts is critical in developing world. A number of flawed development projects have displaced local inhabitants and contributed in livelihood loss and conflicts of land use (Tilt et al., 2009). These land use conflicts often resulted from inadequacy of infrastructural projects, where the needs and the will of local population are not taken into account during decision making process.

I.3.1. Research questions and hypothesis

We use the examples from developing countries to explore land use related conflicts and highlight (i) the affectees of different types of land use decisions; (ii) the extent to which these conflicts have an adverse impact on life, livelihood and the productivity of land. In order to explore incidence and impact of land use conflict, we formulate following hypotheses that can be explored qualitatively. First, without inputs and involvement of regional population for the construction of a development project leads disagreements and

conflicts. The limited degree of counseling (Awakul and Ogunlana, 2002) to local people implies increase in conflicts, might higher that one would expect otherwise. Second, as the pressure increases on the land for comparatively more infrastructural projects (Singhal (2009) that may increase land use conflicts exponentially. Therefore, it leads us to expect that land use conflict will be associated with significant social and economic losses. Moreover, a key contribution of this paper is the attempt to provide qualitative estimation that can help to estimate regional development losses incurred due to the conflicts.

I.3.2. Methodological considerations

To deal with the issues and to explore land use conflict incidences, the data were collected through various secondary sources. In order to extract true picture of the tension and conflict situations with their causes and consequences, the information was gathered through national and international dailies of the respected countries. Although, this data collection technique is rarely applied (Torre et al., 2010; Awakul and Ogunlana, 2002), but in land use conflict analysis it is an imperative source to understand public voices on pre, during and post conflict situation. In fact, information on conflicts of land use is very sensitive, thus during analysis of daily press, an important care has been taken to avoid unreliable information. Therefore, in order to compare the originality and reliability of the facts (McCarthy et al., 1996) we have also collected information through published material from various public and private, national and international organizations.

I.3.3. Descriptive evidences

In this subsection we are highlighting the incidences of conflicts on land use in developing countries. Unfortunately, large number of displacements have been recognized due to some blemished projects in Pakistan, where water and power development authority (WAPDA) has constructed left bank outfall drain (LBOD) and right bank outfall drain (RBOD), which are located on right and left side of Indus River. The main aim of these projects were to drain out agricultural effluents in Arabian Sea from various districts of *Sindh* province, but they have created frustrations in rural masses (see box 1) rather than the prosperity.

Box 1: Flawed development projects in Pakistan

In *Sindh* thousands of people have been displaced due to flawed development projects, like left bank outfall drain (LBOD) and right bank outfall drain (RBOD). These people have lost everything (cultivated lands, grazing lands, their houses, etc) without offering them any hope of compensation, where the authorities literally left them under open sky, even they were living there for generations. "People's lives have been ruined in the name of development projects in the country, as long as we see the projects like LBOD and RBOD is nothing but a human disaster," says Mustafa Talpur, senior program officer at Action Aid (NGO) Pakistan. "Any development that is selective and doesn't fulfill the criteria of justice and equality, which should be rejected," he adds.

In spite of resolving the conflict created by these flawed projects, government has again imposed a new project named *Chotiari* water reservoir to the LBOD affected people, with the help of international donor agencies. The *Chotiari* water reservoir lies on western wings of Nara desert in the district of *Sanghar*. The reservoir occupies an area of about 18,000 hectares and has water storage capacity of 0.75 million acre feet. The project was approved in 1992 (finally 1994) and supposed to be completed by December 1997, with a cost of Rs 1.5 billion (approximately US $ 26.3 million). Due to ineffectual planning and corruption the project was delayed by five years up-to December 2002, with a total cost of Rs 6 billion, which is approximately US $ 105 million. Experts from the Chotiari area opined that its actual output is far below from which it was planned, where it's financial, social, and environmental costs is much greater than expected. According to the community representatives and their organizations, total of 993 families are directly affected by the construction of this reservoir. They have been uprooted from their homes and in most cases are left without any resettlement and/or compensation. Conflicts over the construction of big dams have grown into forceful policy debates in numerous countries around the world, but this case is supposed to be one of the planned social and environmental tragedies.

Sources: DAWN International 12-11-2009; The NEWS 14-01-2007; UNEP 14&15-06-2004

That is may be, when people see any initiation of large construction project, they often become frustrated and angry about partial advice and counsel (Awakul and Ogunlana, 2002). Because in almost all cases of development projects in the developing countries the indigenous people are not consulted or asked for their views on decisions, which is going to affect them directly or indirectly (Scudder, 2005; UNEP, 2004). This disappointment often leads to project opposition and violence, but it rarely leads to a change in public

authorities' behaviors: where they are still thinking to launch new projects, disregarding the oppositions and the damages caused by previous initiatives. Thus, it is important to examine the position of the factors leading to the conflicts, which encountered on the development projects in order to understand that what interested groups and the project participants can reduce adverse effect on the project.

Most of the conflicts arise from competition for land over its different uses, i.e. utilization of fertile agricultural lands for industrialization, airport (see box 2) and highways constructions (Pham, 2010) etc. Such, land use conflicts are common in Indonesia, as Mr Susilo Bambang Yudhoyono's (President of Indonesia) administration issued a government regulation, allowing the state to take over land to be used for construction of public facilities, even if no agreement has been reached with farmers residing on their land. This rule has raised public concerns and protests throughout Indonesia. Many of farm-lands were lost due to infrastructure projects, which were prime fertile agricultural lands, as well as having tremendous value for marine biodiversity and ecology (LRAN, 2007). Such land loss has long term implications for the economic, social and food, security of local communities, who once deprived of often their only source of livelihood, are left to the devices of the market in inhospitable environments to meet even the most basic needs.

Box 2: Land use conflicts over airport construction in Indonesia

The *Lombok* international airport has built over farm lands of local indigenous people, which is located in *Tanak Awu* village. This mega project turned a cause of conflict between government and local farmers, due to dissatisfying policy adapted by the government towards proper compensation and rehabilitation. "It is not in the place that the local government of west *Nusa Tenggara* and the linked parties who have interest to build the airport pushing their plan on the fertile land, which is the only resource for peasant in central *Lombok* to make living". Henry Saragih, secretary general of Indonesian federation of peasant unions (FSPI) has expressed his outrage at the airport construction plan in *Lombok*, after unprovoked attack of police on peasant's crowd - included women and children - gathered for peaceful protest against violation of their rights.

Source: Land Research Action Network 03-05-2007; The Jakarta Post 09-19-2005

In many countries local people have been displaced or are living at risk due to some big projects (see box 3). In such countries where population deprived of their land use, acquisition and compensation rights, more serious conflicts arise even after decades. Some development projects particularly dams have generated serious controversy in India (UNEP, 2004), as they have tended to be major source of displacement-related conflicts. Therefore, about 21000 families were uprooted and ousted when the *Pong Dam* was constructed nearly 25 years ago and have still not received the benefits of any proper rehabilitation measures. Not only this, but according to Indian Social Institute, development has induced about 21.3 million persons, including; displaced by dams (16.4 million), mines (2.55), industrial development (1.25 million) and wild life sanctuaries and national parks (0.6 million) (Lama, 2008).

Box 3: Development induces displacement in India

In order to achieve rapid economic growth, India has invested on industrial projects, dams, roads, mines, power plants and new cities which have been made possible only through massive acquisition of land and subsequent displacement of people.

India's most current social and economic trembling issue is Yamuna Expressway, which is a 165.5 km long road project in Utter Pradesh (UP). Actually this is the dream project of UP's Chief Minister Mayawati. This project aimed to connect Delhi with Agra along side of *Yamuna* river, but being a most populous state this project has not only caused disturbances among local population but has also negatively affected country's economy. Around 12000-14000 farmers have protested likely blocked Delhi road against the forceful acquisition and poor compensation of their land for the project. This also seemed most intense and complex land use conflict of the year, up-to now almost a dozen of causalities has been taken place. Number of causalities can increase if the resolution measures have not been taken in to account.

Source: The Times of India 26-08-2010

According to media reports, land use conflicts have become an increasing important issue in China due to land scarcity (see box 4). Because of rapid industrialization and population growth, the land base for agricultural growth has been shrinking (Robertson, 2010). In facts, China is well known for its efficient infrastructural and urbanization projects, but violent conflicts (sometimes deadly) have been reported. Therefore, it is due to

negotiations over land acquisitions went wrong, usually due to compensation disagreements (Rooij, 2007). According to Robertson (2010) the expropriation of land in China is a polemic social issue, where so many houses have been demolished forcibly by using modern tactics like switching off the power or water to whole blocks of houses and sending thugs to harass and intimidate residents, leading to violent conflicts.

Box 4: Land use conflicts in China

In China official statistics shows that more than 50,000 cases of land use dispute took place in 224 cities and counties across the country from 2003 to March 2008. Recently, more than 30,000 villagers in eastern China blocked a highway and clashed with police while protesting against land compensation deals. Protestors accuse local officials of arranging a deal in which villagers were paid far less then market value for their land. The protesters were over government land seizure in *Zhenjiang* for infrastructural development projects. Moreover, the expropriation of land in China has become one of the most polemical social issues. "The government should solve previous problems before making more laws", said Li Huifang, a petitioner from Shanghai. "How many people were imprisoned and tortured trying to protect their houses and lands? They should be redressed", he added.

Source: TheEpochTimes 28-10-201; China Digital Time 26-07-2009

There are no geographical limitations of the conflict; it can occur in any part of the world. Semi-developed countries like Brazil are also disturbed due to land use conflicts (Vainer, 2007), for example the conflict has started when mining companies started working on northern states of the country (see box 5). According to Sharma (2002) in these regions the concentration of land ownership is high, and some "troublemakers" - community or union - dispute their rights to maintain thousands of hectares of land uncultivated or stripped of all forest for cattle pasture (beef for export), while millions of Brazilians are willing to work on land, remain landless and near virtual starvation in rural poverty or urban slums.

Box 5: Land use conflicts created by miners in Brazil

Yanomami and Yekuana Indians of Roraima state of northern Brazil held a protest to denounce invasion of Yanomami land by international mining companies and national cattle ranchers. They have demanded to authorities to remove them immediately and they also demonstrated that more than 1000 gold-miners are working on their land and polluting the river and forest with mercury, where cattle ranchers invading and deforesting the eastern fringes of their land. These Yanomami indigenous peoples are living in the Amazon rainforest, where the forest is the only source of their livelihood survival.

Source: Survival International 09-04-2010

Such conflicts seemed to be result of both need and greed, which not only degraded natural environment but also putted the lives of indigenous people at risk. Moreover, these local people are dispossessed either due to failure to recognize their rights to land or due to invalidation of those rights by the state (Ostrom, 2007). In such economies careful management of natural resources and environmental landscapes is important for development, especially for socio-economic betterment in rural zones (Tscarntke et al., 2005). Many of resulting conflicts are driven by the underlying frustration of basic human needs and values that cannot be compromised (Abdalla and Timothy, 1996).

Beside the infrastructural projects, urbanization is also seemed a source of land use conflicts, in the developing countries (Marshall and Shortle, 2005). In this situation, if proper attention has not been paid, it might be a big land use conflict. In the rural-urban fringes home constructions are spring up rapidly, which is the great pressure on agricultural land, i.e., in urban sprawl the land owners are encouraged to sell their lands for higher price, due to pressure on land for construction of infrastructures related to urbanization. Eventually, there is loss of prime agricultural land (Darly and Torre, 2013). In addition, this type of land use conflict can explode into food conflicts (Singhal, 2009).

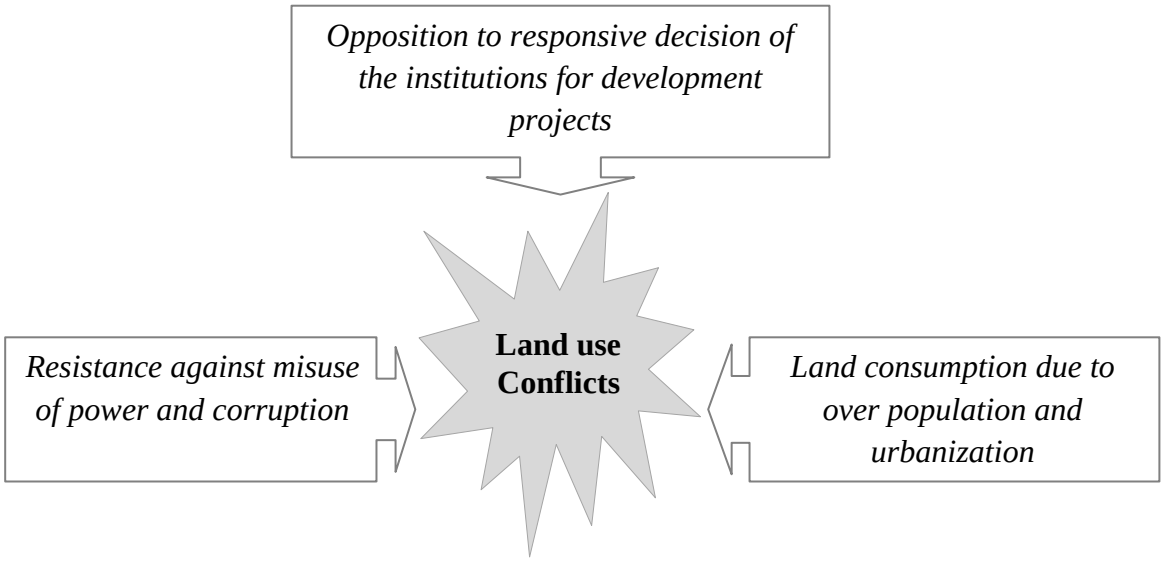
Arguably, urban fringes will need infrastructural projects to fulfill the increasing demands. For example: Singhal (2009) has concluded that India's population has increased by 350 million in last twenty years, and 350 million or more will be added in the next twenty years, which is going towards multidimensional land use conflicts. This rise in population

will increase demands of housing, public utilities, roads, parks, schools, hospitals, sports arenas, airports, railway stations, crematoriums and cemeteries, offices and retail spaces manufactured products and other infrastructural projects. Most of the human habitation for obvious reasons of basic amenities has traditionally been in those areas. Thus conflicts may increase exponentially as the pressure increases on such lands, e.g., displacement, superposition of uses, etc.

I.3.4. Land use conflict features in the light of regional press

These examples deserve a summary or a general explanation of the causes and the manifestations of land use conflicts in developing countries. A study of the regional press corresponding to the case studies that are given in the preceding section (see boxes 1–5) allows us to summarize the main peculiarities which define conflicts of land use (see figure 4).

Figure 4: Documenting land use conflict definition observed by daily regional press



Source: Authors extraction from daily regional press from developing countries

The above figure indicates that land use conflicts are disagreements resulted from the policy responsiveness of the institutional behaviors, i.e., government and judiciary for their decision towards development projects. Thus, the decision for an infrastructural project which is going to affect directly to land owner's survival will create tensions and ultimately

lead to conflict of land use. Consequently, such conflicts are emerging from situations in which the localities attempt to ignore or challenge those decisions as an overstrained power.

No doubt, in the developing world such projects are initiated on the basis of increasing public needs which are directly proportionate with increase in population. Whereas, some decisions of the projects are also made in nondemocratic way[5] that is why there are always opposition on the nature of such flawed projects.

For example, in the case of Chotiari water reservoir construction in Pakistan, the evicted families were referred to the Courts for justice. At first, Courts have preceded their land use and compensation related cases but after inauguration of the reservoir in 2003, almost all cases have been discarded without any decision, because of the involvement of high profile officials and bureaucrats (Nauman, 2003). On the other hand, in the case of Lombok international airport in Indonesia, despite of regular agitations government never invited land owners for dialogue (LRAN, 2007). Likewise, Ahmed Yani, one of land owner leaded other affectees for agitation in order to raise their voices for compensation. Contrary, he was accused and declared as a crazy man and still there is no information about him as he disappeared after the event. The incident of Mr Yani has not only discouraged local settlers for their compensation but also suppressed their voices (Mataram, 2008).

II. The common approaches of conflicts: resolution and prevention

In principle, big conflicts are mostly arising in the situations of growing inequality among population, misuse of political strategy, lack of democracy, as well as due to uncertain and weak institutions. Moreover, the dynamics of conflicts sometimes become complex and difficult to understand, when conflicts comprise over large number of issues or sub-conflicts. This difficulty reflects that such complexity must also be taken into account while addressing how to resolve or prevent (Swanström and Weissmann, 2005).

[5] Some projects seemed having roots in corruption and greed, which are doomed to benefit few stakeholders rather to whole society or economy (Lama, 2008; Nauman, 2003; Sharma, 2002).

Consequently, the conflicts can be prevented by the intervention of sustainable development, economic growth, security insurance and good governance (Ackermann, 2003).

II.1. Resolution and prevention strategy of land use conflicts

In order to define or identify successful resolution of conflicts and implementation of preventive measures, it is important to be aware of their concepts (Burton, 1993) and of the different existing types, otherwise some inherent characteristics may create difficulties (Mann and Jeanneaux, 2009) while dealing with. Conflict resolution is defined as a social situation where the conflict parties may agree voluntarily to resolve their discrepancies on land use and to live peacefully (Wallensteen, 2007). As suggested by Nawaz and Sattar (2008) that resolution can only be possible by presentation of the information in a systematic manner that can permit the consideration of the conflict as a whole, rather than as a collection of discrete facts.

Fundamentally, conflict prevention is defined as a range of actions or a set of instruments undertaken by an organization to prevent a potential tension, before it turns into a conflict or violence (Bercivitch and Jackson, 2009; Clément, 1997). The term conflict prevention is not only referred to an action undertaken to reduce future tensions, but also includes short term responses and long term engagement towards the outbreak or reoccurrence of any conflict at any piece of land due to its economic, social cultural or religious uses (Daniel, 2010). Moreover, Swanström and Weissmann (2005) have defined that any measurement tool, which strengthens the capacity of concerned actors to act structurally and to reduce the possibility of disagreements, will prevent the conflicts. Conclusively, land use conflict prevention is a tool to undertake for reduction of future tensions and to prevent the eruption of conflicts from the region, beyond short term actions, which includes the notion of long-term engagement.

Regardless of whether it is defined broadly or narrowly, it is essential to develop categories of guidelines in order to provide more accurate and practical measures towards conflict prevention over the use of natural resources. For example, to intervene for support; to

promote culture of justice, good governance towards human and property rights with their ownership protections (Rooij, 2007), to uphold the rule of law and respect pride of inhabitants (Schlager and Ostrom, 1992) and to promote socio-economic development before the hostilities of land use conflicts. According to Wehrmann (2008), the prevention from land use conflicts can be achieved only by a combination of correcting institutional weaknesses and introducing good governance.

II.2. Land use conflict resolution strategies in the developing countries: some useful tools

Conflict occurs in many different spheres -geographic, economic, political, and/or social- between individuals, groups or states, and at different levels from the personal to the global. In fact, conflicts are mostly resolved by participatory compensatory strategies or bilateral arrangements (Rauschmayer and Wittmer, 2006). This is obvious that neither all strategies are always suitable for resolution of all types of conflicts, nor conflicts can always be resolved with the use of a single resolution strategy (Henle et al., 2003).

Consequently, in suppressed societies[6] of developing nations, the political leaders are often provocative and manipulative (Nauman, 2003). While their interests are to use society's land resources by misused power, which is the reflection of accumulated antagonism to the society (Bredariol and Magrini, 2003). Thus, the person in position of power is motivated largely by their own selfish interests (Eitzen and Zinn, 1990), i.e., powerful belongs to a group or categories of people that include high ranking politicians, civil servants, the military, the police, companies, rich and influential individuals or groups. However, the conflict related to the gap between powerful land predators and powerless small land owners is the result of weak land tenure security. Such conflicts teach about the relationship between governance, legal institutions and local power configurations. Therefore, the references to their resolution should mainly be drawn on political, anthropological and ethnical analysis of the dispute.

[6] A society which is demoralized by unjust and misuse of power.

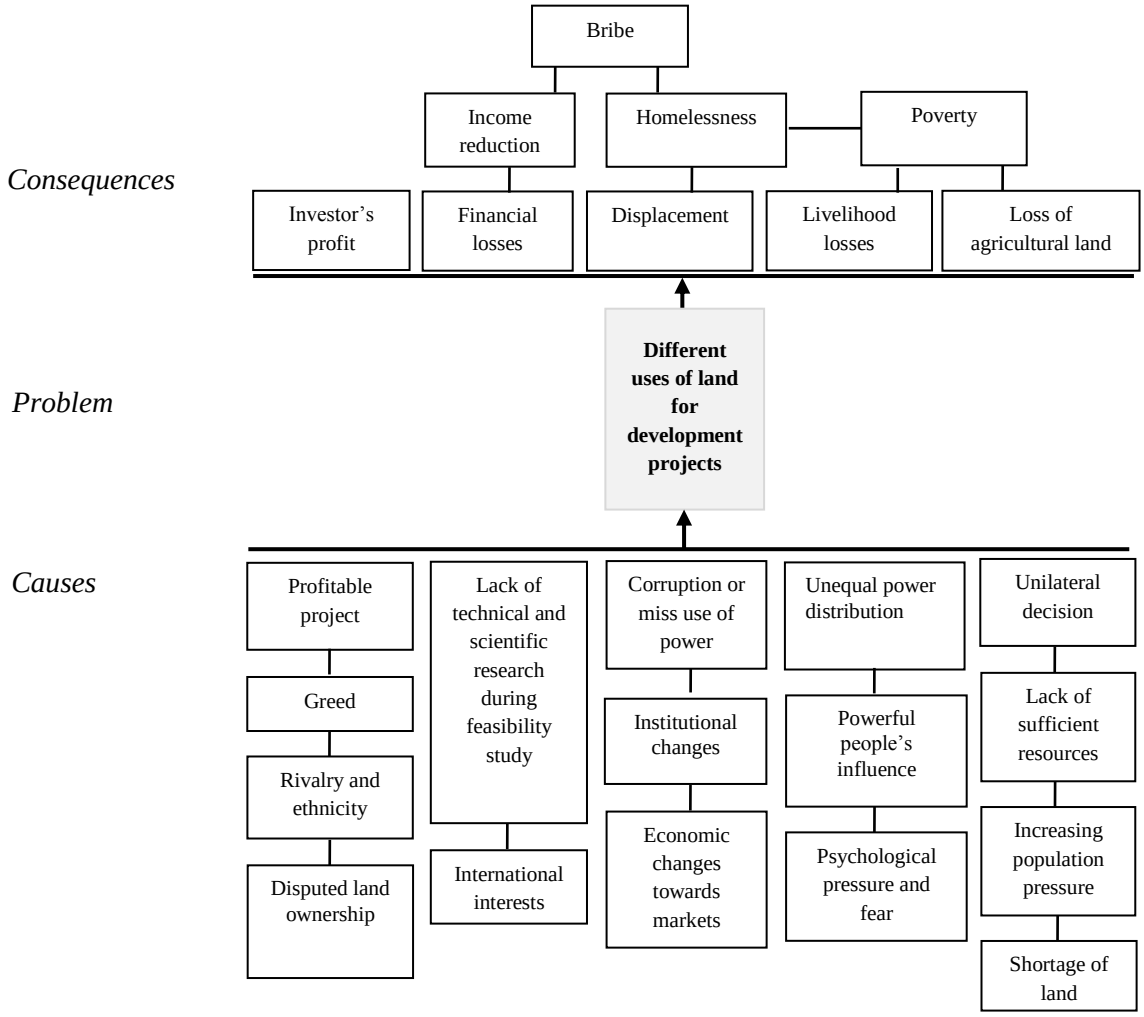
On the basis of available information on current land use conflicts prevailing in the developing world, we can begin to determine the causes and consequences of land use conflict (by conflict tree approach) and relationship between conflict actors (by conflict map approach) to design resolution strategies that may have a higher probability of success.

II.2.1. Conflict tree

The conflict tree is a tool to explore actual position of a conflict in terms of its causes and impacts, where the roots are assumed to represent the causes, the trunk represents existing problem and type of conflict that has arisen, where the branches depict the consequences (Whermann, 2008). These conflict trees can then be exchanged in order to see each side and get a better understanding towards the situations, and concerns general perceptions of their counterpart. The tree gives visual aspect of structural and dynamic factors that show how they are linked with conflict issues. However, it emphases to the interaction of conflict escalation and its intensity, which are often used for participatory planning and to identify core problem to which causes and consequences are attributed.

However, the following conflict tree diagram (see figure 5) is based on the information collected from various sources of nationals and international press. This general diagram indicates the causes and consequences of land use conflicts are prevailing in the developing countries, which are the results of the initiation of development related infrastructural projects (see boxes 1-5 before).

Figure 5: Conflict tree, showing causes and consequences of land use conflicts in developing countries



Source: Authors extraction from daily press

Above figure indicates that in developing countries roots of conflicts can be compared with structural casual factors, which are always invisible. Main examples of such factors are economic deprivation, injustice, ethnic prejudice, poverty, corruption, poor-governance, unilateral decision and international interests (Vainer, 2007; Nauman, 2003; Awakul and Ogunlana, 2002). Similarly, the visible content of the tree is the trunk, which reflects the dimensions of the conflict. Since it is the largest visible part providing the name and nature of the conflict, which is converged by the expression of many roots, but it is difficult to distinguish a particular link of root to the conflict. On the other hand, the branches are referred as the effects of the conflicts or dimension of the conflicts normally emerging out from the trunk. For example, in the developing countries the rise in infrastructural projects (Pham, 2010) and urban sprawl (Marshall and Shortle, 2005) leads to land use conflicts by

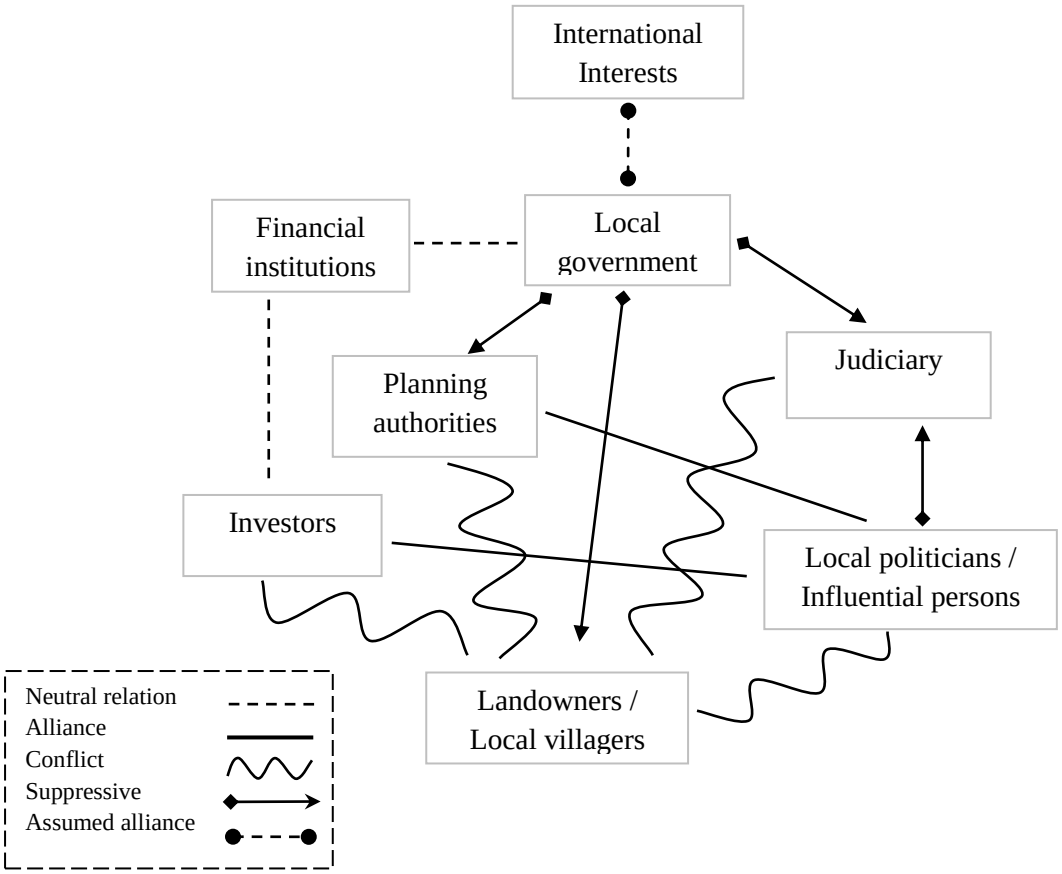
emerging competition for different interests among stakeholders. In general, the diagram articulates decisions of development projects ensured profits to investors only, while they created losses of livelihood and natural resources.

Conflict tree can facilitate researchers or investigators by the discussions about the actualities of the situation and its possible ways of resolution. Lesson extracted from the above tree diagram reveals that every decision of development project has causes and consequences, if the decision has not taken carefully which can lead towards negative consequences and ultimately to a (violent) conflict. Prior to the invasion of land use conflict scenarios quoted in the preceding section of the article, many analysts are engaged in the development of best-case and worst-case conditions of about the outcomes of such conflicts.

II.2.2. Conflict map

The conflict map can be useful to illustrate the relationships and interactions between actors in conflict. Moreover, it also helps to identify the locations and situations of the organizations / institutions in the conflict arena. It has the advantage of representing a situation based upon interrelations among the actors and their activities, which allows identifying the interactions (alliances and conflicts) of those actors. Although, a general conflict map is difficult to design, because of involvement of different land use actors and geographic locations. In order to assess for a broader view of land use conflict definition, we have tried to figure-out a general conflict map (see figure 6). This is the result of the deep analysis of news and views have published in daily press regarding land use conflicts prevailing in developing countries (see boxes 1 - 5).

Figure 6: General conflict map of developing countries



Source: Authors extraction from DRP

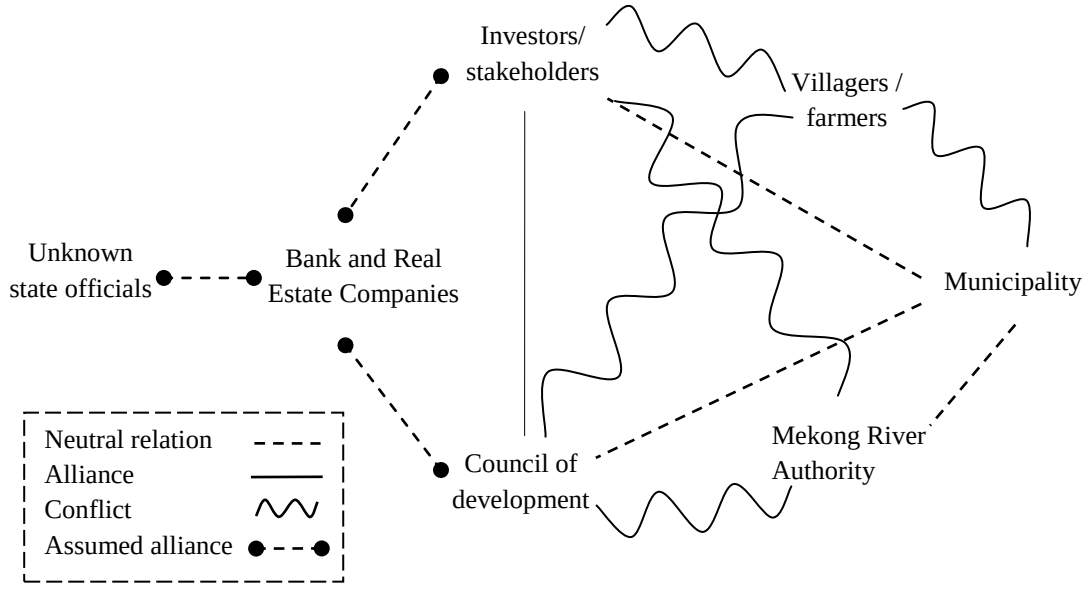
The above conflict map describes the position of the actors and their respective interactions concerning land use conflicts related cases in developing countries. Some actors in the conflict arena found in alliance, which indicates that some actors had formal agreements either based on greed or grasp. The diagram also shows confrontational relations between actors, i.e., their relations have provoked tensions and conflicts among actors. On the other hand, it also seems that there are suppressive relations between actors, which mean some powerful actors or lobbies are involved to dump public voices or laws by misuse of power (Nauman, 2003). Moreover, few actors / organizations were found with neutral relations, i.e., having neither favoring nor confrontational relations. The regional dailies concerning conflicts on land use have disclosed three main points.

1. The infrastructural projects are almost funded by some international agencies, with bilateral interests whether based upon political corruption or economic development.

2. The land owners / users seemed either suppressed or having conflict relations from other actors, which mean the projects are launched with partial or without counseling to them.
3. In most of developing countries, the institutions seemed suppressed, which unveils the failure of governance. Moreover, some economies were practicing negative influence of politicians and landlords in planning and judicial system, which leads the conflict far from its resolution.

Besides the general conflict map of land use conflicts in developing countries, we are quoting the work of Whermann (2008), where he has provided precise conflict map of a particular case study of *Diamond Island* in Cambodia (see figure 7). The following conflict map quite resembles with nature of land use conflicts, which are prevailing in the developing world as general.

Figure 7: Conflict map in the case of Diamond Island



Source: Wehrmann, 2008

In the above figure author emphasizes the relationship between local actors over land use of *Diamond Island*, which clearly shows that almost all actors in the arena had conflictive relationship with the villagers or land owners. The lesson extracted from this conflict map is that when local population -villagers, farmers- loud-up their voices publicly against any

project (Awakul and Ogunlana, 2002; Hirschman, 1970), they induce a conflictive relationship with other stakeholders involved. Therefore, in the present situation we can say that unilateral decisions, without taking regional population on-board, lead to devastating effects, which the current world is facing on.

II.3. Conflict preventive measures in developing countries

In developing economies the prevention of land use conflict is not an easy task. Thus, there may be two main obstacles, lack of democracy on one hand, and the relative ignorance of local populations on the other hand. These failures can lead to extreme situations because:

- usually the planning authorities are tempted to build the infrastructural projects,
- without or partial involvement of the local population, and
- sometimes local actors or stakeholders, where the project is being initiated are not in a position to react, due to weak organizational unity and lack of education.

One of the best solutions to avoid such conflicts at an early stage is to keep local populations informed (Ackermann, 2003), in order to improve their knowledge about the projects, as well as to increase the level of local democracy. This method will lead to discussions about main goals of projects and can bring solutions to technical problems as well. The concept of preventive diplomacy (Swanström and Weissmann, 2005) can be extracted from the intensity of the conflicts prevailing in the said regions and from their conflict trees, and further these strategies can be referred for application in the region. For example: conflict tree can alleviate the planners and managers about deed and greed of conflictive projects, which forced inhabitants towards poverty and bribe.

For better illustrations regarding conflict preventive measures (OECD, 2008), it is important to have a look on some basic questions like, what are new factors contributing in prolonging conflict dynamics, and what are the interests, goals, positions, capacities and relationships of the conflict actors? Therefore, the decisions towards development projects must be made in the light of causes and consequences of prevailing conflicts of land use, which will help in best stage selection for prevention and management. For example: to

make sure that the decision has not been taken on interest of a single (individual or group) stakeholder, which is going to affect directly or indirectly to the other actors.

II.3.1. The two dimensions of land use conflict prevention

Normally, land use conflict prevention has two dimensions (Swanström and Weissmann, 2005; Ackermann, 2003), which consist of operational prevention, i.e., immediate measures applicable in the face of crisis, and structural prevention, i.e., measures to ensure that crises do not arise in the first place or if they do that they do not repeat. Similarly, these two main dimensions can further be distinguished as;

−operational or direct conflict prevention that measures to address the immediate crisis or tension. For example, sending a diplomatic mission to mediate between actors, by using economic tools such as; counseling for mutual understanding towards resource use, compensations of losses and demobilizing the antagonism among actors (Jones et al., 2005);

−structural prevention or root-cause prevention addresses the basic causes of the conflict on which the conflict can be structurally prevented by promotion of rules of laws and the development in the region, thus a broad-based economic growth could also be achieved (Swanström and Weissmann, 2005). For example: promoting democratic governance so that opposing actors may state their views without any fear, resolving differences through cooperative dialogues or ensuring legislation should not discriminate against one sector of the society (Jakobsen and Thruelsen, 2009).

Thus, the goals are the same no matter conflict is prevented through operational or structural method. As for as the cases of land use conflicts in developing countries are concerned, at first the operational or direct methods would be applied to control over the sudden violence and vehemence before their maturity, where structural method should not be ignored. These two methods are radically different, where one is focusing on short-term targeted approaches, while the other requires a longer-term and more comprehensive approach.

II.3.2. Enhancing economic and natural resource development

Economic development and integration may be an effective conflict preventive tool, to the extent it makes wealthier regions and helps to build stronger institutions, because these approaches consider both the interests of self as well as the interests of others (Owen et al., 2000). Perhaps, the development efforts can significantly contribute to conflict prevention, particularly if they are implemented in a conflict-sensitive manner. Because any decisions made beyond the conflict sensitivity will lead to deep understanding of the conflict dynamics, which will further potentially contribute in its factual prevention (Woodrow and Diana, 2009).

In addition to planning for a useful land use conflict preventive actions in any region, it is imperative to develop assumptions for flawed decisions during project effectuation, which will help in setting ground for consensus (Owen et al., 2000). The natural environmental conditions and cultural development processes determine the spatial distribution of land and at which the intensity of agriculture and environment has been influenced by human activity. The reasons behind the actual delimitation of the land use conflicts and public policy failures are manifold: for instance, high value is given to other than agricultural sectors for economic, social, and cultural reasons or conversely, the lack of economic interest that was attributed to their use in the past (Daniel and Perraud, 2009).

Land use conflict prevention reflects that if once the potential cause of conflict has been identified that can facilitate to analyze negative reinforcing cycles in different uses of land and which will also help to understand the dynamics of future conflict preventive measures by window opportunities of current conflict trends. Therefore, there are some precise assumptions for development (see table 2) on the basis of public voices published in regional press (quoted in boxes 1-5) on currently prevailing conflicts of land use in developing countries.

Table 2: Development assumptions for conflict prevention

What to promote	**Prevention methods**
Socio-economic development	- Balancing physical reconstruction - Sound and equitable economic management - Proper counseling and social inclusion before launching development projects
Inventory of natural and environmental resources	- Development of resource protection ordinances and resource based land use planning - Development of educational tool for residents to learn about their community and its environment
Governance tools	- Development of civil society approaches - Freedoms of expressions for land owners, access to NGOs and local associations - Access and participation of local inhabitants during feasibility study and briefings - Human right protection (international)
Justice and security reforms	- Pre-violent accompaniment actions should be taken - Peace building - Demobilization and reintegration of agented people

The fundamental assumptions suggested in the above table are that tensions and conflicts can be prevented through the promotion of governance structures, social relationships among conflict actors and by insuring security to local inhabitants. It should always be the responsibility of political, administrative and economic actors that to manage state's affairs, where actors can easily exercise their rights and can mediate their tensions before transforming into conflicts. Contrary, if state will benefit to ruling class only, this will lead to conflictive and violent situations (Eitzen and Ninn, 1990).

Dynamics of spatial conflicts whose properties allow for reticular mobilization through information networks, exchange and sharing of resources that deploys controversial territorial governance. Moreover, before planning towards a development project a redress system related to land-acquisition, compensation and resettlement should be clearly established, which should ensure that affected population may regain their former living standards and prestige (Schlager and Ostrom, 1992). As consequences, the protests and oppositions are directly related to uncontrolled illegal farmland uses and long term unlawful strategic planning for public infrastructure projects (Darly and Torre, 2013).

Therefore, the situation of developing countries is much more complex than the one of developed countries with respect to conflicts and oppositions, where networks and stakes are more intricate. In rural settings, land use problems are almost created by influential landlords or politicians, because the owners of the land are illiterate to understand their rights, even they do not know about the economic value of their land. Thus, the process and structure in which use and control of land has been forcibly managed and decisions to be implemented towards competition, which terms as land governance (Palmer at al., 2009). Land governance is a matter of technical and administrative action, rather than a matter of democratizing access to and control over wealth and power (Borras-Jr, and Franco, 2010). As generally understood today, the range of actors in land use policy decisions are seemed in complexities due to lack of good governance.

III. Conclusion

The aim of article was to contribute in the research of land use conflict resolution and prevention in developing countries, which occupies an important place in social science literature and the daily press. In this article we had a look on the definition of a conflict, which defined as an incompatible relationship between actors, their behaviors, attitudes, perceptions, and will or expectations for competitive land uses. These conflicts are of different types according to the involvement of stakes of different stakeholders and their spatial and temporal scale. Moreover, we have also explored main features of existing land use conflicts in developing countries and distinguished on the basis of competition between actors for the same piece of land.

The general thesis has articulated in this article is that without keeping local inhabitants on-board for a development project leads to tensions and conflicts (violent) in the region. Our results imply that either governments imposed their decisions forcibly or the involvement of powerful personalities ignored local inhabitant's rights, because in a suppressed society, the political leaders are often provocative and manipulative. That is why in most cases of conflicts in developing countries people have adopted violent pathways rather than to accept the decisions, which results that local actors were not counseled during planning and implementation of these projects. Further, our study has demonstrated that the rise in

population will increase in demand of infrastructural projects, thus land use conflicts will increase as the pressure increases on the land, if preventive measures will not be taken with respect to conflict sensitivity. The results have been also supported by the literature on increasing land use conflicts in developing countries.

Keeping this purpose in mind, we then developed the common approaches of conflict resolution. The research have shown the possible causes and consequences of the conflicts prevailing in the developing countries through conflict tree approach, and the relationship between conflict actors through conflict map approach, in order to create attentiveness to the researchers and planners from its social impact for future planning of such projects. In this paper, we have identified two dimensions for conflict preventive measures -operational and structural- no matter in which method it could be prevented, where one is focusing on short-term targeted approaches, while other requires a longer-term and more comprehensive approach, i.e., by enhancing natural resource development. Finally, research intervenes in the field work to prevent conflicts by creating change in people's attitudes, thought processes and relationships. It also focuses more on supporting processes rather than concrete quantifiable outcomes. Because any decision made beyond the conflict sensitivity will lead to deep understanding of the conflict dynamics, which will further potentially contribute in its factual prevention.

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PART II

FLAWED DEVELOPMENT PROJECTS WITH NEGATIVE SOCIO ECONOMIC AND ENVIRONMENTAL IMPACTS: THE CASE OF THE CHOTIARI RESERVOIR IN SINDH PROVINCE, PAKISTAN *

H. Magsi (2012) (First part: socioeconomic impacts)
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Abstract

This research specifies the impact of Chotiari water reservoir on socio-economic values and livelihoods in Pakistan. It further describes the policy implications of the project, based on foundations of deeper analysis. First, the article defines the background of the reservoir through the concepts of land distribution with respect to economic activities, demographic and socio-economic situations. Then it emphasizes the depletion of natural resource values to rural communities in terms of economic activities and wild resource gathering for rural livelihood. The research also highlights the root causes of conflicts with response to land use decision of the project. Finally, it offers a discussion on the governance and policy implications of the findings, particularly in land use conflict perspective.

Keywords: Chotiari reservoir; conflict; displacement; governance; Pakistan

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***** This descriptive part has been published in two different articles; one is focusing on socio-economic impacts, while other is focusing on environmental impacts of the reservoir. We have merged both articles in one text, in order to avoid the overlapping of case study description in the thesis.

Introduction

Developing countries are rich in natural resources, where these economies have naturally gifted with commercial agriculture (Folke, 1998), farm work population (Ashraf et al., 2007), biodiversity (Husnain et al., 2010) and touristic sights (Laghari, 2001; Campbell et al., 2000). Typically, the vision of a rural area in developing countries is one where agriculture is an important and probably dominant component of people's livelihoods. Moreover, such regions also possess low level of education, less built up, having fewer infrastructures, and with lower human population density than urban areas (WWF, 2007). However, this stereotype does not necessarily apply throughout many of the developing regions of the world (Bernstein, 1992). The rural areas are derived by squandered assets and unfortunate investment strategies. Besides that, many of the economic and social decisions made by their governments have negative influences on their rural livelihood (Barron, 2004).

Today, the important issue for good governance is to generate different social and political dynamics around land and its uses (Palmer et al., 2009). Since, most of the developing countries are depending on agriculture and farm business. Thus, the advancement of better agriculture and irrigation system will indemnify the contribution of their rural areas in economic and social development. In these countries, irrigation can boost production and improve economic outcomes up to 400 percent (Khan et al., 2006). But due to shortage of irrigation supplies the agriculture is seemed at subsistence level (Ashraf et al., 2007). Therefore, in the sake of assured irrigation it is needed to store water, to boost agriculture and save future generations from food conflicts as well as bring prosperity and development. But, if water reservoir construction related projects will be based on blemished planning, which will evidently create socio-economic and environmental conflicts.

However, in spite of development, some flawed infrastructural projects have not only forced rural people to migrate, but also occupied their lands (Vainer, 2007; Cansen, 2004; Awakul and Ogunlana, 2002). This type of governance creates dependencies among the households, and ultimately to poverty and bribes. However, I try to provide some understandings of what constitutes rural socio-economic and their resource valuation

particularly in Pakistan context. Furthermore, the article discusses a case of reservoir construction in an economically and ecologically rich area of the Sindh province in Pakistan (Husnain et al., 2010), which has not only devastated the natural resource dependant livelihoods of poor locals but also diminished ecological habitats (Nauman, 2003).

The specific objective of this research is to assess the impact of Chotiari water reservoir on the socio-economic values and livelihoods in its surroundings and to discuss the governance failure and policy implications of the analysis. In order to bring out the true picture of the project in terms of its impacts, conflicts and governance system, we have collected the data from experts of various professional backgrounds through a detailed questionnaire from the study area. Moreover, secondary data have been collected by analyzing Daily Regional Press (DRP), and from available literature published by national and international organizations.

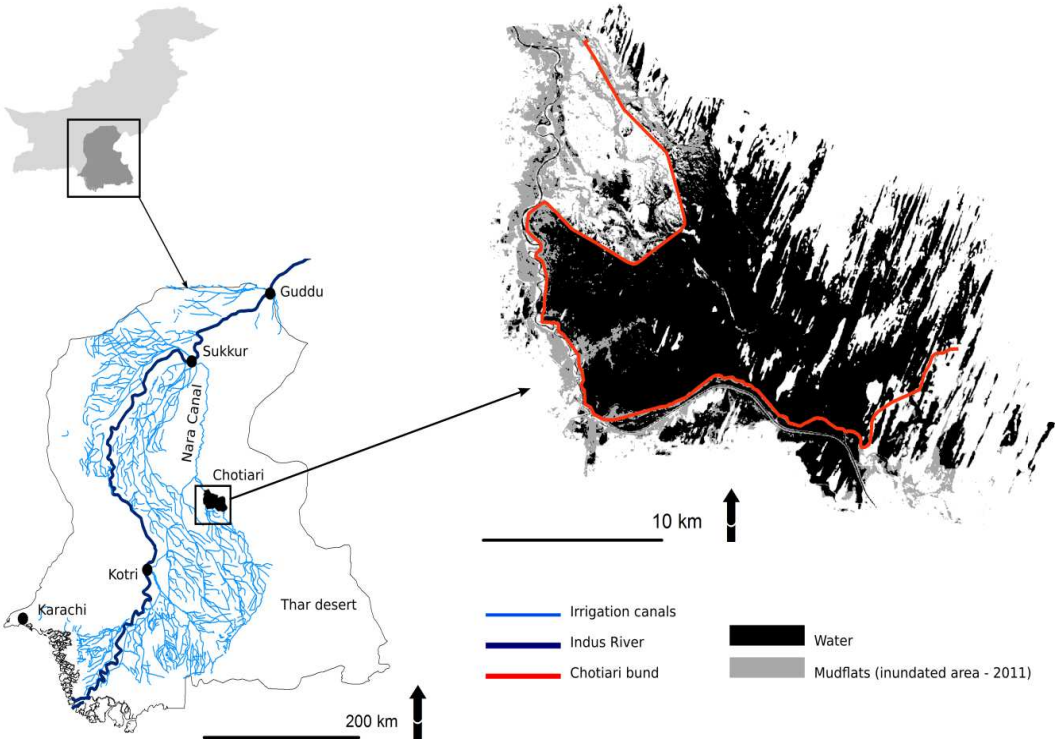
The article is descriptive in parts but mainly tries to point out the important factors in each section in accordance to provide foundations of a deeper investigation of a flawed development project. First part of this article deals with background of the Chotiari water reservoir through the concepts of land distribution with response to economic activities of the region. Then the next part emphasizes the analysis of the demographic and socio-economic situations in the study area. Furthermore, this section is also expended over natural resource values to rural communities in terms of economic activities and wild resource gathering for rural livelihoods. We then discuss the interests of the project initiation and to explore the conflict phenomenon. The fourth segment concentrates on the controversies, oppositions and root causes of conflicts with response to land use decision for the project. The rest of the article focuses on the governance and policy implications of the findings, particularly for land use conflicts.

I. Brief sketch of the study area and land distribution

I.1. Characteristics of the study area

No doubt, human rights violation is directly proportionate with development projects in developing countries. If one has to pick a single example of a development related project from Pakistan, then the Chotiari reservoir (see figure 8) along the *Indus* basin would be the ideal case. This project includes massive damage to the socio-economic conditions (Magsi, 2010), ecological situations (WWF, 2008), blatant violations of water rights (Memon, 2004) and a total disregard of the livelihood concerns and human right violation of the affected communities (Nauman, 2003). The reservoir area was characterized by wetlands, riverine forests, desert scrub and sandy dunes. It comprised of small river depressions, lakes, narrow, swamps, irrigation channels and agricultural lands, providing an ecological richness (WWF, 2008), which are rare in the country. The Chotiari reservoir area is a haven for migratory and resident birds, hog deer, crocodiles, jungle cats, smaller mammals, and a variety of fish and reptiles (Azam, 2002). It also supports with grazing, fishing and a range of agricultural activities.

Figure 8: Location of the Chotiari water reservoir



The Chotiari reservoir project has designed to increase the storage capacity of existing lakes in the Chotiari wetland area, by occupying over 18,000 hectares of land. Primarily, it was designed to store *Indus* flood water during the flood seasons from June to September, and to release the water during winter season from December to March as well as during early summer from April to June (Government of Pakistan, 1998). Its main goal was to irrigate about 0.12 million hectares in southern districts of the country. The capacity of the reservoir is increased to retain 0.75 million acre-feet (MAF) of water, which will flood an area of approximately 160 square kilometers (Qureshi, 2009). The construction cost of the reservoir is likely to escalate to over six billion rupees (approximately US $ 105 million), compared to the previous estimate of Rs 1.5 billion (approximately US $ 26.3 million) that was made when the project was expected to be complete in 1997. During construction period several times the donor agencies have stopped funds, when the use of sub-standard materials and massive irregularities were detected. Moreover, the opposition of local communities has exposed that the proposed work has been planned in a top-down fashion without any consultative process. In fact, due to ineffectual planning and corruption the project was delayed by five years up-to December 2002 (Iqbal, 2004).

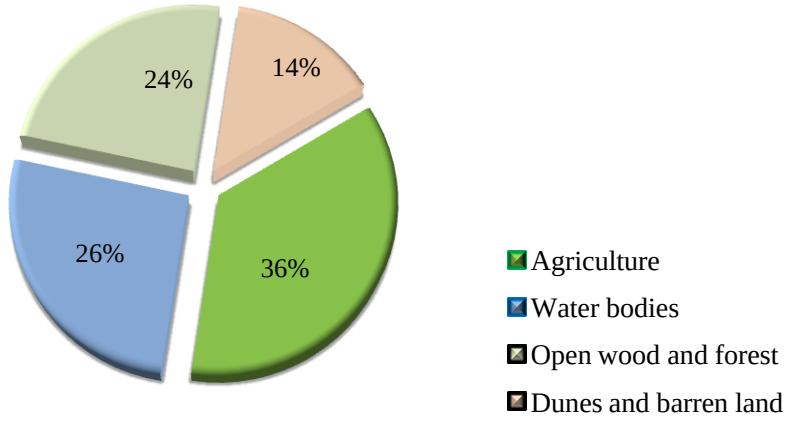
Since the Chotiari reservoir is the part of the left bank outfall drainage (LBOD) stage I project. Whereas, the LBOD project was executed at the tail end of the *Indus* river basin in order to provide drainage to 0.5 million hectares in three districts of Sindh province, i.e., Sanghar, Nawabshah and Mirpur Khas. Moreover, the financial assistance for LBOD was provided by a group of donors led by World Bank. Surprisingly, the resettlement plan of LBOD, supposed to be executed by the Government of Sindh, had failed due to massive corruption (World Bank, 1984). Despite of resolving the conflict, there was another imposition for LBOD affectees in the name of Chotiari water reservoir project.

I.2. Land use distribution

Before construction, the Chotiari reservoir area had supported fishing, grazing and agricultural activities to the indigenous people (Government of Pakistan, 1998), and

touristic entertainment services to the nationals (Laghari, 2001). In fact, the Chotiari water reservoir area has occupied fertile agricultural lands to barren lands (see figure 9).

Figure 9: Land use distribution of the area before Chotiari reservoir construction



Source: Government of Pakistan (1998)

After construction, the reservoir has negatively affected Chotiari's natural beauty and economic features. Besides that, still the area has a rich breeding and nesting ground for birds and stopping place for migratory birds (WWF, 2007). Due to rise in water level the grazing areas within the embankments have mostly sub-merged in the reservoir since 2005-06. This has caused relocation of periphery villages as well as difficulties for herders and fishing communities.

Likewise, the seepage of the reservoir is depleting adjoining agricultural lands around the reservoir, which is not only reducing farm productivity outside the reservoir area but also reducing the livestock resource (Khaskheli, 2010). On the other hand, about 24 percent of the reservoir's surface was covered by open wood and *Makhi* forest[7]. The forest was major source of energy (fire-wood) and apiculture to local people, which is almost disappeared with the rise in water level.

[7] The word *Makhi* is originated from Sindhi language that means honey. The forest was famous for reserves of quality honey, where people from this region used to collect honey from the forest for commercial purposes, as well as wooden logs and fire-woods were also collected for their basic needs (Magsi, 2006).

II. Demographic and socio-economic conditions

The following sub-sections describe the demographic and socio-economic conditions of the Chotiari reservoir area, which helps in drawing out the different decision aspects of the project.

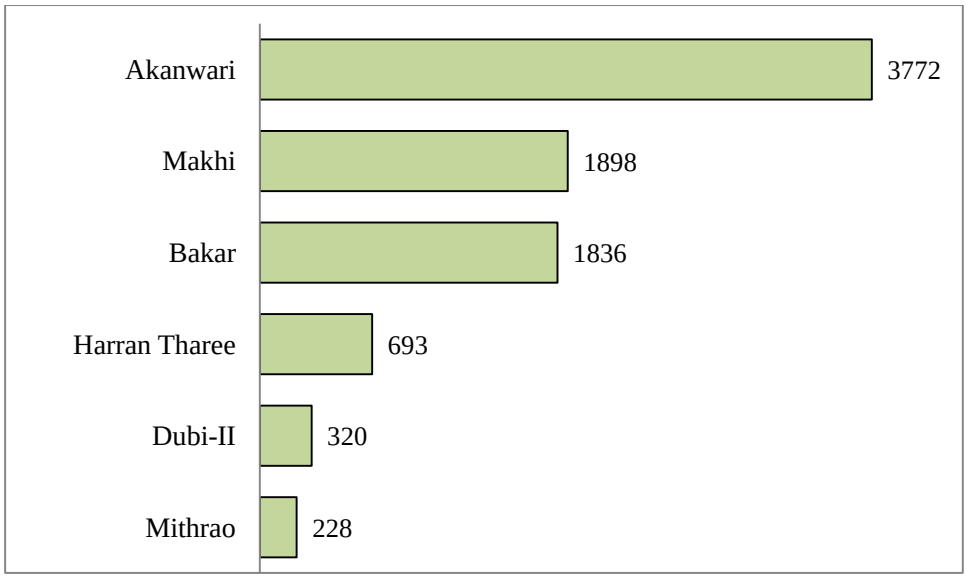
II.1. Population distribution

Human civilization is mostly found in places along with or near the rivers, that is why the *Indus* and *Nile* rivers are known as cradle of civilization (Dasgupta and Chattopadhyay, 2004). In Pakistan, *Indus* River is sustaining the lives and livelihoods of people over many centuries. Today, it hosts more than 170 million households by providing drinking water, sustained agriculture, fisheries, forestry, and inland navigation since the immemorial time (Baxamoosa, 2007). Despite of being world's largest irrigation system, now the *Indus* is suffering from negative impacts of the poor governance (Alam et al., 2007).

Historically, people have been settled in Chotiari reservoir area for generations in a mixed society belonging to various communities. These communities (within and surrounding of reservoir area) were distributed in several Dehs[8] (see figure 10). Generally, these communities were scattered over the villages inside the reservoir area and adjoining sandy dunes, where they were the mixture of fishermen, agriculturists and pastorals (Government of Pakistan, 1998).

[8] *Deh* can be defined as an administrative boundary of a community; such small administered societies are mostly found in Pakistan and India.

Figure 10: Deh-wise population displacement in the Chotiari reservoir area



Source: Government of Pakistan (1993)

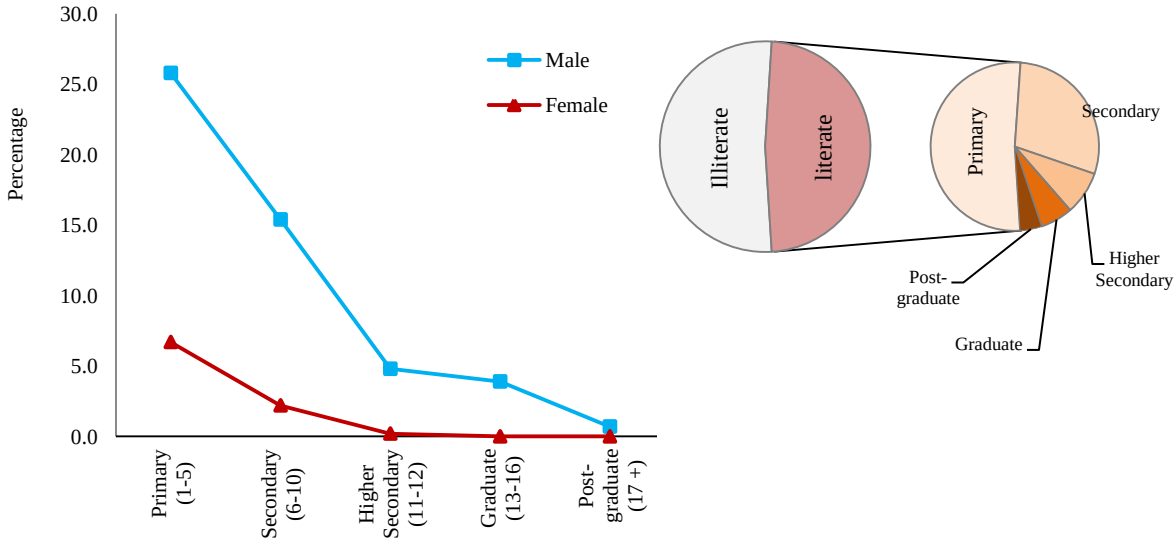
Population distribution of rural and urban Pakistan is unequal. In rural areas, majority of the population are depending on agriculture and allied activities. Before the introduction of agriculture in Chotiari reservoir area, the local populations were engaged in fishing and herding their livestock, where they used to keep their herds within the reservoir area and adjoining the desert. With the introduction of irrigated agriculture since1960s the local people had started farming; either they purchased land from the settlers or from government (Government of Pakistan, 1993).

II.2. Level of education among local settlers

The level of education among nations is quite important for building a formative effect of mind and shaping their characteristics and physical ability enhancement. Education creates social and political stability among region (Østby and Urdal, 2010), promotes culture of peace and enable societies to understand needs for norms of tolerance (Lipset, 1959). Education is also the source of transformation of skills, knowledge and values from one to another generation.

However, the situation of Chotiari affected population is completely different from the fact. It was observed that more than half of the household heads were illiterate, where every fourth household head had only five years of formal education (WWF, 2008). Moreover, a surprising difference between gender education is observed (see figure 11) that only nine percent of the females were literate against 51 percent of male population. The low literacy among female may be due to gender discrimination. In rural areas of Pakistan male population conceive that they have dominancy over female population (Hussain et al., 2009). This is because there is a poor representation of women in decision-making at all levels, from the household area to the provincial or national assemblies.

Figure 11: Educational level of family members



Source: Author's calculation from Government of Pakistan (1993 & 1998), WWF (2008)

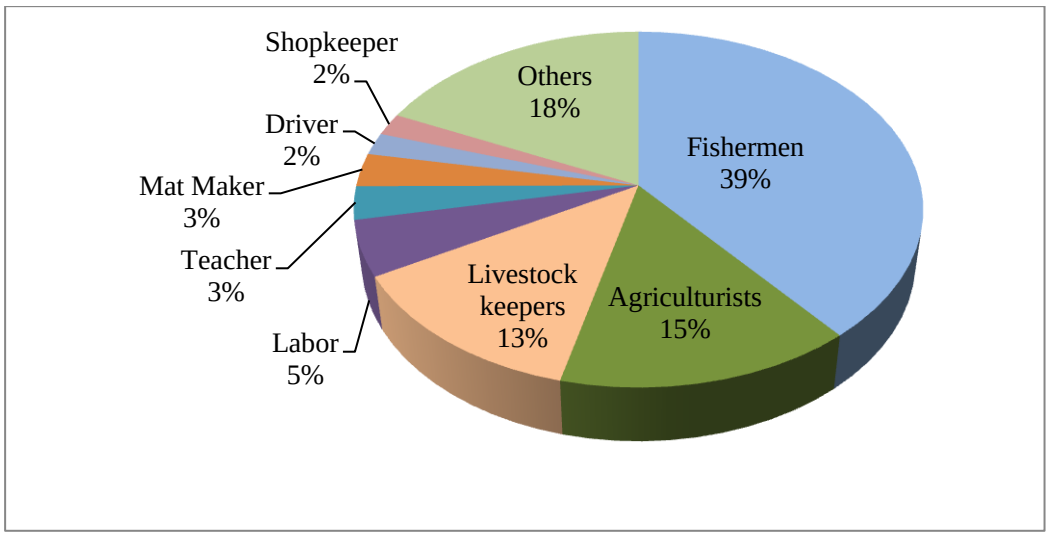
In general, the education is treated as proxy for development and is used as an indicator of general level of prosperity (Urdal, 2008) as well as driver of inequalities in the society. Since, more than half of the population in Chotiari reservoir area was illiterate, they did not know about the impacts and the consequences of the project (Jillani, 1999). Similarly, at the time of project initiation local people were not counseled by the authorities, whether they are in accord with the reservoir construction and volunteer displacement (Iqbal, 2004). Thus, illiteracy may be one of the biggest causes of tensions and conflicts in the project

area. Therefore, we may say that low literacy can be treated as proxy for conflict generation.

II.3. Economic activities, income sources and livelihood

The Chotiari area was naturally rich and provided the opportunities of diversified activities to local population. Therefore, in this region, majority of the household heads were recognized with fishing business, followed by tenant cum agricultural wage labors, where livestock keeping was found to be third major profession of the households (see figure 12). In particular, landless people were dependent upon livestock farms for their livelihood. Traditionally, Sindh province is most famous for keeping fine livestock breeds (IUCN, 2004); therefore, in this area the cows are relatively more adaptable animals than buffaloes. Whereas, almost *Thari* cows were kept for milk and meet purposes, this breed is very famous in the area, which is originated from *Thar* (desert) of Sindh (WWF, 2007).

Figure 12: Main actors of the Chotiari area

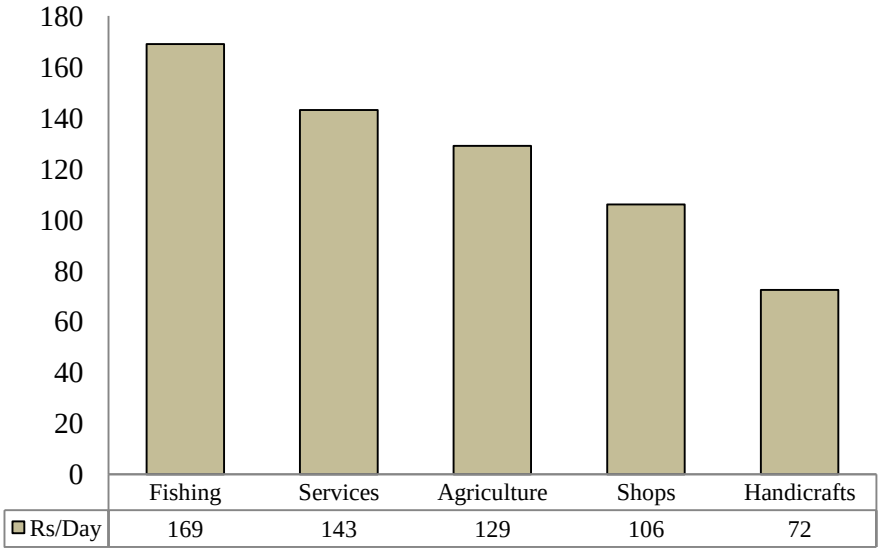


Source: Author's calculation from Government of Pakistan (1998), UNEP (2004), WWF (2008)

In the rural areas of developing countries always a great risk is associated with the income of people because they are directly depending on the natural resources, i.e., land, forest and water (Ostrom and Nagendra, 2006). Therefore, the use of these natural resources depends on the weather conditions and political situations (Humphreys, 2005). Before the Chotiari

reservoir the economic situations of the area were not worst[9] because the average per month income of each family was computed as Rs. 6619 (approximately US $ 80) (WWF, 2008). Fortunately, the amount is not as big as to pass a luxurious life, but is sufficient for a family lived in a rural area. It can be assumed that the income distribution was skewed rather than normally distributed for each family. The average wages per day were recorded for fishing, followed by servants engaged in construction of buildings, grind mills and field activities (see figure 13). In general, agricultural wage labor is employed on half day basis, but there is a great volatility in his/her income. It is interesting to note that sometimes agriculturists can earn more from seasonal employments, i.e., during crop harvesting seasons. Moreover, in small villages, local people also run their small scale business in order to maintain their economic positions either by establishing small shops in villages or by selling homemade handicrafts in nearest town and cities.

Figure 13: Average per day wages earned from major professions



Source: Author's calculation from Government of Pakistan (1998), WWF (2008)

Indeed, the contribution of female population in household economy especially in rural areas of developing countries cannot be ignored. Despite all odds, the rural women play a significant role in economic development of household and the village in terms of

[9] Almost all experts in the study area have opined that people used to live happily and their economic position was good (Expert opinion survey conducted in November and December 2010).

household tasks, farming operations and livestock management, but their efforts and services remains unaccounted. However, the mat making, embroidery and quilt making were mostly done by females in homes. This highlights the need for gender indiscrimination in occupations and income generating activities for female actors.

Since the budget record keeping is considered as an important activity to manage the expenditures incurred by the family and the better allocation of their income. But in rural areas of Pakistan almost it is ignored to keep a written record of their budget it is due to either less educational background among the population or due to self-reproaches[10]. However, it is summarized by WWF (2008) that written records of income and expenditure were not available by the respondents of Chotiari reservoir area but higher proportion of their income spent on food and transportation followed by heath, clothing and education.

III. The setting of the Chotiari reservoir: low success in terms of water storage but big environmental and human impacts

It is much more complicated to explore the interests and involvement of multiple stakeholders from construction, compensation to resettlement schemes. Thus, we are trying to give emphasis on the original idea of the reservoir, and the activities performed during its construction period. Furthermore, this section of the article passes through the hassles faced during implementation of the project and also looks on the pros and cons of the reservoir in terms of achievements. In reality, the local settlers are quite voiceless and administratively powerless, where many of them were not recognized as affectees; even they hold an official land titles or legal possessions. Moreover, these issues are the result of the negligence of the public voices and lake of transparency by the state.

[10] It is commonly noted that in many rural societies of Pakistan, the written record keeping for own born expenditures to be considered as shame (Eatza and Arshad, 2007).

III.1. The role played by national and international agencies

The Chotiari reservoir project proposition was accepted under the National Drainage Project (NDP) aimed to store water and expand irrigation in Sindh province. This is seen as a means of increasing the agricultural potential of the region and supposed to benefit the thousands of households in the tail end of *Nara Canal* (Government of Pakistan, 2003). Initially, financial assistance of the project was approved by group of international donors led by the World Bank. Finally, the construction funds mainly were provided by Saudi Funds for Development (SFD) and partially by the other agencies. Due to corruption in constructive funds the World Bank has reportedly shown an interest in funding for resettlement action plan (RAP) rather to the reservoir construction (UNEP, 2004).

Turning to carry off the decency in constructive and resettlement funds the following organizational arrangements were made as per recommendations of the RAP prepared in 1994 by the LBOD consultants. The proposition was approved by government of Sindh with the help of international donor agencies. Resultantly:

- Chotiari resettlement agency (CRA) was set-up by the government of Sindh in 1994-95 to implement the RAP under the direction of commissioner of *Mirpur Kkhas* division, where a Sri Lankan resettlement specialist had appointed to assist CRA. The Chotiari resettlement management committee (CRMC) comprised on selected members, were compelled to coordinate the policy and implementation issues.
- A local NGO was appointed in 1996 to provide field services and carry out community mobilization and settler support services.
- An independent monitor also appointed in order to make quarterly field visits to the project area and to monitor independently the implementation of the key aspects of resettlement plan.
- Euro consultants were appointed during LBOD, had replaced by consulting firm Sir McDonald and Partners Ltd.

The government and its allied agencies defended that the project would improve irrigation in tail end and further claimed that satisfactory measures have been taken to mitigate the adverse impacts of the project. In addition, the environmental management committee

(EMC) was formed to supervise during environmental management plan. Where, the EMC was chaired by WAPDA and senior representatives of IUCN, WWF and Pakistan Environmental Protection Agency.

III.2. The contrasted and deceptive impacts of flooding

Since inauguration (19 February 2003), the reservoir is functioning beyond its objectives of to bring more virgin lands of the country under irrigation. The reservoir was filled during heavy monsoon rainfall of 2007 and 2011, while in rest of the period it never experienced with enough water (see table 3) (WFP, 2011). While for other periods the reservoir is showing fewer water levels because of not releasing sufficient water in the reservoir.

However, several reasons have been recorded to not release sufficient water in the reservoir. For example, according to various experts that the earthwork of the embankments are of poor quality and wretched stone pitched, therefore there is risk of breaches if desired water level will be stored. Moreover, lack of maintenance of feeder canal does not assure the proper supply of water to maintain its designed capacity (Government of Sindh, 2012).

Table 3: Water stored in Chotiari reservoir

Years	Water quantity (MAF)	Percentage achieved out of 0.7 MAF
2003	0.27	38.57
2004	0.12	17.14
2005	0.24	34.29
2006	0.43	61.43
2007	0.60	85.71
2008	0.17	24.29
2009	0.14	20.00
2010	0.11	15.71
2011	0.52	74.28

Source: Government of Sindh (2012).

According to Mangrio (2005) that initial rise in the water seemed to be beneficial on one hand, likely to increase more cultureable command area, but on the other hand it has allowed water table to rise. Thus, this rise in water table also became a source of seepage and water-logging, which is now contributing to the destruction of adjacent agricultural lands. Almost in western and southern areas the good arable land is now being surrounded by saline water. As a result, this increasing water has not only inundated 47 villages and pastures, but caused displacement of about one thousand[11] families with their livestock.

III.3. Affected communities

The families, who used to live in Chotiari region for many generations, they have forced to vacate their lands and to get rid of their traditional way of life in the name of development (Shah, 2007). This displacement has dispossessed local population from their homes and other resources. The reservoir has not only occupied the barren and wetlands, but more than 30 percent of existing reservoir was a fertile land (Government of Pakistan, 1998). The loss of productive land has not only caused a significant impact on the agricultural output of the area but severely disordered the socio-economic lifestyle of the communities (Husnain et al., 2010). Besides that, the fishing communities have been harmonized with the ecology of the lakes, which are trapped outside the reservoir. Similarly, the loss of productive food chains created at the currently existing aquatic margins may devastate the fishery. Such loss of livelihood for the traditional fishing community in the area has not been sufficiently evaluated or addressed.

In addition, according to the environmental impact assessment (EIA) of the project the "major carp" is dominated commercial fish at Chotiari reservoir area, which requires flowing water for nourish to develop (Government of Pakistan, 1993), rather to stop the flow of water in the shape of the reservoir. There is a possibility to re-establish artificially a new fishery on the reservoir system, but it may take long time. Unfortunately, fishing communities may not have resources to survive the temporary loss of their livelihood.

[11] According to the experts, the counting of displaced families became another conflict between government and local community based organizations (CBOs), where Government of Sindh has declared that 594 families were displaced but local CBOs has declared that there were 993 families who has directly affected by the project (Mangrio, 2005; Iqbal, 2004; Government of Pakistan, 1998).

Even in the long run, the existing small boats and nets of the fishermen would not be appropriate for a deeper and larger reservoir. The fishing community has neither there sources to purchase large boats and nets, nor does it have the skills to manage its livelihood under these conditions (Khaskheli, 2008). In spite of government policy of issuing licenses to active fishermen, the terror of influential fishing contractors is reigning the supreme (WWF, 2008), where *Phullel* village is the center of such activism[12]. The existing fishing license system is likely to be converted to large fishing contracts. In this case the resourceful contractors from outside are most likely to take over the fishing business, with the help of local landlords.

There are vast grazing grounds in the Chotiari reservoir area (Khaskheli, 2010). Since generation the herdsmen were using lake fringes as a pasture of their herds. The reservoir has forced them to move away in search of alternative appropriate grazing sites, because the immense tracts of grazing lands are being affected as water level increases in the reservoir (Raza, 2009). Grazing along the existing lake shores is perennial and maintains the herds throughout the dry period. However, after completion of the reservoir not only the grazing lands are inundating but herdsmen are being dislocated without any resettlement or proper compensation; and they are going to be homeless. The historical and human rights of the herdsmen community are not even recognized in the RAP (Husnain et al., 2010). Remaining on the shores of the enlarged reservoir is not an option either, as that area is mainly composed of sandy dunes. Even if new grasslands were to generate in the future, there is no option for the herdsmen to survive the many years of transition, while the reservoir is already constructed.

In addition, there are significant impacts of this project on many communities within the *Indus* basin, not only those directly which are adjacent to the site. If it will be filled-up by water for which purpose it is constructed, it will cause harm to communities living in the *Indus* delta downstream of the *Kotri* barrage. The availability of water to downstream of the *Kotri* barrage is already below the historical volume (Baxamoosa, 2007), which is the fundamental flaw in the planning of the project. However, even without this diversion the

[12] During expert opinion survey (2010) the majority of experts have opined that *fishermen are victims of these illegal water lords*, on the other hand, where DRP also emphases that *water kings (few families) are showing their supremacy while fishing in the reservoir*.

Indus delta is not receiving its legitimate water share. The water rights of the downstream river communities are being arrogated by those, who are living upstream (Memon, 2004). The strong agricultural lobby of this country has progressively inflicted ecological damages affecting the lives and livelihoods of the communities living in the delta and its coastal regions. In times of scarcity and drought this flaw can be expected to come into sharper focus. Political pressures are likely to assure that enough water is retained in the reservoir to maintain the newly irrigated lands. This could inflict devastating hardships on the downstream river water users who could be left with little or nothing.

III.4. Environmental devaluation

In order to protect natural environment, the EIA for infrastructural projects is imperative to accomplish sustainable development goals through better governance, but this potential is barely exploited in most of the developing nations like Pakistan (Husnain et al., 2010). The issue here is approached slightly in a different way. Because, in Pakistan the EIA of the projects have carried out, but it is not seemed that they have been effectively implemented to protect socio-economic and environmental fabric of the corresponding communities (Aslam, 2006). Likewise, the environmental impact study of Chotiari reservoir has identified that beside human population the wildlife would be affected or destroyed, i.e., habitats for a rich variety of fish, birds, reptiles and mammals in deep and shallow pools of wetlands, aquatic margin vegetations, reed bed swamps and woodlands (Government of Pakistan, 1993).

However, it failed to carry out a proper survey or assessment of adjacent wetlands where the displaced wildlife is expected to migrate. Local experts doubt about the surrounding areas of the reservoir, in which caring capacity of wildlife safety is being destroyed due to rise in water. Therefore, there were two other shortcomings of the EIA that it neither included an evaluation of alternatives to the proposed reservoir nor the historical or cultural heritages of the area. The Chotiari project could be addressed with the possibility of improvements in the existing system of lakes and canals combined by proper de-silting to rehabilitate or restore an old designed system, which are functional since 1932. On the other hand the reservoir area is supposed to be biggest crocodile's home in Pakistan

(WWF, 2008), and more revenue could be generated then of its cost by promoting tourism (Laghari, 2001).

IV. The conflicts linked with the Chotiari project: root causes and manifestations

In the developing countries, several development projects like Chotiari reservoir have created mistrust and opposition. It is because; most of the projects were not launched with proper counselling of the local settlers (Awakul and Ogunlana, 2002). The following root causes of the conflicts have been highlighted by daily regional press (DRP) as well as by interviewing the experts of various professional backgrounds in the study area. Moreover, we try to unveil that how the behavior of authorities during various stages of the project implementation has given birth to controversies, as well as we also place emphasis that how affected people have united to oppose the project?

IV.1. Conflict causes generated by inappropriate behaviors of public authorities

Let us briefly examine the compensation to resettlement related issues, as well as environmental and ecological losses in order to collect the profound gap between conflicts and inadequate behavior of public authorities in the case of Chotiari water reservoir.

IV.1.1. Compensation and resettlement issues

Since commencement of the project, not only significant wrongdoings associated with the land acquisition, compensation and resettlement plans were observed, but no adequate mitigation measures have been felt. Many times, it was defended by the authorities that social objectives of the project is to provide improved livelihoods and community life in a planned way to the dispossessed families (Mangrio, 2005; Iqbal, 2004). In this regards CRA has failed due to following shortcomings:

- Counselling with affected communities during planning and execution of the project.

- Adequacy of the land valuation, assessment and disbursement of the compensation.
- Illegitimate resettlement site selection.
- Institutional arrangement performances.

The committee has started the process of land compensation in 1995. However, it did not make a reliable assessment of compensation according to market values. Moreover, the authorities have displaced the poor villagers by using their administrative and economic power, while offered –few of them– an amount of monetary compensation, which was too far from real market values (Shah, 2007). Although, relocation site has also been acquired for resettlement of the displaced families in *Patipota Deh*, which is located about 80 kilometers north of the reservoir. Initially some development works were carried out on relocation site, in order to give patient hearing to the grievances of the affectees. Finally it was declared that the site is not feasible and the compensation scheme needs revision (Nauman et al., 2001).

So far, the compensation has been paid to 260 out of 993 families, who either belongs to or supported by local landlords[13]. Thus, the powerful lobby has managed to drain over Rs. 76 million (approximately US $ one million) to fake owners, which is about 80 percent of total disbursement (Nauman, 2003). On the other hand, some families were referred to the courts for justice because either they have refused the lower rates or they were not included in the list of compensation. Initially, respective courts have preceded their corruption and compensation related petitions but after inauguration of the reservoir in 2003, almost all the cases have been discarded without any decision. Therefore, the government is seen as being unable to address scandalous inadequacy in project implementation, because of the involvement of high profile officials and bureaucrats (Mangrio, 2005). This was seemed as the end of hope by displaced families.

[13] There were the record of fraud and recrimination in the process of compensation. Even not all affected have been compensated, but among those the compensated families mostly were the landlords and influential persons (Expert opinion survey conducted end of 2010).

IV.1.2. Environmental and ecological issues

Beside the socio-economic consequences, the project has long term impacts on natural resources. In addition, local communities used to generate their sufficient income from marginalized resources, where the reservoir has not only adversely affected the habitats and associated biota, but also given birth to poverty among the displaced communities. For example, deforestation of *Makhi* forest, destruction of ecological beauty of wetlands, as well as increasing stress on flora and fauna of the area (Raza, 2009).

On the other hand, the substantial increase in the water level has drowned grass species, trees and the complex ecosystem around the lakes (Siddiqui, 2009). However, neither the devastation of such natural environment is adequately addressed (WWF, 2008), nor a proper survey has been carried out (Shah, 2007).

IV.2. Controversies and oppositions

Transparency and wide dissemination of accurate information regarding project's objectives, polices, and programs to the public is general said to be essential to the success of a project (Wehrmann, 2008). In fact, the resettlement plans and compensation schemes of Chotiari reservoir has revised many times but it was not disseminated publicly (Iqbal, 2004), which further exacerbated opposition towards the project

IV.2.1. The arguments and the complaints

However, the affectees either in groups or individually have repeatedly pointed out during the visit of World Bank's monitoring team that government has not been provided the facts, i.e., the reports and documents related to the project (Jillani, 1999). They complained to the team members that despite of their continuous efforts, they could not get hold of official list and details of the affectees entitled to receive land and house compensations or list of those who already received the compensation. Moreover, the affected population had no information about the measures actually being taken to mitigate the adverse

environmental effects as well as to protect natural resources (Nauman et al., 2001). Lack of transparency and accountability has increased corruption at the local level and suppressed the dissenting voices of poor people. This was the ground where massive miss appropriation took place.

Therefore, it is supposed that either the project is poorly implemented or no proper feasibility study was carried out. That is why there is no estimation of economic benefit and loss of the project in order to measure adverse impacts of the reservoir. There are also allegations of mismanagement in land acquisition process and massive misappropriation of funds allocated to the affectees for their land and home compensations. Still the affectees, local experts, and community based and non government organizations are questioning the insurance of compensation and suitability of resettlement.

IVI.2.2. The action of community based organizations

There were no community based organizations (CBOs) in the affected areas before the project execution. The controversial appositions for the project have given birth to the CBOs (Abro, 2001), when the communities have started noticing for corruption in compensation and construction funds, adverse impacts of relocation site, environmental issues such as water logging and danger to wildlife in area. In this regard, very first CBO has formed just before the compensation process began in 1995. This organization named *Anjuman mutasreen Chotiari* (union of Chotiari affectees), which predominantly represents small land owners and tenants. Moreover, the organization has exposed the corruption in the compensation process and prepared a list of the fake land owners; beside that it has been consistently confronted with CRA and the government officials on the compensation issues.

Another active CBO is *Makhi welfare organization*, which has broad base among various segments of affectees, especially the herdsmen and the fishermen; it is working on various issues ranging from education to resettlement, and environment. *Chotiari development organization* is interested taking up the issues of resettlement and the environment after construction. On the other hand, *Rural women development organization* (RWDO) is organizing seminars on women related education and health issues as well as confrontation

with government for their rights, because more than half of affectees are female (Nauman et al., 2001). The *Charagah bachayo tahreek* (Movement for Pasture Protection) is a recently formed organization, which have raised the voice against declining natural meadows and the environmental beauty in the region.

Besides the CBOs and individual agitations the local journalists have also contributed in highlighting the issues in order to draw the attention of the government and national or international NGOs.

V. Governance and decentralization

Here, we find that in Pakistan the institutions for planning, implementation and monitoring of the project as well as their process is incapable of safeguarding the public interest or of protecting the rights of poor communities. In the case of Chotiari reservoir the access of information and public participation has discouraged actual actors at all stages of planning and monitoring. The structures of all related institutions such as CRA, EMC, SIDA and WAPDA are highly bureaucratic. The corruption and nepotism during the project implementation highlights the encouragement of bureaucrats and major political parties for monetary and non monetary benefits of such development projects. That is why; the provincial as well as the federal governments are dominated by few strong lobbies[14].

V.1. Roles, responsibilities and effectiveness

In principle, the official policy for such internationally financed projects strongly favors public dissemination and disclosure of all reports of the project, in order to prevent conflicts. Contrary, the reports, documents and information related to Chotiari reservoir project were in possession of various agencies, i.e., the CRA, EMC, SFD, SIDA, WAPDA and the World Bank. The mission teams used to visit sites during implementation of the

[14] In Pakistan due to institutional weaknesses, the local landlords and politicians have seemed influence on the establishment. Due to their influence people prefer to pay visit to landlords or politicians for their conflict resolution, rather to the administrative courts.

project, but have never shared the facts and figures about the project with the affectees, the CBOs or NGOs. Moreover, the affected population as well as the CBOs have no information that how the measures actually being taken to alleviate the adverse impacts of the project?

After the realizing poor governance regarding the project and the inhabitants, government has formulated an environmental management and monitoring plan (EMMP) in 1998, under EMC. This monitoring plan was intended to carry out an effective decision that how to resolve the emerging confrontations. The EMMP has strongly recommended following actions for immediate conflict resolution:

- To fulfill the obligations of Land Acquisition Act.
- Immediate payment of the compensation amount to the affectees.
- Implementations of EIA recommendations.
- Another resettlement plan for affectees.
- Modification in the storage process of flood water, particularly in monsoon season.

Again, no action on the above recommendations has been carried out, like most of the other projects initiated in the country in the past. It is may be due to almost all the EMC members were belonged from the typical government organizations, either from national or international organizations. The IUCN and WWF were the key members of the EMC for overseeing the environmental aspects of project implementation (Nauman, 2003). Experts in the study area have opined that both the organizations were failed to safeguard the public interest in the project, because they never found in public gatherings.

On the other hand, the involvement of international financial institutions in this project was skillful, in order to made it appear that the responsibility has shifted to the community level. Moreover, they have involved in creating an independent monitoring committee of the project and the NGO to look after the assessment plans for resettlement (WWF, 2008). Nonetheless, neither plan became effective, because the NGO was under the direct control of CRA, and the independent monitoring committee became in complexity due to intervention of local landlords and politicians. In reality, it is fair to point out that the failure of governance came to exist, because there was no provision of public participation

in the resettlement and compensation plans or democratic control over the planning and executing agencies of the project.

VI. Conclusion

The Chotiari reservoir project is not different from the other related mega projects executed in other developing countries (Lama, 2008; Vainer, 2007; Awakul and Ogunlana, 2002). Although, it exhibits a greater degree of poor governance and together with human rights violations and ecological destruction. Still, many communities neither got their compensation nor land for their rehabilitation. The issue of appropriate compensation and resettlement needs immediate attention, because still many families have no permanent residence, since they have lost their livelihoods including homes and livestock.

However, the extension of democratic processes to grass root level, strengthen autonomy of the institutions. Public participation in the functioning of institutions could act as the lever for the promotion and protection of human rights and ensures the development in the region. In principal, the creation of economic opportunities through employment, natural compensation, proper distribution resources and market access has been identified as central components for poverty reduction in rural areas.

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PART III

SOCIAL NETWORK LEGITIMACY AND PROPERTY RIGHT LOOPHOLES: EVIDENCES FROM AN INFRASTRUCTURAL WATER PROJECT IN PAKISTAN

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Abstract

Little attention has been devoted to the role of social networks and property rights in infrastructural projects. We use Chotiari water reservoir project data from Pakistan, to explore social network of actors on land use and property right violation, which create dissimilar power distribution and significant land use conflicts. Results indicate that public officials with their aliened stakeholders have pressurized local population to displace, where institutional inconsistency towards justice has leaded them in mistrust and the project opposition. In Pakistan, non-existence of national resettlement policy is germinating land use conflicts and human and property right violations since five decades. Therefore, attention to such conflicts, their resolution and prevention is an important area for research and policy development.

Keywords: Land use conflicts; social networks; property rights; dams; reservoirs
JEL classification: D74, L14, P26, H54

Introduction

Infrastructural development settings have a great importance in developing countries, because they can enhance the living standard of local population and help them to have access to scarce resources like water or education (Kim, 2006; Barron et al., 2004; Shah, 1992). But at the same time some of these projects have interrupted millions of lives, due to their poor level of concentration and inconsideration of the need of local actors (UNEP, 2004). Mostly, the projects are being initiated in rural settings, where indigenous people stand to lose their resources if the project alters their livelihood support. Therefore, the need for such projects must be severely assessed, and the compensation of local population will only be possible if they prove ownership of damages by the project.

It is commonly understood that in these rural areas most of the indigenous people share common-pool resources (CPR), associated with lack of social justice and recognized rights (Ostrom, 1990). Recently, this issue has started to occupy a key position in social and political research, linked with the need to solve the conflicts related to land uses exclusion and competition. The increasing interest for the rights of local populations nowadays gives birth to reflections about the actual foundations of infrastructure projects, and to the legitimacy of the opposition of local stakeholders when there are not associated to the decision. Additionally, there is a raising concern with the question of good local or territorial governance as a source of economic development of the states and the regions (Torre and Traversac, 2011), as well as a virtuous way to promote land use conflict resolution.

The existing approaches – from literature - emphasize that not all governments have been successful in project implementation (Ostrom and Nagendra, 2006). And nowadays, one has to admit that the construction of infrastructural projects is sometimes associated with tensions and confrontations between the groups of actual and outside actors (Awakul and Ogunlana, 2002). Currently, in the developing countries most of the projects are facing oppositions, whereas it may be due to partial advice with local actors or violation of their rights towards land acquisitions and compensation.

This active research has been carried out on the case study of Chotiari water reservoir project in Pakistan, because it sheds light on the limits of some infrastructure settings and on the damages caused to local inhabitants. The Chotiari project is one of the large infrastructural projects, which is facing opposition in the country. In order to understand the factors of conflict on land use for the large infrastructural project, thus it is needed to examine the relationship network of actors at various scales and positions as well as the immunity of social justice for locally displaced population.

Moreover, through this article we try to explore irresponsible treatment of stakeholders to local population. In addition, we investigate the basic information about the situation and their consequences, which provoked oppositions over Chotiari land. Further, the following sub-sections give insights to the research design for data collection and main findings of the case in detail. However, in this article we highlight the dynamics of social networks that are induced by changes from a conflict analysis process. By drawing the assumptions of functional analysis of confrontations, we identify the networks of actors while opposing and favoring the project, i.e., outside stakeholders and local inhabitants. This analytical framework opens up many questions about the nature and economics of network legitimacy with respect to the property rights and the use of actor's power, which have so far been partially addressed.

Moreover, the findings will be helpful in bridging gap between farm-land use and the behavior of the actors causing oppositions on resource use. Our approach is essentially empirical and is based on our experiences about the Chotiari water reservoir construction in Pakistan. The principle findings are grounded on qualitative and quantitative exploitation of two sources of proxy data on conflict: the daily press and the opinions of experts in the study area.

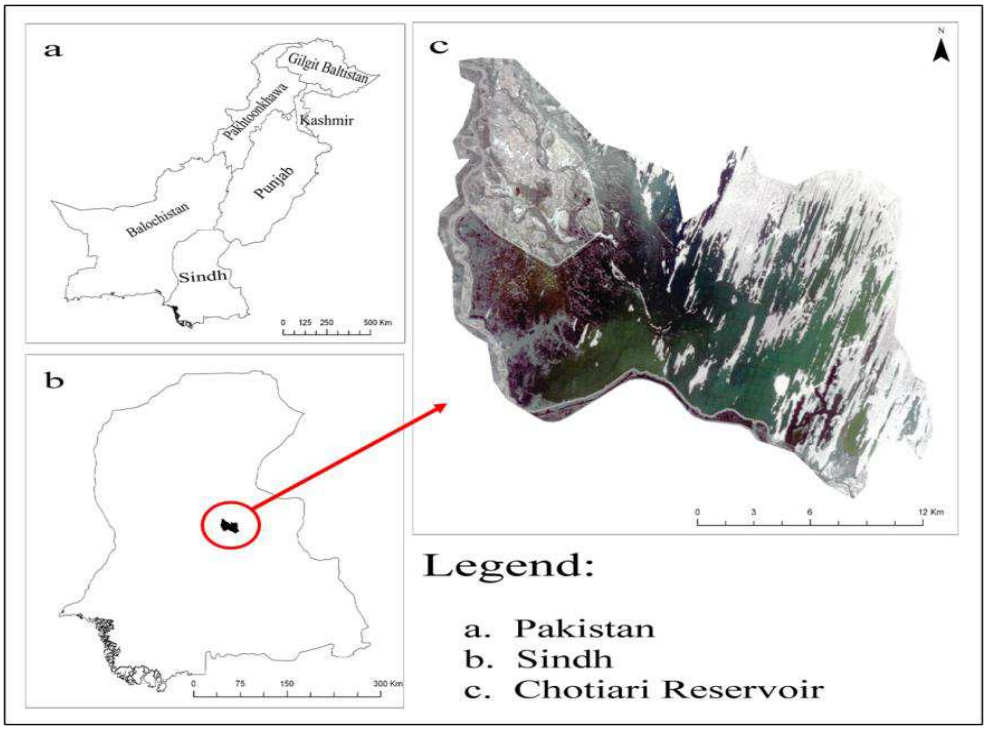
In the first part of the article, we illustrate evidences from our case study regarding the causes and consequences of the project. The next part emphasizes about the portraits of social network relations, which drawn on the basis of manifestations and the positions of stakeholders in order to bring-out the actual picture of the network legitimacy in response to land use conflicts. Besides that we also disclose the factors of conflicts and their

contribution into the conflict. Finally, we compare the theory of land acquisition and the types of properties usually selected for the infrastructural projects to our findings.

I. Outline of the case study area and actors involved

The case of the Chotiari water reservoir project from Pakistan (see figure 14) has been selected for its representative character of land use conflicts related to water infrastructure settings. The project has been designed and implemented to increase the storage capacity of existing lakes, it was aimed to irrigate 0.12 million hectares of virgin land in southeastern districts of the country, which is inflated over entitled and un-entitled lands of eighteen thousand hectares (Nauman et al., 2001). The Chotiari reservoir area was characterized by socio-economic, geographical and/ or environmental importance. It comprised over small lakes, swamps, irrigation channels and agricultural lands, providing an ecological richness in the region (WWF, 2008) and also supported for grazing, fishing and a range of agricultural activities.

Figure 14: Location of the Chotiari water reservoir



Generally, the water reservoirs have been part of human evaluation, history and development, if they are built with the intention to improve human quality of life, and vice versa. But the confrontations over the construction of big reservoirs/dams have grown into intense policy debates in numerous countries around the world during the last decades (UNEP, 2004). The Chotiari reservoir project has created opposition between the local economic actors (fishermen, agriculturists, livestock-herders and others) and the stakeholders from public administration, which have represented to national and provincial departments. The administrative were often with very different political positions and bureaucratic approaches, thus all this made the task of bringing-off this project more complicated. Moreover, the Chotiari wetland area has also been attracted by series of lobbies with very diverse interests, i.e., landlords, politicians, hunting groups, etc. However, the local actors leaded to defend the livelihood and environmental values of local populations of the wetlands by opposing the planning proposal.

Therefore, the characteristics of Chotiari water reservoir make this area interesting particularly for the study of land use conflict phenomena. For example, since construction period the opposition was drawn by displaced families to stop the construction and to assist or compensate people before displacement (Magsi, 2012). Moreover, some voluntary organizations were also supported their cause and suggested to the public authorities to suspend the project until there was a proper feasible study. The protest continued from time to time, but the authorities have constructed and inaugurated the project on February 2003.

II. Methods: data collection

In order to fulfill the objectives of this study, data were collected through various sources. Primarily, the structured interviews have been conducted from selected experts of administrators (water and irrigation sector), researchers and legal experts, private organizations, for their opinion on this issue during field visit of the affectees of the Chotiari reservoir (see table 4). Besides that, few affected family heads have also been interviewed, in order to extract first-hand information and to compare with the views of other selected experts.

These interviews were conducts with semi-planned questionnaires (see annex D), where some questions were omitted in order to be asked according to the expert's position, situation and experiences, because not all experts belonged to the same professional backgrounds (see annex A). These expert opinion interviews have been conducted in order to collect data on main variables, i.e., (1) pre-conflict situation of the area and position of the actors, (2) behavioral approaches of institutions towards land acquisition and compensation process and (3) the reservoir consequences.

Table 4: Experts of diverse backgrounds

Categories	**Interviewees**
Private organizations (NGOs and journalists)	10
Researchers and legal experts	9
Administration (water and irrigation sector)	7
Affected family heads and landlords	6
Total	32

Note: Expert opinion survey conducted in November and December 2010

Secondary source of data is considered as more reliable and helpful in highlighting cross-checked facts about the study. This secondary information was gathered through regional and national dailies, in order to extract true picture of the tension and conflict situations and their causes and consequences. Although this data collection technique is not very commonly applied it is imperative source in land use conflict analysis in order to understand the public voice on pre-, during- and post-conflict situations (Torre et al., 2010; Awakul and Ogunlana, 2002; McCarthy et al., 1996; Rucht et al., 1999). Due to lack of digital libraries or online access to regional dailies, therefore, the offices of selected regional news press have been personally visited as well as the papers were also collected from offices of the local community based organizations (CBOs). Whereas, the news published in national dailies were collected by downloading directly from their sites. The review for deep analysis of conflicts in these newspapers was conducted in the library of SAD-APT, INRA AgroParisTech. During the analysis important care has been taken to avoid unreliable information. Moreover, an additional secondary data for the study have been collected by analyzing published material from various public and private

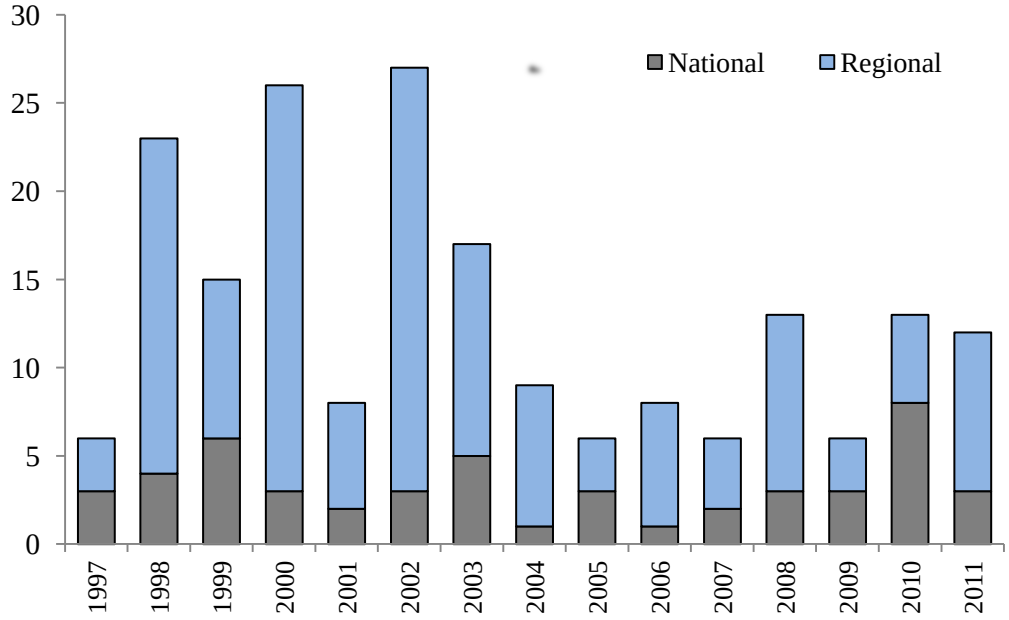
organizations. By gathering the data from two sources (interviews and daily press) we hope to be able to collect nice information and to avoid too many biases in the data selection.

III. Findings

III.1. Principle controversies

The results from the case study provide the phenomenon of the controversies during construction period. Therefore, such restlessness encouraged local journalists to demonstrate their issues as well as opened ground for many researchers to play a vital part in the conflicts resolution (see figure 15). In fact, more than eighty percent of the articles (of total published news/articles on this issue) reflected that there has been significant wrong doing associated with the land acquisitions, compensation and resettlement plans.

Figure 15: Number of articles published in the press about the Chotiari case



Source: Authors calculation based on daily regional and national press (1997-2011)

For this study we have selected 10 regional dailies out of 21 (which publish in local languages) and 6 out of 30 national dailies (in Urdu and English languages) since 1997-2011 (see annex B). The newspapers have been selected on the basis of their reliability in

terms of their news publishing through first-hand information and easily reachable to the far-flung areas of the province. The news/articles were selected from regional or national dailies through a pre-defined criterion[15]. Moreover, we have entered only a single selected entry for each date, when some times the same information has been published by all the newspapers on the same date. Furthermore, the articles have been categorized as (i) origins of the situation/conflict, (ii) modes of actions and (iii) consequences (economic, social or environmental) of the project.

The daily press has indicated various groups of evocative thematic titles: "respect our traditional activities", "save our natural resources", "to stop displacing local people", "to stop dam construction", etc. This reflects the fact that activities of local population were highly depending on this area. Analyses of these titles show the strong link between natural and traditional activities. This reflection of our case study helps to explain the process of conflict in the region. Beside this there are also suggestions for other economic activities: "to promote tourism", "to protect wetlands[16] as a national park", "to protect natural life", etc, which could combine all natural economic system and could create employment opportunities to the local communities with a positive image. Thus, the area could serve as a profitable asset towards regional development.

On the other hand, during construction period, several mission teams have been sent by World Bank and other donor agencies in order to monitor the construction and rehabilitation schemes, when they find the use of low quality material and mismanagements in the compensation related schemes (Abro, 2001). At the same time, tensions were raised among seven communities of Chotiari wetland area when public officials pressurized local population to leave their ancestral properties and to move out, without any proper relocation relief. According to majority of experts the families which

[15] A standard selection procedure of articles was unmanageable due to different languages (Sindhi, Urdu and English); in this regard the news/articles have been searched by specific keywords. Where the selected keywords followed by the word "Chotiari" are as: affectees, agriculture, benefits, conflicts, costs, dam, development, displacement, ecology, economy, environment, fishing, press-conference, project, protest, rehabilitation, reservoir, and wetlands.

[16] The wetlands are defined as permanent or occasionally inundated areas, with static or flowing of fresh, brackish, or salt water. Characteristically, wetlands possess the properties that (i) the land should support animals or plants, which are adapted to and dependent on living in wet conditions, and (ii) the predominant substratum of un-drained soils, which are saturated, or flooded long enough to develop anaerobic conditions in the upper layers.

lived in the area for many generations had been forced to vacate their lands. Even though the tensions increased in the area, mitigation measures were not designed to counterbalance the adverse socio-economic and environmental effects. However, both the experts as well as the daily press emphasized that there were involvement of local politicians and big landlords, because they had their hidden interests, may be of fishing contracts after the reservoir construction or of dispossessing local population from their ownership rights for favoritism, etc. Therefore, the principle tensions and controversies have been highlighted as follows (see table 5).

Table 5: Principle controversies and oppositions

Confrontations on…	**…between...**	
Construction (Top-down decision and corruption)	World Bank and donor agencies	Planning authorities
Compensation (Land acquisition, displacement, unemployment and violence)	Planning authorities and Police	Local communities
Injustice (Negligence from courts, misuse of power and ethnic disputes)	Administrative Courts, Landlords/feudal and Local politicians	Local CBOs
Natural resource (Deforestation, seepage and waterlogging)	Authorities and Local communities	Local communities

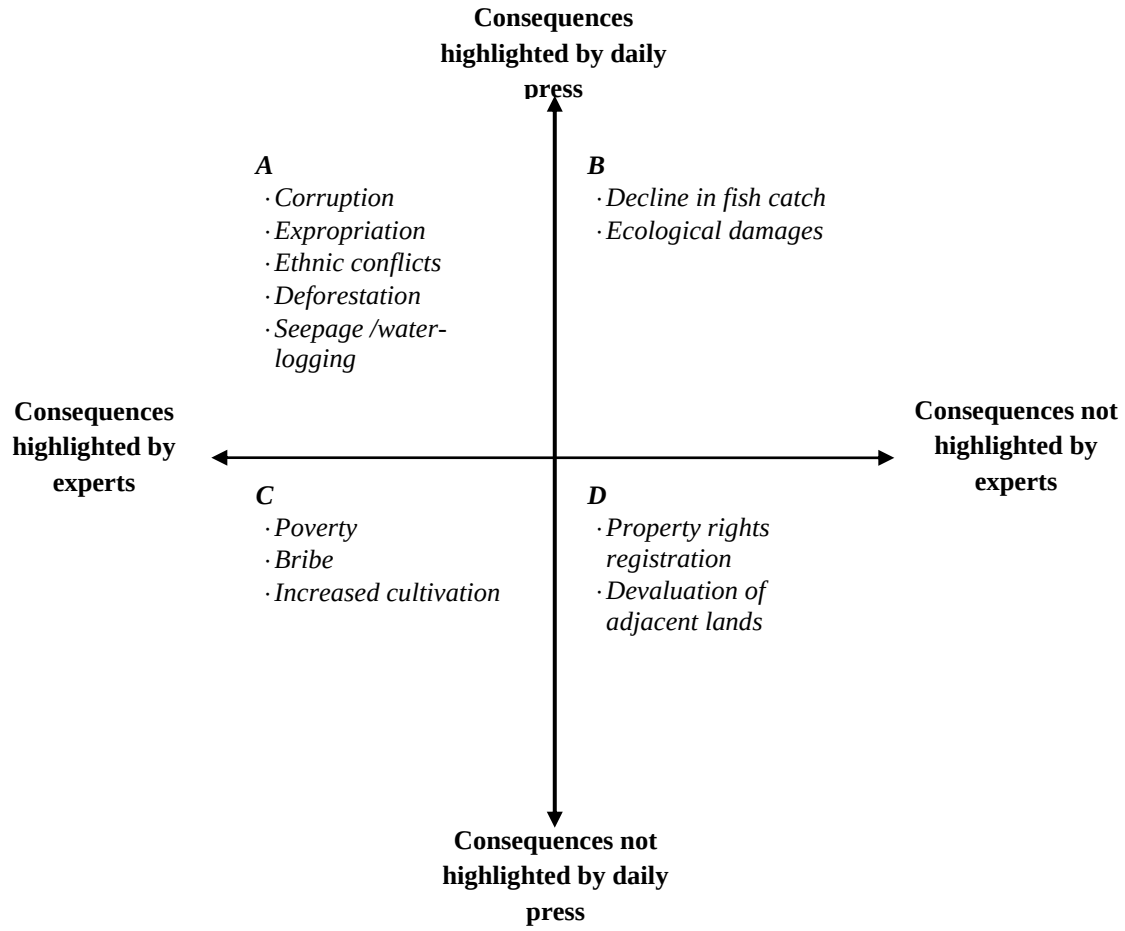
Source: Authors realization based on expert opinions, field and literature survey.

III.2. Consequences of Chotiari reservoir project

This is obvious that any development related project has consequences positive as well as negative. Here, we want to disclose the consequences (either positive or negative) of the Chotiari project highlighted by the daily press as well as by experts in the study area (see figure 16, category A, B and C, while consequences categorized as D are based on discussions with laymen[17] for their observations on the conflicts and consequences of the project, which are not highlighted by either sources).

[17] To acquire the actualities of Chotiari reservoir conflicts and issues, various informal discussions have also been made with unknown people from Chotiari peripheral area during field trips and visit to experts for interviews.

Figure 16: Consequences: by daily press, experts and personal observation



Source: Authors extraction based on expert opinions, daily press (1997-2011) and laymen observations during field survey

In socio-economic terms, in Pakistan most of the people belong to lower class and live in rural areas, where agriculture, livestock keeping and fishing are considered as the main sources of income. According to recent survey the expenditure of rural people on basic amenities has increased by more than ten percent (in last five years), where they have received no additional income that caused more insecurity in the country (Government of Pakistan, 2010). On the contrary, if those people are dispossessed and their lands either been used for some development projects or spoiled due to water-logging[18] and seepage, it will ultimately cause poverty. In the case of Chotiari water reservoir the water-logging/seepage is directly associated with the increase in water level, which has not only damaged adjacent lands but also devaluated the surrounded lands.

[18] In water-logging situation the water stagnates and saturates the land surface, where this condition is inappropriate for agricultural activities.

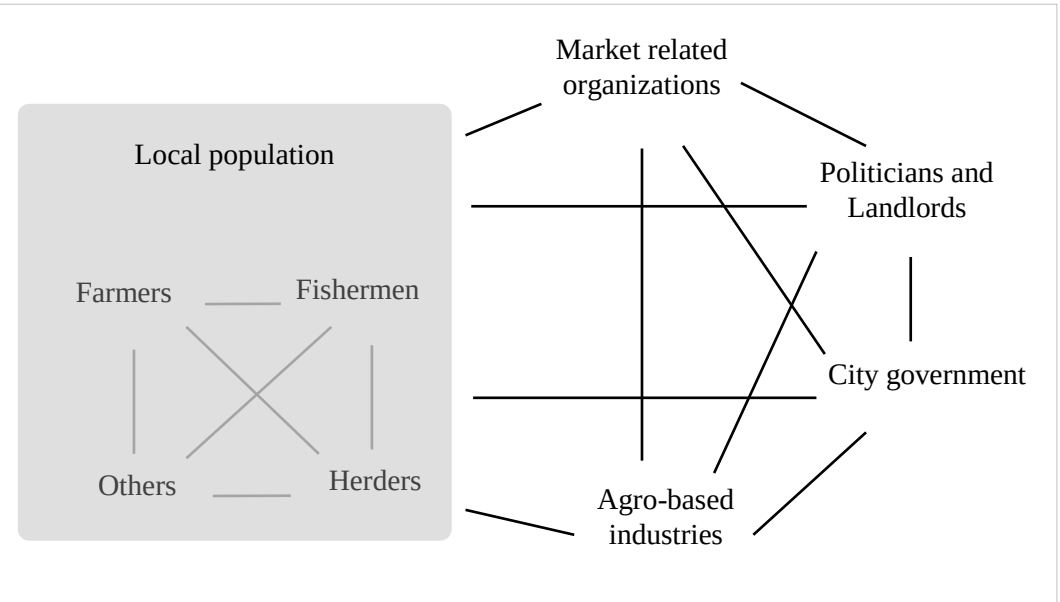
IV. The network dynamics of stakeholders

Network dynamics deals with the analysis of relational structures where actors (individuals, associations, businesses, government, etc.) are defined and studied by the ties they developed to each other. In this section we focus on social network dynamics in the Chotiari area in order to reveal the way stakeholders of the land use created dissimilar social power distribution, and how their relations have shaped oppositions and conflicts in the region. We want to identify the dynamics at work during the long process of conflicts, and to pinpoint the main actors in opposition and their strategic behaviors.

IV.1. Social networks of local actors

A social network provides with different forms of interactions between people, actors or stakeholders, etc. The notions on such networks of individuals or group have been widely provided by sociologists, psychologists, anthropologists and/or geographers since 1970s (see for example Granovetter, 1973; Scott, 1991; Grossetti, 1992; Wasserman and Faust, 1994; Saint-Charles, 2001; Cadoret, 2006). Social network analysis defines the central aim of actors in which they are connected for the range of disparate activities to other actors, where their relations can vary in nature and types of activities i.e., power exchange, friendship, etc. (Forsé and Langlois, 1997). Whereas, social network analysis provides the methods for the analysis of structures towards relational aspects of those structures (Scott, 1991). The graphical representation of social networks can help in visualizing and formalizing qualitative relationships between actors (Cadoret, 2006), where first step is to identify actors and their relations (Saint-Charles, 2001). In this regard we present the pattern of thought based on the daily press, expert opinions and interviews of affected households in the study area. Thus, following graphical representation is developed to highlight the social interactions of different actors before announcement of Chotiari project (see figure 17), and after.

Figure 17: Principle network of Chotiari reservoirs' local stakeholders (before announcement of the project)



Source: Authors realization based on expert opinions, field and literature survey.

The above figure unveils how local populations of Chotiari wetlands were locally connected with each other (left) and outside stakeholders (right) before the setting of the reservoir. The local population comprised on fishermen, farmers, herders and other actors, which carried out their economic activities on the agricultural and wetlands inside the Chotiari reservoir area. The figure also shows that these actors were connected with other stakeholders of the nearest city (Sanghar), which is located about 35 kilometers far from the reservoir (Magsi, 2012).

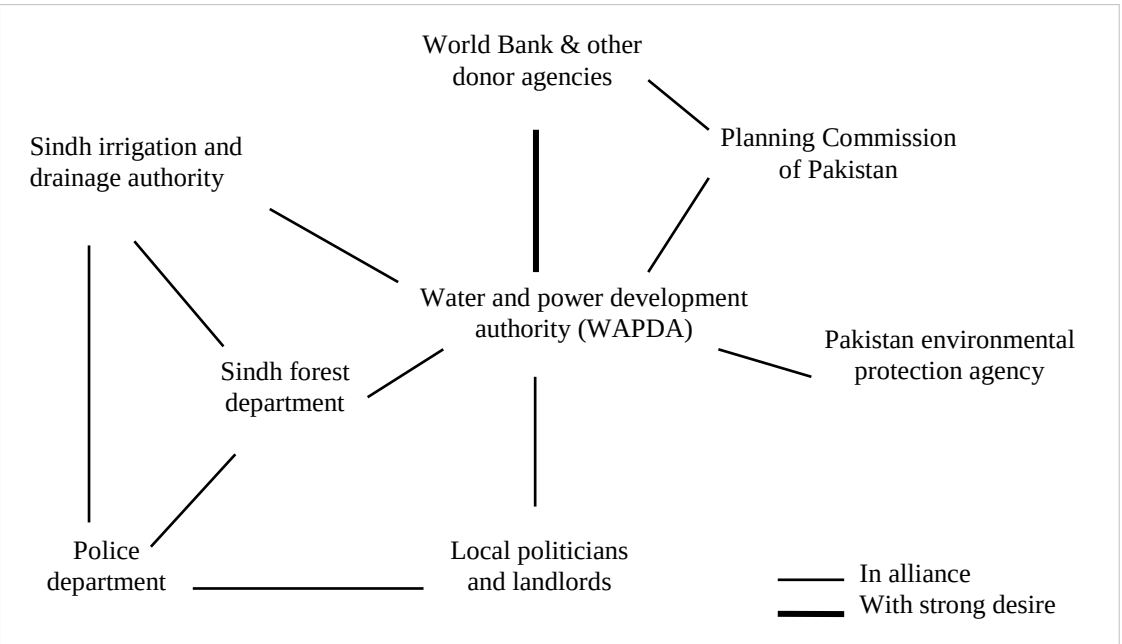
The relationship of local population to other actors was based on the collective interests of livelihood survival, i.e., marketing their produce etc. According to majority of the experts they used to come to Sanghar early in the morning to sell their products (fish, vegetables, milk, honey and hand crafts, etc.) in the market and went back to their villages. However, few experts have also indicated that relations between the local populations were not always positive. The cause of actors' uneven relations maybe due to the fact that local people used to live in isolation and scattered on sandy dunes inside reservoir area, and/or may be due to ethnic diversity (different castes) among local population.

IV.2. Actors with favor and opposition

While assessing the network results of the stakeholders we faced some complexities of placing the actors at their right places with respect to their centrality or closeness to other actors. The aim of this analysis is to show actors actual position either in support to construct or to oppose the Chotiari reservoir.

Here, we show the actors who were actively linked together in support to construct the reservoir (see figure 18). Concerning this network, Nauman et al. (2001) have pointed out that the project was planned at national level (by federal government and funded by international agencies), where provincial actors were dictated to implement the project.

Figure 18: Network of actors in favor of reservoir construction



Source: Authors realization based on expert opinions, field and literature survey.

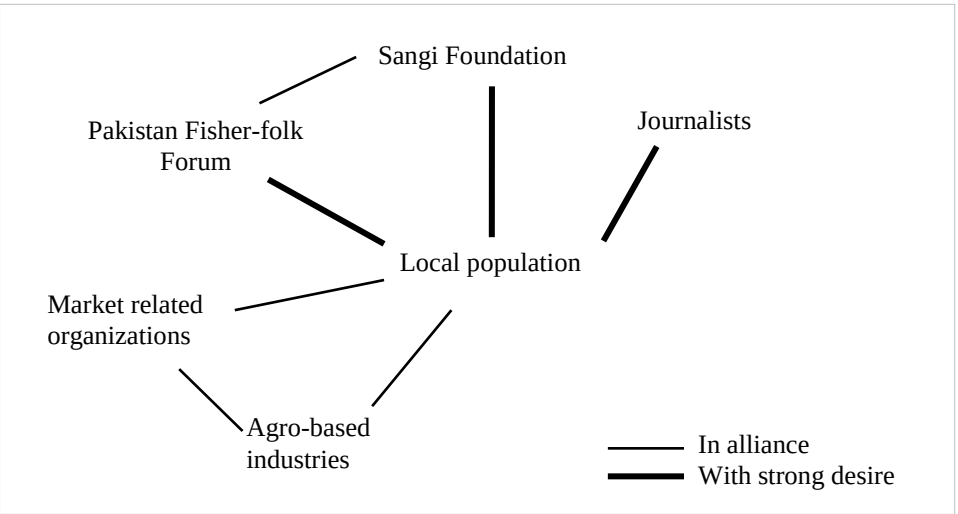
Above figure indicates the panel of the actors in a bureaucratic and politicized environment, comprised on federal to provincial ministries and local landlords, with a single object to construct the reservoir on Chotiari wetlands. In fact, the water and power development authority (WAPDA) has planned and initiated to construct the reservoir with help of provincial departments (irrigation & drainage, forest, and environment) as well as

the local feudal lords (Nauman, 2003), to provide irrigation water to down command area in the province, where the financial assistance provided mainly by World Bank and partially by other agencies. In this regard WAPDA has also claimed that the construction of the reservoir and remodeling of irrigation system would increase the cost benefit ratio from 0.9:1 to 1:3.1 (Tarar, 2003).

According to the experts, during construction period the WAPDA and World Bank teams have regularly paid visits to monitor the construction, where both stakeholders seemed in strong desire, while the other actors seemed in support to construct the reservoir. During analysis of above networks we observe that there are some actors whose support links have appeared temporarily. For example, the planning commission of Pakistan played role as intermediary between international donor agencies and WAPDA, where its role had not been seen while construction of the project directly. Whereas, provincial police only appeared when the provincial departments and local politicians/landlords have needed their support to control on conflict (violent) situations during displacement and protests by the local population.

On the other hand, the pressure of state and donor agencies for reservoir establishment and media coverage has stimulated local population to unite and protest. Their actions were conducted within local to national management structure. Thus, local communities, NGOs, journalists and other voluntary organizations aimed to struggle for a coherent action against construction of the reservoir (see figure 19). Their alliance was not only based on the reservoir opposition but to promote the Chotiari wetlands as a national park and tourist stamping grounds (Laghari, 2001). Through daily press analysis we came in to know that local population have demonstrated the socio-economic and environmental impacts of the project in various ways, i.e., through protests, agitations, press conferences as well as writing letters to public authorities through the press.

Figure 19: Network of actors against Chotiari reservoir construction



Source: Authors realization based on expert opinions, field and literature survey.

The above network aims to reflect tools of actions performed by the actors against the project. In this regard the actors' stake was to structure a hierarchy of coordination and to agitate till annulment of the project. Therefore, the local population (individually or collectively) have repeatedly protested in press-clubs as well as demonstrated during the visits of monitoring teams from World Bank that government has neither provided the facts related to the project, nor official list with details of entitled affectees supposed to receive the compensation (Jillani, 1999). They also pointed the question of environmental impacts and depletion of natural resources (Nauman et al., 2001), but there was no important effect.

Local population in assistance with the journalist, Pakistan fisher-folk forum, and Sangi foundation seemed in strong desire to either set-off the project or to compensate the displaced families. Their cause has also been supported by the market related organizations in various forums. According to daily press, some affectees with the help of Sangi foundation (national NGO) went on hunger-strikes in front of President's office in Islamabad for justice, where within few days their strike was forcibly finished and few of them were arrested.

However, the opposition on the project between local and outside actors has increased as time passes. Due to involvement of stakeholders (national and international) it was not

seemed possible to back the decision by public authorities. But there were possibilities to set-up social networks capable of responding to local situations and to improve relations between local actors, officials and local elected politicians, which could facilitate the management of this land use conflict process.

IV.3. Factors created conflicts in Chotiari project

The multi-dimensional catastrophe of the Chotiari reservoir cannot be understood with a single factor. Therefore, it is important to visualize and quantify the structural and proximate factor dynamics with their anticipation, which have not only escalated conflicts of land use but also unrest among local population. Therefore, on the basis of articles published in daily press and opinions interviewed from experts, we came into effect to disclose the responsible factors to the conflicts of Chotiari reservoir (see table 6). In this regard we have quantified the factors which appeared in news, reports or articles published in daily press as well as in the expert opinion interviews. These factors seemed responsible for either giving favorable path to pre-conditions or conducive climate to the conflicts.

Table 6: Conflict factors of Chotiari reservoir

Factor types	Causes	Percentage	
		Articles in daily press	Experts opinion
Structural factors	Corruption/misuse of funds	23.94	34.38
	Unilateral decision	21.81	21.88
	Lack of technical and scientific research	19.68	9.38
	International interest	7.98	12.50
	Non-existence of national resettlement policy	9.04	9.38
Proximate factors	Ethnic diversity and disarray (unrest among communities)	13.83	12.50
	Others (Nepotism, Illiteracy etc.)	3.72	0

Source: Authors realization based on daily press and expert opinions

Above table indicates that (according to the daily press and expert opinions) the major contributor of the conflict of land use over Chotiari region is corruption, followed by the lack of scientific research, international interests, etc. The results of analysis also show that the ethnic diversity and disarray of local population have also provoked favorable situations in the project initiation.

On the other hand, it is also obtained (through daily press and expert opinions) that due to ethnic disarray local population united lately to oppose the project, and their opposition started with its negative impacts in the region. Majority of experts opined that the reservoir has highest economic cost with different tradeoffs between water storage to displacement of people, environmental damages, deforestation, and loss in fish biodiversity. Moreover, daily press argues that the reservoir has been built where supply of water is relatively low.

V. The question of property in land use conflicts

Theoretical literature provides many factors of land use conflicts but the main reason alleged is usually the ineffectual definition and implementation of property rights. Therefore, in this section we would like to unveil the motives of land use conflicts on properties as suggested by the literature. Furthermore, we also describe the loopholes in the property rights and institutional inconsistencies in the case study area, which can help in the illustration of conflict resolution measures of land uses.

V.1. Land use under weak property regime

The properties that are being used for the construction of development projects are common, semi-common or private resources[19], i.e., entitled or un-entitled lands. Furthermore, if it cannot be denied that global development is directly related to the

[19] The common resources are free goods for individual and are scare goods for a society (Ostrom, 1990; Hardin 1968; Gordon, 1954), whereas according to Smith (2000) the semi-common properties are not only mix of common and private, but both can interact and are significant. For example, piece from a private land used for a collective interests of grazing, fishing etc.

establishment of infrastructural projects, on the other hand these projects could give rise to big land use conflict if directly associated to the property right violation. The central idea of the property is founded upon the use of the resource. A logical argument has previously been made by Hardin (1968) that the use of common resource (common-pool resource) is economically non-rational; because its cost could always be much more than the gains, if the resource is commonly used. Contrary, when the projects of a single use will be initiated on the CPR it will lead other users away from the resource and will increase the cost of production, thus the increasing cost is itself a conflict (Ostrom and Nagendra, 2006).

Land is a property, which is characterized by spatial distribution, knowledge, and capital, where the right is the capability to stand upon a claim (Bromley, 1998). Thus, the theory of property rights deals with resource allocation based on economic interest and bargaining power of the actors involved in the procedure of allocation of these resources. Due to its scarcity and preciousness everyone is interested for its share. Although the degree of land subtractability depends on the characteristic and the type of land, likewise it is high for CPR (Ostrom, 1990). The subtractability deals with the diminishing share of other users.

The property regime is a key factor in the political economy of rural masses, in which individual feels secure when property rights are properly practiced in the society. On the other hand, weak institutional approaches towards property rights often generate insecurity and tensions among the land owners. However, in certain cases land owners are poor, illiterate and unaware about land use rights and exercise of their power. For example, Khan (2006) has discovered several cases of corruption in property registration in the Lahore Development Authority (LDA) in Pakistan, i.e., the main registration authority in the country. Thus he concludes that where these rights are poorly defined there are opportunities of tensions on land use. The tension, because of inconsistency between the law and constitutional provision causes confrontations on such land uses (Alston et al., 2000). The concept of land use conflict has already been brought before various researchers (Darly and Torre, 2013; Mann and Jeanneaux, 2009; Deininger and Castagnini, 2006; Campbell et al., 2000); they are the result of different stakes, policy responsiveness of the poor land-use planning, and violation of property rights.

V.2. Property right loopholes and institutional inconsistencies: case study

In most of the developing countries like Pakistan the land ownership rights are unclear or complex, and with a long hierarchy (Ali and Nasir, 2010). Moreover, the local governance structure is unhelpful, with bureaucratic behavior and controlled by supremacy of the institutions (Nauman, 2003). Pakistan is exercising the land acquisition act 1894[20], where this law is amended several times (Janjua, 2007), but the transfer of land property and compensation systems are incompatible and having loopholes (Khan, 2006). For example, Alam (2006) has investigated that irregular sales of immovable properties do not need to be documented. Because of the ambiguities in the laws different investors have benefited by taking over lands from landowners.

The institutions are responsible to develop a social interface between local populations and public officials among society and to promote the reforms and historical changes overtime, which are normally invisible, but can be measured through the policies (Ostrom, 1990). In Pakistan, most of the land owners have confrontations with existing institutions due to their mismanagement and ignorant behavior (Khan, 2006), where the problems vary according to their land uses. This governance structure can be the reason of weak tenure rights and insecurity for smallholder, pastoralists, forest-dependents and indigenous people.

A major part of Chotiari wetlands was owned by local population (Nauman et al., 2001), where they had to enjoy the complete rights of their land ownership, but most of the owners were poor, illiterate and socially inefficient, and with little awareness of land use

[20] Land Acquisition Act 1894 came into force on 1st March 1894 and was extended to the whole country (India). In Pakistan recently many amendments were made due to need of time. According to this law, the provincial government is authorized to take land for public purposes, where the government appoints an officer for the survey of the land and to notify and satisfy the owner by paying compensations of land and damages at current market values. In case of objection by owners, there must be reconsideration. In this situation the officer can forward the recommendations to the executive district officer (revenue), where he/she will be final authority for making decisions on land acquisition. Section 4(1) of the law explains that land can sometimes be acquired without prior survey. In this regard a declaration is made by an officer (authorized by the provincial government), and after the issue of declaration the government asks the officer to take charge of the acquired land. Thus, he will send a notice to the owners to claim their compensation for land and damages and to lay their objections in hand writings within fifteen days in front of the officer. While the compensation and damage values will be made on the current market values of land and damages (for details see Janjua, 2007).

rights. In this situation, some outside stakeholders[21] took the advantage of property right loopholes and created fake ownership papers for compensations and other benefits during the reservoir construction period (Nauman, 2003). Additionally, the corruption of public servants is an undeniable fact in the country. For example, in the case of Chotiari reservoir government has itself admitted the cases of corruptions and misuses of funds (Iqbal, 2004).

According to the law the government must notify and satisfy the land owners before to take land for a public project construction. On the contrary, in Chotiari project daily press and experts highlight that no proper survey has been conducted for land and damage valuation (neither for the entitled lands nor for the CPR), whereas the lands were used as source of livelihoods to local inhabitants since generations. The country is practicing construction of development projects since five decades, in this regards many large and small dams have already been constructed (UNEP, 2004), but there is no existence of any national resettlement policy (NRP). In this regard first draft (PC-I) of the NRP was finalized in 2002 and is still in pending for approval of concerned ministries and the parliament. But the policy draft does not address about unresolved social and environmental conflicts of the previous development projects like *Tarbela dam* (Iqbal, 2004). Probably if this policy will be approved in near future, the question will arise that will Chotiari affectees be benefited? Because in the national resettlement policy proposal the "resettlement action plans" for dams are based on land acquisition act 1894 (Alam, 2006), which plans have never benefited to the *Tarbela dam* affectees in the past.

Legal action is the supreme mean of conflict ending but majority of experts opined that courts have totally ignored the situations of opposition, expropriation, corruption, in case of Chotiari project. They further argue that this ignorance of their rights was due to the involvement of the landlords, politicians and public officials (Nauman, 2003). Thus, the most effective approach to solve such conflicts is balancing socio-economic assessment based on the needs of the indigenous people, and giving them representation rights for negotiation to achieve a synthesis that can maximize the positive elements of each of these dimensions. Analysis of these conflicts from the expressions of experts, it is clear that the protesters often use the media to put disputes into the public.

[21] The stakeholders other than local population, i.e., landlords, contractors, politicians and government officials (Nauman, 2003).

VI. Discussion and conclusion

The article puts the stress on the limits of infrastructural development settings without agreement of local stakeholders and understanding of factors of oppositions by local population. The only way to examine the institutional inconsistencies and distribution of dissimilar power, leading to land use conflicts and loss of local population's resources, is to analyze the dynamics of actors/stakeholders network in the study area, such as the reaction of local actors and public officials during and after the project construction.

In this research we have conducted the analyses over daily press and expert opinions; and found some dissimilar results in both sources (see figure 16), where the press concerns over decline of major economic activities, while the experts put stress on increasing social issues in the region. Although, both suggest that there exists a negative relationship between social issues (conflicts) and the setting of new economic activities/growth (infrastructures). During field visits it was observed that local population hold ancestral properties and there was no proper registration of it, which may be the cause of their unawareness towards property rights. It was also observed that the value of agricultural lands outside reservoir is declining because of rapid contribution of seepage from the reservoir.

We have conducted a social network analysis of actor, aimed to go through the ground realities of the conflicts of Chotiari reservoir. The performance of public officials and administrative actors, in association with local landlords gave birth to the processes of tensions and conflicts, where these actors seemed in favor of reservoir construction at any cost. Contrary, there is another network of different actors (local market related organizations, NGOs and journalists) correlated with local population, who have started a long journey of confrontation with public officials and local landlords to discontinue the project. The estimated magnitudes show that despite of longer opposition, the project has displaced local population with rehabilitation and resettlement issues. We also observed that the project seemed the risk to economic activities in the area, because it does not correspond to the desired management policies in a sustainable manner (Nauman, 2003).

Should this issue have needed immediate resolutions measures? The fact is that in the case of Chotiari reservoir the institutional inconsistencies (Ali and Nasir, 2001), without counseling to local population for reservoir construction (Abro, 2001) and behavior of public officials have led towards human and property right violation. However, this is not an isolated case, where aiming to prevent such conflicts it may be imperative to promote human and property right awareness among land users. Moreover, the study of multi-level governance and socio-spatial evaluation of the Chotiari reservoir would be a useful tool to recommend concrete policy measures and strategies to prevent such conflicts on land use for the other infrastructural projects in the developing countries.

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PART IV

INEFFICIENT MULTILEVEL-GOVERNANCE AND SOCIO-SPATIAL DISREGARDS A PROXIMITY ANALYSIS: EVIDENCES, EVALUATIONS AND RECOMMENDATIONS DRAWN FROM THE EXAMPLE OF CHOTIARI RESERVOIR IN PAKISTAN

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Abstract

In this study we use qualitative data from land use conflicts for a development related infrastructural project based on the case of Chotiari water reservoir in Pakistan. Our results mainly put accent over network(s) of stakeholders involved into the decision project and their opposition to the wills of local populations, leading to important tensions and conflicts due to superposition of land use expectations on the project zone. Through this research we show main groups of actors, their logics, links and behaviors at multilevel governance (community to international) and territorial governance, which express the position of stakeholders and their distributed social power. We argue that how public authorities have disregarded the international rules and laws, while constructing a development project, and cause great damage to local populations and environmental resources. This article provides helpful insights and information for the recommendations in terms of land use conflict prevention and resolutions, mainly based on proximity relations analysis.

Keywords: Conflict; multilevel governance; proximity relations; superposition of uses
JEL classification: D74, O16, H54

Introduction

Infrastructural projects in developing countries have interrupted millions of lives and sometimes displaced millions of people (Mataram, 2008; Vainer, 2007; Cansen, 2004; Awakul and Ogunlana, 2002) due to inconsideration of the needs of indigenous population (Lama, 2008; UNEP, 2004). Mostly, such projects are being initiated in rural settings, where local people stand to lose their resources and livelihood support. Thus increasing interest for their rights nowadays gives birth to reflections about the actual foundations of infrastructure projects, in terms of legitimacy of their decision, as well as studies about the reactions of local populations. Indeed, such type of decisions may lead towards misunderstandings and problems between various stakeholders and give birth to tensions and conflicts.

It is often said that tensions and conflicts arise when there are no longer social relations between the different stakeholders and institutions (O'Toole, 1997; Scott, 1991) or that these relations are asymmetrical and marked by power or corruption, because balanced relations would enable stakeholders to find the solution measures to alleviate the tensions (Wall and Callister, 1995; Schelling, 1960). These remarks claim for the need of good governance structures and processes at the local level, in order to build local projects and to improve participation of population to the setting of infrastructures which affect their daily lives.

The purpose of this article is to study in details the types of decision related to infrastructure projects at the local level, to pinpoint the socio-spatial disregards held by fake governance processes and to classify the governance structure at various scales (from regional to international). It is assumed that the ignorance of socio-spatial laws in the case study area led to huge tensions and conflicts between various stakeholders and caused great damage to local populations and environmental resources. In our study, we want to test the hypothesis that inefficient governance and socio-spatial disrespects lead to land use conflicts in the execution of infrastructural projects, and to carefully study the conflict and governance mechanisms.

We have selected the case of Chotiari water reservoir from Pakistan for the purpose of the study, in order to put light on the land use conflicts caused by an infrastructural project setting with follow-up governance structure. The project is one of the large infrastructural projects, which is facing opposition in the country and an example of weak governance in the setting of new infrastructures in developing countries. In this regard, it is aimed that the study of multi-level governance and socio-spatial evaluation of Chotiari reservoir would be a useful tool to recommend concrete policy measures and strategies to prevent such conflicts of land use for forthcoming infrastructural projects in the developing countries.

In order to analyze this complex and sometimes intricate case study we use actors' network and proximity analyses. The recent conceptual progresses of network analysis (social, strategic, alliance, conflict networks, etc.) make an important contribution to a better understanding in the field of inter-personal relations between actors of different types and origins. The use of proximity analysis[22] not only proposes to analyze co-ordination by considering "situated actors or stakeholders[23]", but also how they are related in a local, national or international system linked with productive, commercial and innovative activities.

The rest of the article is divided into following sections. First, it discloses the context of the study area, data collection and analytical methods used. The next section gives emphasis upon the main findings, including problems of superposition of uses in the project and its effect on the social the structured networks of stakeholders involved in the project with their roles and responsibilities, which demonstrate multi-level governance system and their efficiencies. This part also put stress on the violation of rules and laws based on a careful examination of conflict features as reported by most prominent regional press and expert opinions. The third part of the paper is devoted to and analysis of the situation in terms of geographical and organized proximity: we study the role played by both proximities in the setting and subsequent development of the land use conflict. Final section provides a comprehensive strategy towards land use conflict preventive policy recommendations to be

[22] Proximity analysis came forth since the beginning of 1990s, when economists, sociologists as well as geographers have tried to understand the role of space in co-ordination with economic activities. After the foundation laid by French scholars, its scope has been broadened internationally, where numerous contributions have also appeared (Torre and Zuindeau, 2009).

[23] The position of actors and stakeholders which shows that how they are located in a geographical space or in a network.

applied in the execution of similar infrastructural projects: these strategies are based on technical grounds or proximity driven recommendations.

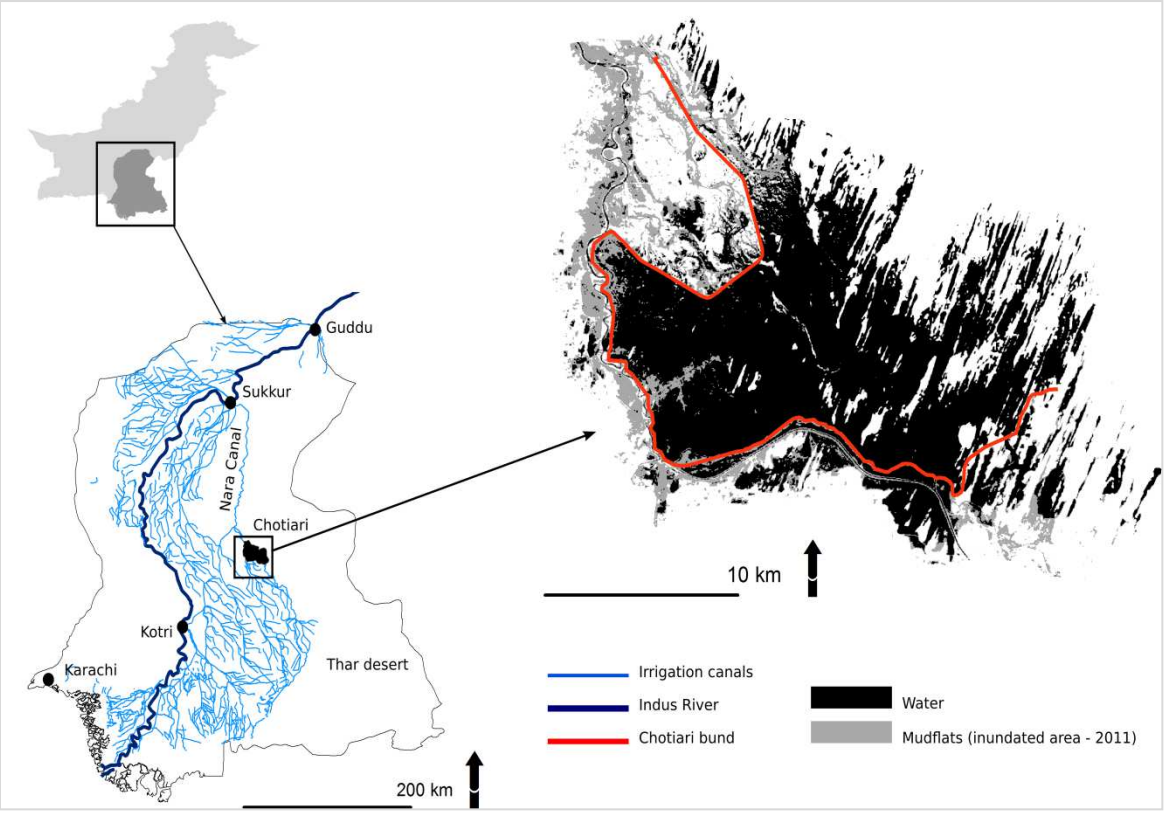
I. Study background and data collection

For the purpose of our study we have selected the case of the Chotiari water reservoir project from Pakistan, for its unique characters of conflicts on land use and inefficiencies at various scales of monitoring and governance. The Chotiari case has been studied by several scholars, and we performed deep analyses and surveys on this area during the previous years in order to asses about the local processes of governance and their supposed inefficiencies. In this section we describe the empirical background of our case study and the sources of data collection and analytical methods.

I.1. Case study description

The project of Chotiari water reservoir (see figure 20) has been designed and implemented to increase the storage capacity of existing lakes of Chotiari wetlands and to irrigate more arable land in the country. The project was initiated in 1994 by water and power development authority (WAPDA) and was funded by donor agencies through World Bank. The project is inflated over entitled and un-entitled lands of eighteen thousand hectares (Government of Pakistan, 1993). The Chotiari reservoir area was characterized as wetlands and comprised over lakes, forest, swamps, irrigation channels, agricultural and barren lands, providing an ecological richness in the region, which has supported livelihood of local population in term of fishing, agriculture, grazing and a range of other economic activities (WWF, 2008).

Figure 20: Location of the Chotiari water reservoir



Chotiari reservoir project has created opposition between the principal actors (fishermen, agriculturists, livestock-herders and others), the stakeholders from public administration, (from national and provincial ministries), local politicians and landlords (Magsi and Torre, 2012; Nauman, 2003). The public administrative authorities with highly bureaucratic approaches and mismanagement of construction to compensation funds, the local politicians with misuse of their position and power against forcible displacement, where the local landlords with power competition to local population, all this have made the task of bringing-off this project more complicated and controversial. Moreover the opposition grew when local populations were dispossessed from their livelihoods and ancestral belongings without a proper compensation. Despite of all these issues, public authorities have completed and inaugurated the reservoir on February 2003, with five years delay of its expected commencement (Iqbal, 2004).

I.2. Data collection and analyses

To deal with the incidences of land use conflicts and to explore the situations of multilevel governance efficiency in the Chotiari reservoir project execution, the data were collected through various primary and secondary sources. Therefore, to identify involvement of main stakeholders and their relations at various stages of the governance in the case study area, the information was extracted from locally published documents and deep review of daily press[24]. Moreover, to understand public opinions on pre-, during- and post-situation of the reservoir, we have launched a qualitative survey by 32 in-depth interviews of local experts for their perceptions and opinions. The interviewees came from the administrative authorities (WAPDA, Sindh irrigation and drainage authorities (SIDA)), independent researchers and legal advisor, local NGOs and journalists, as well as from feudal lords and displaced family heads (see annex A). Whereas, these interviews were carried-out at the end of 2010 with the detailed questionnaires (see annex D). Therefore, this is a classical methodology used for land use conflict analysis (Torre et al., 2010; Rucht and Neidhardt, 1999).

In empirical research it is essential to compare the originality and reliability of the facts with the available literature (McCarthy et al., 1996). In this regard we have also collected information through published material from various public and private, national and international organizations on this issue. Finally, during analysis of experts' opinions and daily press an important care has been taken to avoid unreliable information.

II. Results and discussions

In this section we emphasize about the main findings of our studies. In particular, we put stress on the social and economic problems caused by setting of the Chotiari reservoir and the subsequent displacement of local inhabitants. These actions directed against local populations lead to severe tensions and conflicts, related to the decision of launching this

[24] To review daily press we have selected 10 regional newspapers out of 21, which publishes in local languages and 6 national newspapers out of 30, which publishes in Urdu and English languages, since 1997 to 2011 (see Annex).

new project, and to the superposition[25] of various intentions of land use over the same area. We also illustrate that how the international rules and laws (human, social, economic, cultural and environmental) have been violated in this project.

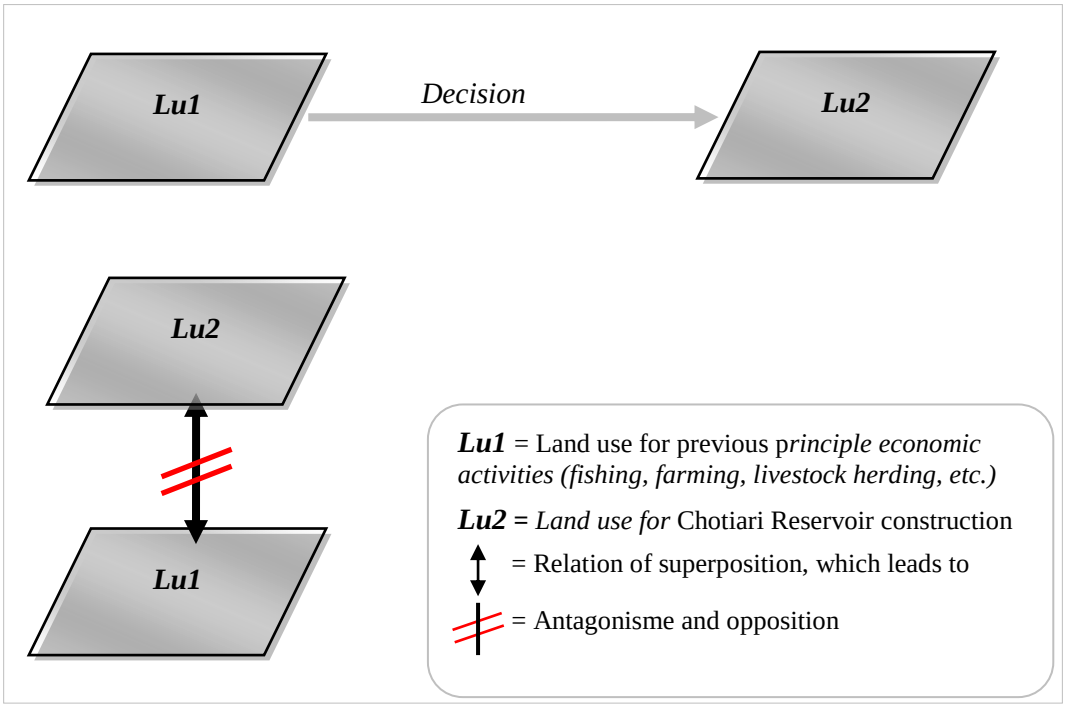
II.1. Chotiari reservoir project: decision and superposition

The land is not only space for growers or farm business owners, but it is the space which is organized, socially (agricultural unions, fishing communities, industrialists, local market unions, etc.) and spatially (areas for crops, fishing ponds, cattle ranches, agro-based industries, warehouses, forest, etc.), with socio-cultural heritages, values and emotional attachments. The appearance of interests of outside actors on a same piece of land sometimes creates tensions and conflicts, with loss of social and cultural control over a territory. Thus, the Chotiari project results the local actors and outside stakeholders with opposite aims and objectives of land use, where the drivers of this situation (behavior and actions of the actors to each other) lead the project under superposition situation (see figure 21). This type of representation commonly occurs on common pool resources (CPR) in the developing countries (Ostrom and Nagendra, 2006).

Figure 21 discloses that construction of reservoir has led to discomforts among traditional activities on the Chotiari lands and has also put access restriction to the local economic actors (Magsi and Torre, 2012). Generally, the local actors were holders of ancient culture and assimilated to local environment; they use to manage productive activities over the land. But the setting of the project involved new types of uses (water storage) over the same areas and lead to antagonism and opposition, and afterwards to conflicts between different stakeholders.

[25] A general situation in which more than one land users use or wish to use a piece of land for different uses, i.e., for recreational activities, natural conservation, or for development purposes (Torre and Zuindeau, 2009).

Figure 21: Reservoir construction: decision and superposition of uses

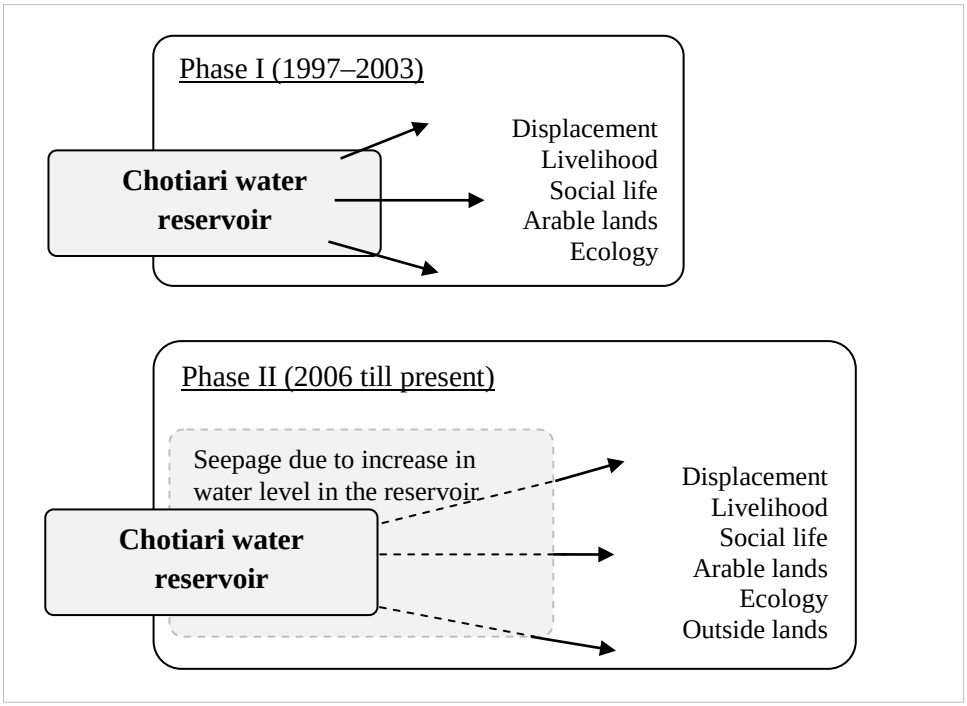


Source: author's realization

Therefore, the project has brought on the dynamics of conflicts of land use, which has not only contributed in the changing of territoriality of the actors, but also came forth with disruption of socio-spatial practices. This interference of socio-spatial practices involves a reaction of discontent, which has sometimes expressed aggressively (Iqbal, 20004). Moreover, public authorities have induced social and environmental nuisances by affecting arable lands, pasture, forest, as well as cruel displacement of local population. Besides all, the increasing water level in the reservoir is creating seepage[26], which is destroying adjacent agricultural lands (see figure 22).

[26] This organizational management structure has allowed increasing water level in the reservoir for which purpose it has been constructed, but due to low standard earth work there is water seepage from embankments which is damaging agricultural lands outside the reservoir (Magsi and Torre, 2012).

Figure 22: Conflict dynamics of Chotiari reservoir



Source: author's realization

Apart from all these, it came to know through the experts that some areas in Chotiari wetlands were practicing ethnic based community systems, which is locally called as biradri system. Constitutionally, this system does not exist in Pakistan, where may be it is influenced by Indian Panchayat system - being neighboring country- (Mathew, 1994). In this system individual respects the decision of senior member from the biradri who is normally a small scale landlord or influenced person. The role of this biradri system has germinated ethnic conflicts among communities and conflicts over natural resources on violent scales in various parts of the country (Ansari and Bell, 1991). The system supports only the people on ethnic bases. Some experts from Chotiari project area opined that due to ethnic mismatches some heads of different biradris were agreed for construction of the reservoir and they have also supported the public officials, when they find that this project will not damage the lands of their biradri members.

II.2. Actors network and governance structure

The relationship of stakeholders positioned at the different scales (regional to international) builds the basis of hierarchies of decentralization which shows that how strong the

governance is or should be, for an infrastructural project initiation. Through this complex maze of entangled ties, actors network theory provides information about their interactions and/or connections for disparate actions and activities (see for example Provan and Kenis, 2008; Hoff et al., 2002; Pattison and Robins, 2002; Wasserman and Faust, 1994; Grossetti, 1992; Scott, 1991; Granovetter, 1973). Here we would like to use it in order to give a clear picture of local populations' relations and public sector behavior (e.g. Raab, 2002) for subsequent conflict situation. For network construction the first step is to identify relations of the actors, and then to represent graphically to visualize their relationship (Pattison and Robins, 2002). Sometimes, difficulties may arise in the representation of multiple actors, with many existing relationships, especially when they are not well defined socially or administratively. The fundamental advantage of a dynamic representation of networks over conflicting processes is to be ensured when researcher acknowledge that there is consistency in the socio-spatial dynamics (Provan and Kenis, 2008).

In order to understand conflict process through networks, it is important to diversify the actors structurally according to time and space, as well as their inter-organizational relation (e.g., O'Toole and Meier, 2004), which will help to identify that how they are tied to each other with respect to time, and how their relationship changes during confrontations. Therefore, it is necessary to limit the network images at the time of data collection (Hoff et al., 2002), which can help to understand the emergence of conflicts. Essentially, the networks should be structured on primary to secondary relations, i.e., neighborhood, administered, competition, confrontation, etc (Grossetti, 1990). Thus the model will facilitate to understand social relation dynamics.

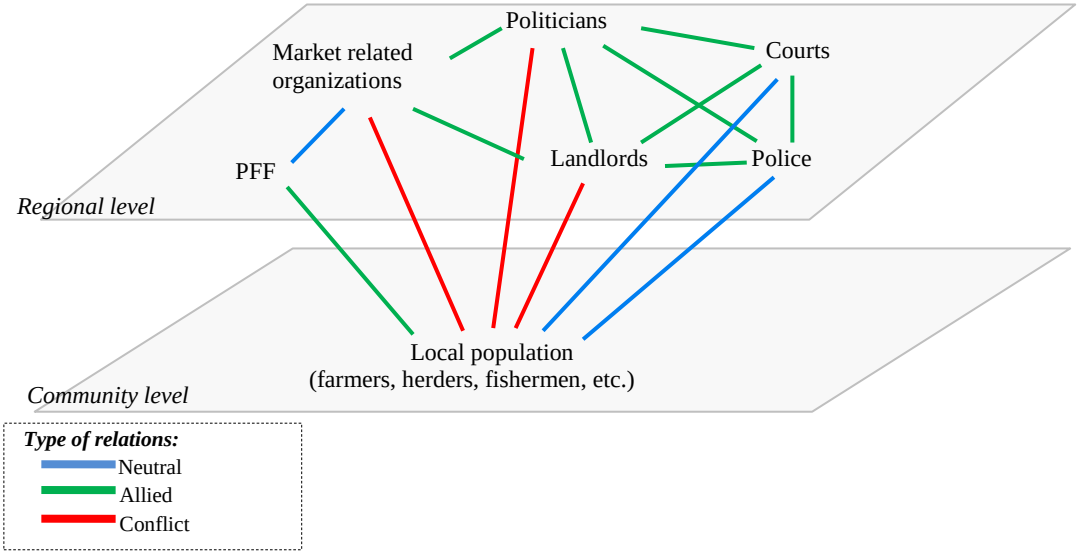
II.2.1. Community to regional

Here we aim to provide the networks of actors of our case study in time and spatial dimensions at various relations[27]; it is then possible to analyze the way in which situated agents build their representations and interdependent networks. We present the pattern of thought based on the expert opinions, daily press and interviews of affected households in

[27] In the case of Chotiari reservoir the relationship of the actors were found of various types. For example, some actors were in alliance with each other, some had antagonistic relations, while the others were neutrally related to each others.

the study area which insights a simple approach towards social representations in the categories of the actors. Following graphical representation is highlighting the interactions and the spatial scale of the actions of different actors before announcement of Chotiari reservoir project (see figure 23). Where we can see that how the principle actors/local population (fishermen, farmers, herders, and others) are correlated to the actors of their surroundings and at their survival steps.

Figure 23: Actor's network: before Chotiari reservoir



Source: Authors realization based on expert opinions, field and literature survey.

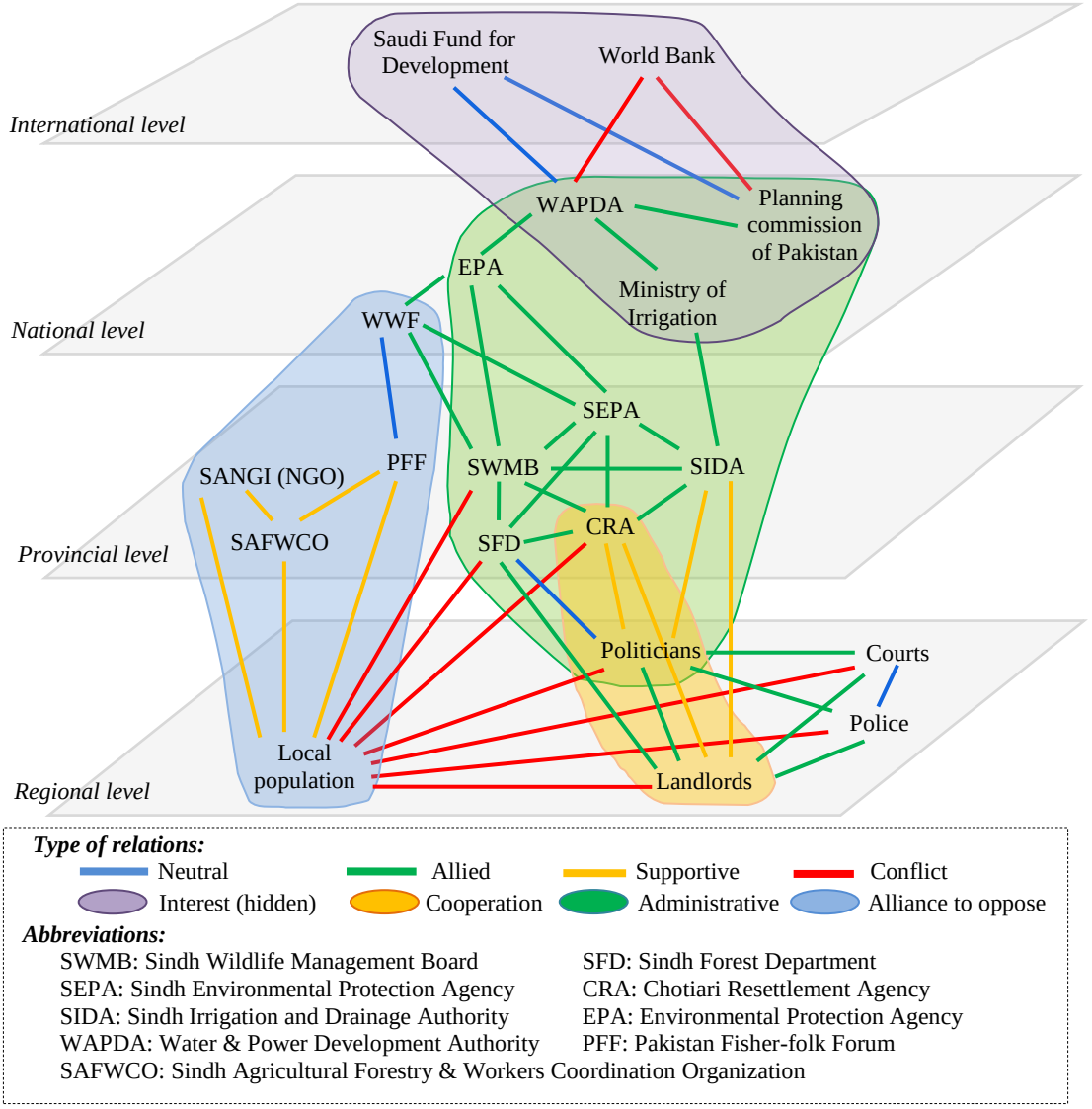
Results indicated in the above figure are based on the experts' judgments and interviews, and the press, in which we find out the relationships of local population before reservoir construction that are limited up-to the influential persons (feudal, landlords and politicians) and the markets. Thus our analysis reveals that this relationship of local population with other stakeholders was only based on their survival of bread and butter, while passing an ordinary life (Iqbal, 2004). According to the experts this limited network circle was maybe either because the local population lived far from the nearest city (about 35 kilometers), scattered inside the reservoir area mostly (on sandy dunes) or maybe due to their non-social way of life (illiteracy, unawareness, traditional culture and/or incoherence).

Therefore, through the analyses we find out that local influential persons had antagonistic relations with local population mostly on different economic activities in the region, because the local population belonged to rural and socially deprived class. Moreover, in the peripheries of the Chotiari the market related organizations run by either influential personalities or by the persons with their support. Thus the market related organizations had conflictive relations to local population on the selling of their products or buying inputs for their small scale business. Further results show that the majority of the local population belonged to fishing community that is why they have been supported only by and NGO called Pakistan Fisher-folk Forum (PFF), while they had no such interaction with local police or administrative courts.

II.2.2. Regional to international

Due to cooperation and reputation among actors for their credibility, it is difficult to categorize the different position of different actors at all stages of the project, from planning to construction. For example, during policy making process the actors were involved either from regional to national level, while some actors involved temporarily and did not play an active role in the administration. In order to understand the dynamic process of the project, we have tried to analyze a relational approach to provide some answers regarding social representations corresponding to a universe of interrelated elements. Though, after deep analyses we have summarized the relations, links and locations of the actors or stakeholders at different geographical scales (see figure 24).

Figure 24: Network of actors and stakeholders during the reservoir construction (1997-2003)



Source: Authors realization based on expert opinions, field and literature survey

Note: for more details see network matrix in Annex C.

Above figure exposes that actors within the categories have structured themselves in defined strategies and have different behaviors. Dramatically, the managing and administering actors have a different representation on the reservoir area, where they seemed indivisible (Government of Pakistan, 1998 & 1993), but in reality they did not care about the natural elements such as wetlands, arable-lands, forest, fauna and flora, i.e. just in alliance with the local politicians and landlords, but no positive relation with local actors up-to grass root level (Magsi and Torre, 2012). On the other hand, local population with the support of different NGOs has opposed the construction of the reservoir and manifested

to protect natural resources of precious wetlands of Chotiari. The limited scale of support and coverage of the oppositions, protests and agitations made by local population led no valuable results.

According to the experts the cooperation of local stakeholders with administrative actors from international to national scales was based on some hidden interests of corruption and favoritism. In general, the institutionalized consultation processes do not lead inevitably to the decision-making, but they aim to facilitate the acceptance of the development plan or the construction of the reservoir for example. In the case of Chotiari the consulting firms *Euro consultants, Sir McDonald and Partners Ltd.* and a Sri Lankan resettlement specialist have been appointed in order to prepare report for Environmental Impact Assessment (EIA) of the project and to coordinate policy and implementation issues, but the experts have doubt on their results.

On the other hands, the influential actors (politicians and feudal lords) in cooperation with Chotiari Resettlement Agency (CRA) have dictated local population or individual family heads to accept the decision of reservoir. In results the reservoir is occupied (illegally) by those influential actors, where displaced populations are not being allowed to enter in the reservoir and to earn their livelihood by fishing, etc. As indicated by Nauman (2003), this cooperative network lobby has managed to drain over 80 percent of compensation disbursement to fake owners (their supported people). Moreover, the government itself has accepted that there was massive corruption in Chotiari reservoir project (Iqbal, 2004), but there is no accountability yet. Here we would like to quote a remarkable reply from an expert that "WAPDA has again initiated construction of Diamer-Bhasha dam in the north of the country, which will also be financed by World Bank, thus World Bank has no problem to give more money for corruption and displacement of rural lives, then why our government should solve these conflicts and give money to local people."

While analyzing land use governance of the Chotiari reservoir, we found that the reason for some stakeholders being in power relation was their long involvement in the project. Thus from the management network standpoint of view, we discern between two main subsets of stakeholders, i.e. the decision-making body and the advisory and technical committees. Further these subsets include multiple networks. The decision-making

management was held by joint associations with international and state institutions, while the advisory and technical committees indeed gathers representatives of associations, professional organizations, government agencies and non-government agencies. Some actors have been connected outside of the committees as public authorities, while others have been related to the politicians and feudal lords. It is an interdependent network especially because it includes only few people. In general, all stakeholders should come together and consult on action to be taken towards establishment of the project, but this process may be ignored in the case of Chotiari reservoir (Nauman et al., 2001). Each space for dialogue is indeed a special place where multiple actors meet with divergent interests and with multiple roles, in which they have been coordinated in all actions from construction to displacement of local population and from filling out the reservoir to water logging and seepage (see figure 22). In addition, the public authorities were obliged to monitor the management and resettlement plans in relate both to the physical aspects (maintenance of wetlands, ecological inventories, etc.) and human aspects (regulation of conflicts). Moreover, through above figure we have explored that law enforcement institutions (courts and police) are peripheral and seems more suppressive rather to have influence on the administration, in this situation the marginalized people will surely have no hope of conflict resolution.

II.3. International rules and laws: obligations and violations

Sustainable and equitable land use requires a collective decision making action, but if the decisions of land use are based only on the costs and benefits that cannot socially be efficient. In such cases there must be a role for public policy to improve social welfare (Segerson et al., 2006) and to ensure a conflict free decision by imposing mandatory international rules and laws internationally made to ensure social, economic and environmental wellbeing. In table 7, we expose the violations of these rules and rights in the case of Chotiari reservoir.

Table 7: Obligations and violations of international rules and laws

Obligations	**Violation**
The universal declaration of human rights (article 3): "everyone has the right to life, liberty and security of person".	Because of Chotiari reservoir project 993 families have been forcibly displaced without relocation and compensation (Iqbal, 2004; Nauman, 2003).
The declaration on the right to development (article 1): "the right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development".	The project not only excluded people in its development, but the infrastructure caused people to migrate and lose control over their means of livelihood and natural resources (Magsi, 2012).
The covenant of economic, social and cultural rights, (article 11a): "states to take appropriate steps to improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources".	The project induced displacement, malnutrition, and reduced economic activities of local communities. The capacity of displaced communities to live healthy lives has also been reduced (Mangrio, 2005)
Rio declaration on environment and development, (principle 1): "human beings are at the center of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature"; (principle 3) "the right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations"; (principle 4) "in order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it".	The project was too much focused on physical infrastructure, where people never been at the center of development logic (Nauman, 2003). Environmental management plan was not properly prepared and implemented. The project caused severe damage to the natural environment and reduced the future development potential of communities as well as seepage is destroying value of adjacent agricultural lands (Magsi and Torre, 2012).

Based on the Chotiari reservoir project experiences (see above table), we propose that there is need to build a strong participatory community capacity for consultation, negotiation and promotion towards collective action (Petit, 2002). In general collective action has been

recognized as a mechanism for allocating resources and effective alternative in the field of planning and decision, but this task might uneasy, painstaking and time consuming act, because it can only be possible where the local institutions are strong enough (Yasmi et al., 2011). Further to oblige international codes, there is need to build common condition or agenda, which should encourage sharing of different interests and perspectives, as well as to build confidence and trust among the resource users. Obstinately, throughout the analysis of this case study we have not found that the public authorities put-up for the international rules or laws for the project affectees and to resolve the disagreements of local population and their collated network. Rather to conflict resolution, the stakeholders have dictated local population through project implementation.

III. An analysis in terms of Proximity dynamics

The analysis of Proximity relations (Boschma, 2005) proves to be a valuable field of research in various disciplines as well as for different topics such as innovation and environmental relations, or land use conflicts. We will use it here to analyze the relations between different categories of stakeholders in the land use conflict over the Chotiari water reservoir.

III.1. Basic findings

We consider the distinction between two main categories of proximity - Geographical Proximity and Organized Proximity (Torre and Rallet, 2005) - in the explanation of the relation sets of stakeholders, boundaries, clusters, etc. These notions of proximity refer, above all, to potentialities given to individuals, groups, human actions in general, in their technical and institutional dimensions. These types of proximity have no moral value and their existence constitutes neither an advantage nor a disadvantage. It is activation through human action that gives this potential its significance and value.

III.1.1. Geographical proximity

Geographical Proximity is above all about distance. In its simplest definition, it is the number of meters or kilometers that separate two entities. But it is relative in three ways:

- In terms of the morphological characteristics of the spaces in which activities take place;
- In terms of the availability of transport infrastructure;
- In terms of the financial resources of the individuals who use these transports infrastructures.

Geographical Proximity is neutral in essence. It is the human actions and perceptions that give it a more or less positive or negative dimension, as well as certain usefulness. It is the way in which actors use it that matters. Thus, the fact that two actors are located in proximity of each other may or may not be a source of interaction: these two entities may remain indifferent to each other or they may choose to interact; in this latter case we talk of a mobilization of the potentialities of Geographical Proximity.

Undesirable and desirable geographical proximity

Land use and neighborhood conflicts and tensions can be closely related to geographical proximity (Torre and Zuindeau, 2009). The approach is based on a fundamental distinction between undesirable or unwelcome geographical proximity and desirable geographical proximity.

Geographical proximity is undesirable when different land users disagree as to what the land they occupy should be used for, some wanting the land to be used for recreational purposes and others wanting to use it for production purposes for example. Geographical proximity can also be unwelcome when there are disagreements about what category/ies of users should or should not have access to a given area. It can result in a constraint of proximity due to three types of interference:

- *Superposition*: two or several land users use or wish to use a piece of land for different purposes;

- *Contiguity*: individuals or groups of individuals located side by side disagree as to where the boundary between their respective properties lies;
- *Neighborhood*: to situations in which the undesirable effects of certain activities are diffused by air, water or under the effect of gravity over to actors located in proximity.

The other opposite situation discussed in literature is that desirable or sought out geographical proximity. In this case, land users seek proximity to other social or economic actors, or even to natural or artificial resources or to areas that present (human and spatial) characteristics associated with a low population density. It can be of two types depending on whether one needs permanent or temporary proximity:

Geographical Proximity can be activated or mobilized by the actions of economic and social actors. Depending on their strategies or strategic choices, or according to their perceptions of their environment, the behaviors and attitudes of these actors vary and they mobilize Geographical Proximity differently.

III.1.2. Organized Proximity

Organized Proximity too is a potential that can be activated or mobilized. Organized Proximity refers to the different ways of being close to other actors, regardless of the degree of Geographical Proximity between individuals, the qualifier "organized" referring to the arranged nature of human activities (and not to the fact that one may belong to any organization in particular[28]). Organized Proximity rests on two main logics, which do not necessarily contradict each other, and which we shall call the "logic of belonging" and the "logic of similarity".

The logic of *belonging* refers to the fact that two or several actors belong to the same relationship graph or even to the same social network whether their relation is direct or intermediated. It can depend on the sector they are operating on; in this case they share common creative or innovation capital. It can be measured in terms of degrees of

[28] One may be organized or one may organize an activity without necessarily refer to or belong to an organization, in the strict sense of the term.

connectivity, reflecting more or less high degrees of Organized Proximity and therefore a more or less great potential of interaction or common action. The development of interaction between two actors will be facilitated by their belonging to the same tennis club, or Internet knowledge network. Similarly, cooperation will, a priori, develop more easily between researchers and engineers who belong to the same firm, the same technological consortium or innovation network. It includes common organizational culture between the members of a team for example.

The logic of *similarity* corresponds to a mental adherence to common categories; it manifests itself in small cognitive distances between some individuals. They can be people who are connected to one another through common projects, or share the same cultural, religious (etc.) values or symbols. Social norms, common languages partake of this Organized Proximity. It can also, however, correspond to a bond that sometimes emerges between individuals without them having had to talk in order to get to know one another. It facilitates the interactions between people who did not know one another before but share similar references. Thus, collaboration is all the easier when it involves individuals who share the same culture. Similarly, researchers who belong to the same scientific community will easily cooperate because they share, not only the same language, but also the same system of interpretation of texts, results.

Just like Geographical Proximity, Organized Proximity refers to a potential that is neutral in essence. It is the perceptions and actions of individuals that give it a more or less positive or negative dimension, and therefore certain usefulness. Thus, being connected by a logic of belonging is not a guarantee that interactions will occur, and even less a guarantee of the quality of these interactions. For the logic of similarity, a common project has as much chance to lead to a common and shared project as to end up in a failure resulting in heavy losses for the parties involved. Finally, the logics of similarity and of belonging can also facilitate collaborations that might be immoral in their motivations. For example, Mafia organizations often feed on both the logic of similarity (ethnic origins) and on the logic of belonging (strong connection within a network of actors), which can be considered immoral ethically.

III.2. Proximity Dynamics in the case of Chotiari reservoir

Proximity analysis is a valuable tool to qualifying the different dynamics at stakes in the land use conflict process. It helps in identifying the main groups of actors, their logics and their links, as well as the basis of their cooperative or opposed behaviors. Moreover, it provides helpful insights and information for the recommendations in terms of land use conflict prevention and solutions.

III.2.1. Geographical proximity

In the case of the Chotiari reservoir, we easily find that geographical proximity plays a core role in the conflict processes, in two different ways. First, with regards to the unwanted proximity interactions, it is obvious that geographical proximity between various local stakeholders (local population, landlords, public authorities…) led to conflict relations and misunderstanding. Moreover, we identify here a case of superposition of uses, which led to tensions, and finally to conflicts after the displacement of local population of farmers or fishermen. Clearly, a part of the traditional occupants wished to use the land for productive activities, whereas others stakeholders (landlords, public authorities…) wished it for water storage or other more profitable goals. In this respect, we come back to the general situation when using a piece of land for different purposes proves difficult or even impossible because of incompatible land use expectations.

Second, geographical proximity also played a role in the setting of local networks of opponents. The traditional users of the Chotiari land (farmers, fishermen, herders…), when displaced, use to collaborate in order to protest against this new use and to ask for remediation in courts and in front of public authorities. We draw from the interviews and the consultation of local press that the setting and the dynamics of networks of local opponents were based upon their previous location and their common roots to local land and areas.

III.2.2. Organized proximity

The lack of general organized proximity is one of the main causes of the Chotiari disaster. These events should have never occurred in case of generalized organized proximity relations between local stakeholders, because local public authorities or feudal landlords should not be in position to act against the vital interests of local population. They should have been forced to discuss with them and to jointly build local arrangements, not at the expense of local farmers and fishermen.

But intra-groups organized proximity further played a key role in the setting and the structuring of networks. As stated by figure 24, it is obvious that most of the networks of opponents transcend the local level. They can even grow up to the national or international level, and there are all based upon organized proximity relations. To be more precise, the logic of similarity is at stake in most of the networks: the opponents belong to the same community of people, they share the same values, or they belong to the same families or ethnic groups. This is particularly true in the situation of local population of displaced people, or in the biradri system, both based on strong rooted organized proximities. But it is also true for local to regional or national networks, which transcend the geographical logic, like the "administrative" network, involving people from different origins, but all tied by their adherence to common administrative rules and knowhow. The logic of belonging also played an increasing key role during the different stages of the conflict story: people started to act together on the bases of interactive exchanges, and further built their relations on that basis. As time goes by, their links became stronger within different groups of opponents. They learn to work together and cooperative and trust relations increased within the groups of opponents, on the basis of these previous and successful interrelationships.

IV. Land use conflict prevention recommendations in developing countries

Based on our case study analyses we give great emphasis on land use conflict prevention recommendations for infrastructural development projects in developing countries. Moreover, through the following subsections we elaborate the different possibilities of the

land use of Chotiari reservoir in order to resolve the conflicts and to ensure economic development: these solutions are mainly based on the mobilization of proximity relations, be there geographical or organized.

IV.1. Land use conflict resolution measures: case study

It is obvious that neither all strategies are always suitable for resolution of all conflicts, nor conflicts can always be resolved with the use of a single resolution strategy (Young et al., 2005). So far, conflicts created by the Chotiari reservoir are deeply rooted in inefficient governance, legal institutions and local power configurations, i.e., corruption and mismanagement of funds, forceful displacement of local population, etc. This mobility of local population has sharpened the tensions and lead to the conflicts by following the credible engagement (legal action, violence, mediatisation, access prohibition) of the actors who feel threatened or disadvantaged. Thus to improve Chotiari water reservoir project management structure and to prevent the conflicts of its uses, we propose following measures, based on networks analysis and proximity relations.

IV.1.1. Consultation and follow-up procedure

One of the challenges of the consultation process is the regulation of the objections so that projects can succeed and be accepted by most of the actors involved. This process of participatory democracy actually gives right to the indigenous people to express their wants and needs. The cooperation and involvement of all stakeholders in the implementation of the project can change and adapt the project according to the interests of all. This does not mean to agree with everyone, but to ensure that everyone has the opportunity to be heard. In general, unexpected objections may arise during the procedure, they help to stimulate discussion. The consultation procedures therefore generally range over several years and sometimes lead to unexpected results in terms of regulation of conflicts.

The findings of this research explores that all, except project participants, are dissatisfied with the Chotiari project management. The attitudes of the project stakeholders to the principle actors lead them apart from the other groups and created tensions and conflicts. This reprehensive attitude of the stakeholders is shown clearly in figures 21 and 22. Therefore, one of the options to resolve the conflict of such large infrastructural projects is to pay attention to the voice of reason (local population). Therefore, it is vital to take care of the impacts of development projects on social and environmental norm. In this regard, good governance with follow-up procedure during project construction would characterize the social and environmental needs of the project area. The environmental impact assessment (EIA) could be a crucial tool to achieve environmental sustainability, while in the case of Chotiari reservoir this tool has not followed, even the EIA of this project has been carried out (Government of Pakistan, 1993), thus this process needs to be administered more efficient and systematic. All stakeholders, especially local population should have the right to participate in the follow-up procedures of planning, decision-making and construction operations. Moreover, the involvement of local populations can be based upon the mobilization of the proximity logics of belongings - joint expectations shared by people belonging to the same ethnic, family or situated groups - or similarity – people belonging to the same networks of workers or professional relations…

IV.1.2. Expropriation, compensation and accountability

Resettlement and relocation of local population is an inescapable companion of infrastructure development projects like Chotiari reservoir. Almost the use of land for project construction entails the expropriation of homes, businesses and other productive resources. At the time of project initiation local people has to be counseled by the management authorities, whether they are in accord with the construction and voluntarily displacement or not, but it was acted contrary in the case of Chotiari reservoir project (Iqbal, 2004). The involuntary resettlement and its impacts on people have become the most contentious of socioeconomic and environmental issues. The problems in resettling and relocating the local population should be given paramount importance.

Thus, a system to redress grievances related to land acquisition, compensation and resettlement should clearly be established and made known publicly. The compensation

and resettlement should ensure that those affectees will regain or improve their former standards of living. It is recommended that representatives of the affected people be selected to be members of the committee for evaluating the compensation to resolve the conflicts. Merely giving compensation money to the affected families alone would not suffice, but consideration should be made to provide alternative employment, housing amenities to them. A realistic action plan should be prepared in a manner that would give the affected people an opportunity to become physically established and economically self-sustained within shortest possible of time. Its success will always depend on efficient implementation.

IV.1.3. Different possible land use options other than reservoir

No doubt that land use change can be economically viable and socially feasible if it would be based on the concept of returns from present to alternative activities of the land (Segerson et al., 2006). Therefore, to know the suggestions of the experts for alternative options to resolve this conflict of land use in the case of Chotiari reservoir. Thus the experts have been asked for the research question that what options are available for this land use and which will ensure social and economic viability through a collective interest? Thus few of the experts were found in support of Chotiari reservoir, while the majority of them are in opinion that the land can still be used for other activities that the reservoir (see table 8).

Table 8: Land use options other than Chotiari reservoir: suggestions from the experts

Option	Explanation
Fish farming	The reservoir can be used for fish farming, as the lakes were used for fishing to local communities before the reservoir construction.
Industry	Tourism: can be promoted in the Chotiari area, as the region is naturally beautiful and characterized as home of crocodiles.
	Hotels: by following tourism the demand for hotels and marriage halls for public use on rent will increase, which will give a sufficient livelihood to local population.
	Milk industry: before reservoir there was a milk processing factory which is now closed due to reduced size of herds (milk). Thus the land can be used for manufacturing and processing units of milk and milk products, by increasing grazing grounds on the fringes of the lakes.
National park	Land can be reserved as national park by domesticating the damaged fauna and floras, restoration of natural forest life and crocodiles.
Others	Agriculture, grazing and hunting (despite of increasing water level there is less possibility to use the land for agriculture, but the fringes of the reservoir and the dunes can be use as grazing grounds to promote cattle farming).

Source: Expert opinion survey 2010

Above table indicates the possible options for Chotiari reservoir's land use. According to the experts there are no significant changes in the expansion of agricultural fields due to which this reservoir has been constructed. It is because the authorities cannot store more water because of low quality of earthwork in its embankments (Nauman, 2003). But the reservoir has inundated inside arable land and is degrading outside arable land by waterlogging and seepage. The experts further argue that if the government consider for above options, the land use change can ensure prosperity in the region.

IV.2. Land use conflict prevention recommendation for infrastructural projects in developing countries

The unpredictable and risky character of land use conflicts resolution induces the search for prevention solutions. Land use conflict prevention can be a valuable tool to undertake for reduction of future tensions and to prevent the emergence of conflicts related to the divergent uses or anticipation of uses of land. The Chotiari case reveals that it is vital to be aware of conflict prevention concepts (Bercivitch and Jackson, 2009; Burton, 1993) and

that some actions have to be undertaken before the launching of the new projects, otherwise some underlying characteristics may create difficulties (Mann and Jeanneaux, 2009) while dealing with.

Therefore, on the basis of results acquired from our case study we propose following suggestion measures to be applied for the prevention of conflicts on land use for infrastructural projects in the developing countries. These measures are partly based upon the mobilization of existing proximities between actors, be there geographical or organized ones.

IV.2.1. How to mobilize virtuous proximities and to avoid negative effects

First, we recommend to follow-up a statutory requirement that all new development project proposals and their constructions should be preceded through assessment of the local context, perspectives and applicable rights by a carefully selected multidisciplinary team. This should be followed by an open and flexible process with meaningful public participation, directed at developing a long-term and shared vision for the particular project area, and involving local population (Keane, 1990). Moreover, to include a social safeguard policy, to guarantee the rights at minimum standard within the core mandate of the projects and establish key performance indicators for monitoring authorities, which are not formulated in the case of Chotiari reservoir (Magsi, 2012) as well as in the other infrastructural projects (Mataram, 2008; Awakul and Ogunlana, 2002).

This work must first of all assess the geographical proximity between local stakeholders, which can induce land use conflicts, be there in terms of superposition of uses, contiguity or close neighborhood. Then, the participation and involvement of local population must be performed by mobilizing organized proximities, especially through their logic of belonging: local stakeholders, especially the poorest and more active day to day users of land and natural resources (herders, fishermen, famers) have to be informed and enrolled in the decision making process, on the basis of their common interests and future expectations. Afterwards, a successful process of territorial governance should lead to the building of solid networks of local and nonlocal involved people, from various origins. The

sharing of common goals in terms of territorial development should in this situation be based on the interactive building of proximity logics of belonging.

Second, we identify the need to establish a governance body for natural resources protection, which should provide possible form of mediation between socio-economic and biological objectives. While it should be the authorities vision to recognize as a premier entity in managing livelihood and biodiversity through mutually beneficial cooperation with local communities and other stakeholders, this task would need to be undertaken by a neutral party, not just in the initial planning process, but also in the long term.

The mobilization of both types of proximities should be at stake during this process. Desired and unwanted proximities of natural resources like lakes, forests or rich soils on the one hand, or polluted areas and unfertile grounds on the other hand, must be assessed in order to map and define the perimeters of protected or exploitable resources areas, with regards to the needs of local populations. Then, the persons in charge of this governance structure should try to build organized proximities between various local stakeholders, issued from different communities, in order to help them to build together common projects and future prospects.

IV.2.2. Technical tools and devices

Large construction projects are responsible for land use changes, where their location is a key factor for development. The project location should be determined by social, economic, technical criteria and environmental consideration, where a careful land use planning is necessary to avoid land use conflicts. The use of local historical chronicles, benchmarking procedures, territorial diagnosis, interviews and peer groups meetings is strongly recommended.

We also plea for the necessity to guarantee each community the access and exercise of legal rights through a state sponsored body, to overcome the asymmetries of power that typically prevail and to ensure opportunities for their optimized gainful employment. These are basic rules which can entail the setting of virtuous governance processes at the

territorial level and ensure the minimum requirements of local population (Torre and Traversac, 2011).

V. Conclusion

This research is devoted to multi-level governance and socio-spatial evaluations of the Chotiari water reservoir project from Pakistan. The project has affected and damaged economic, social, environmental resources as well as areas of unique importance. In results, the divergent land use objectives between public and private decision makers on the one hand and local populations on the other hand have created different conflicts among stakeholders in the area. In this research we have explored dynamics of stakeholders' relationships from local community to international scales, based on an actor's network approach, and then in terms of Proximity analysis, be there Geographical or Organized Proximity. Both analyses put the stress on the lack of appropriate territorial governance, which should have played a crucial role to anticipate or mitigate land use conflicts. Through multi-level governance analyses we have exposed the institutional powers and behaviors to the indigenous populations as well as we have disclosed management practices being performed in the country.

In the research we conducted analysis that how the public authorities have ignored the international laws as well as the local populations while constructing a development project in the country. This is seemed as the trend of territorial decision making in developing countries today, and we claim that it could be modified by mobilizing different proximities for the sake of territorial development of less developed areas. Reconciling the conflicting relationship between stakeholders of the project is a major challenge in Pakistan, and this is a ground which needs a long debate in other developing countries as well. Therefore conflict prevention process needs a strong governance capacity, particularly to build capacity for strong negotiations between main stakeholders to sign commitments for sustainable and equitable natural resource use and ecosystem management. Thus on the basis of our case study analysis we provide comprehensive strategies towards conflict preventive policy recommendations to be applied for similar issues in other developing countries.

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GENERAL CONCLUSION

The opposition and competition between stakeholders are pursuing various and sometimes divergent interests during different project decisions and initiation, led to tensions and confrontations (that could become violent sometimes) (Torre et al, 2010). There are increasing incidences of conflicts between actors over use of land in the developing countries. It is readily apparent that causes of such land use conflicts fall into three main categories: development of infrastructure, industrial expansion and urbanization. The development of infrastructural projects has resulted in acquisition of larger fields of cultureable or barren lands, forest and wetlands, etc. Therefore, this economic research conducted in multidisciplinary domains (e.g. economics, sociology, geography and geopolitics) is highlighting the conflicts of land use as an object, which are created by the superposition of use of land for Chotiari reservoir project in Pakistan. Throughout this document, we attempt to unveil and answer the question that who (actor/stakeholder/institute) is responsible for what (tension/conflict), at multi-scale of governance?

The Chotiari reservoir project area was characterized by its unique importance of wetlands, natural forest, natural lakes and the place of precious species of faunas and floras, etc. Where, local population of the reservoir area seemed busy in various economic activities, i.e., fishing, agriculture, livestock herding, etc. For regional development, public authorities have decided to construct a reservoir, by submerging the existing lakes and to increase their storage capacity and to irrigate more lands in the southern part of the region. Thus, the confounding land use objectives for the reservoir project between public authorities on the one hand and local populations on the other hand have created different conflicts in the area. In results, the project has affected/damaged economic, social and environmental resources.

Therefore, articles presented in the thesis have common goal of addressing the conflicts around the infrastructural project. Through which, we have successively focused on the role of conflict in the formation of collective choices, their geography and socio-economic dynamics, the conflict between the general and local interests revealed by a project

infrastructure and finally the impact of conflict on life, livelihood and environment of the region. While certainly insufficient at this stage of the research, an understanding of conflicts of generalized use of space, these works illuminate nevertheless the link of conflict with territory. Through this link it is considered that conflict is reflection of dysfunctional decision-making. The results reflect a social reality (need to understand the different facets), which is actually positive analyses of classical view of a decision dictated by public officials that caused superposition. Our thesis argues, conversely that we can usefully ask about conflicts a positive outlook, which can be summarized by few following conclusions.

Our results show that land use conflicts are very likely inevitable "step" to infrastructural projects towards territorial development. The conflictive dimension of those steps are taking place due to parameters of public economic calculation choices; lack of will (from decision maker) to demonstrate the usefulness of future equipment and to convince local actors (organized proximity); the location or route of the project in order to avoid superposition, contiguity or neighborhood negative effects (geographical proximity); and also due to diversity of preferences and visions of stakeholders (social and behavioral networks). The land is in fact a process involving coordination of multiple actors carrying different uses of space with heterogeneous look (as holders of different social values on utility infrastructure), cannot easily form a collective choice Pareto-optimal; and confrontation preferences and visions cannot fail to take place. Empirical realities of conflictive nature of such projects are failing approach (that we would be tempted to call "simplistic"), which neutralize individual preferences through use of public economic calculation and quantification of social utility, or to buy the consent of residents in a monetary loss of well-being.

This conclusion should not be considered in favor of opponents of public projects, but it simply emphasizes the fact that a public decision had inflicted social and environmental values as well as disrespected human and property rights, in case of Chotiari reservoir project in Pakistan. Although it is difficult to develop ex-ante indirect impacts of project, but conflicts created by the project are resulted from structural factors (unilateral decision, lack of technical and scientific research, corruption, international interest, and non-existence of national resettlement policy) and proximate factors (nepotism, ethnic

diversity/disarray, and illiteracy). Thus geography of conflict reveals a strong correlation between location of the project and forceful displacement of local population, which results in a multiplication of confrontations and conflicts. In the context of our case study, we revealed a correlation between the types of conflicts and socio-economic characteristics of wetlands (a common property); we also confirmed that while governing such common pool resources all share holders must keep on-board during any decision towards management and development initiation, or it can create conflicts and confrontations otherwise.

However, the public authorities have declared this project as a "public utility" even it has damaged private property, displaced local population, deforested natural forest, declined natural beauty of the wetlands, as well as damaged outside agricultural lands with seepage and water logging. While interviewing the experts from public administration, they ceased to continue talking on the conflicts created by the project. Even though, overall socio-economic benefits of the project are outweigh its costs (argued by majority of the experts); where, no impact on the project decision has been found even local population has opposed and resisted the project through agitation, protest and press conferences. Despite of being in big number (993 families plus supporting NGOs and journalists), they seemed powerless, it is may be because of non democratic behavior of institutions in the country.

Due to non-cooperative behavior of public officials/institutions and fear among local population, during data collection (especially on involvement of stakeholders, their links and networks, types and geography and impacts of conflicts) we have faced lot of complexities and difficulties to define precisely the spatial extent of the conflicts, because in this project not only large numbers of actors were involved but it is also inflated over large area of eighteen thousand hectors. The complexities may mask some of real nature of our case study, but we have tried to figure out entire actualities of the project and the stakeholders involved for further discussions in front of researchers and planners. Moreover, while interviewing local population sometimes it was misleading to have factual information about precise spatial discrepancy in order to rebuilt spatial conflictive scale of the project. However, for this study it was proposed that data from judicial courts will also be collected in order to analyze that how conflict phases have given different shapes to the territory and its socioeconomics and geography. Moreover, it was also proposed that

compare the public voices through daily press and litigations that how many cases of the conflicts were brought to the respected courts, what were their causes, what resolution measures have been taken, and what was the degree of effectiveness for resolution measures, e.g., are those measures ensuring non reoccurrence of conflicts, etc? Unfortunately, the judicial system in the province did not cooperate for the dissemination of information regarding the conflicts in Chotiari and its surroundings. Moreover, law enforcement institutes indicated that there was no single case brought before the courts, while eighty percent of news articles indicated that dispossessed people have been referred to courts for justice, even some news papers published that "summons" were issued by the courts to public officials that they must be brought before respective courts and to face petition made by local people against them. This non cooperative behavior from judicial institutes reflects to give protection to scammers (public officials and influential landlords) who were involved in the project (Mangrio, 2005; Abro, 2004; Nauman, 2003).

In the case of Chotiari water reservoir besides the violation of international human and property codes the government itself has accepted that there were significant wrong doings in construction to compensation funds (UNEP, 2004), but dwellers are still waiting for accountability. Therefore, it is a necessity for policy makers to watch economic, social and environmental prospects (ex-post impacts) of decision making process in parallel with the conflict which the decision is going to evokes. Moreover, collective action (Petit, 2002) is recognized as a mechanism for allocating resources and effective alternative in the field of planning and management. Considering the absence of compliance with the requirement of unanimity, a solution is to use democratically and invent necessary ways of compensation to achieve public benefit of the majority. At this moment, conflicts can be helpful in the setting of the public decision, in order to assess for the (non) participation of local populations and also to act as terrors and errors: if the public decision is not fully acceptable, then it will lead to propositions and conflicts, and the subsequent issues could conduct to modifications of the project, or to a pure rejection if it is not amendable. Contrary, sometimes conflicts give birth to new territories, i.e., when circumstances require to innovate new forms of solutions, knowledge and management practices (Coser, 1982), likewise the Chotiari affectees have been united in different grounds to oppose the project and demand for their rights by leaping Community Based Organizations (CBOs) and Non Government Organizations (NGOs) (Magsi, 2012).

We have explored the underlying reasons and have recommended a number of initiatives to the governments, organizations and/or institutions for the resolution and prevention of such conflicts, which have direct impact on the peoples' livelihoods as affected communities and indirect effects on the economy as a whole. Thus this research propose a balanced approach to conflict resolution, by improving governance capacity for vigilance and mitigation measures which encourage parties to resolve their differences, i.e., through the representatives of each actors to be selected as members of committees for evaluation of compensation. While better practices, conscientious behavior and stronger enforcement will all help to reduce conflict, the key approach might be greater dialogue and understanding. One of the factors causing land use conflicts in the efficient infrastructural project implementation in developing countries is poor land records (ownership and type of land), which also held back the land markets as well as economic development of the region. There is an urgent need to update and digitalize those records and to implement land use policy with comprehensible vision of social transformation process. Pakistan needs, in fact, a package program of infrastructure facilitations widening rural development and National Resettlement Policy (NRP) along with strengthening governance practices based on rights-based approaches (Campese et al., 2009). The danger of feudal and corrupt state practices at the cost of common people rules out in this arrangement, which should permanently thrown away. As the results the reservoir has damaged the livelihood of people which can be restored through promotion of eco-tourism and fishing on the reservoir. Among the displaced families there were about five percent educated, their services might be used for the promotion of those economic activities and to recall displaced families to earn their livelihood in the region. Thus there is need of an immediate action to compensate and eradicate poverty and bribe from the Chotiari area.

There is need of a research to define relationships between land use decision for infrastructural development projects like Chotiari reservoir with territorial development and welfare of the indigenous population econometrically. In fact this would need a large amount of quantitative data on regional economics before and after the project construction. In this regard we paid visits to the statistical bureau and revenue departments of Sindh to acquire the statistical data for this study, where they neither refused to help but

also discouraged[29]. Moreover, the quantitative study of land use conflicts caused by infrastructural development project may reduce knowledge gap of such hidden conflicts and may help as tool to sustainability not only in developing countries but also in developed world. Researchers and institutions must keep in mind that links between the conflicts of land use and food conflicts might be priority of future research. Because conflicts of land use can lessen the agricultural lands (food) -where this growing world needs food sufficiently-, thus this may create food conflicts. In this regard the study of the nexus of land use conflicts, agriculture, food and water would be strategic tool to analyze the future today.

We hope that our research can support such studies to make this knowledge more operational, by having data on the conflict of land use (analysis of daily press, interviews, fieldwork, etc.), whereas, for prospective studies the complete set of territorial data (pre and post conflict) might be an additional tool to measure conflict impacts. Finally, we hope to have contributed to the improvement of knowledge by unveiling complex behaviors and actions linked with land use conflicts.

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ANNEX A

Expert interviewee

Administration	Federal Government: Water and Power Development Authority (WAPDA)	Superintendent Engineer Hub Dam
		Project director Drawat Dam
		Engineer Water wing Hyderabad Electric Supply Corporation (HESCO)
	Provincial government: Sindh Irrigation and Drainage Authority (SIDA)	Superintendent Engineer Sanghar
		Executive Engineer Left Bank Outfall Drain (LBOD)
		Ecologist
		Ex Secretary to Irrigation to Government of Sindh (retired)
Researchers	Executive Director	Agriculture and rural management services, Sindh
	Professors	Sindh Agriculture university Tando Jam
		University of Sindh, Jamshoro
		Degree college Sanghar
Legal experts	Session judge	Sanghar session court
	Lawyers	Sindh High court, Hyderabad
	Notary publics	Sanghar city
Non-government organizations (NGOs)	Coordinator	Indus Institute for Research and Education, Hyderabad
	Chairman	SAFWCO, Hyderabad
	Environmental education officer	WWF Sanghar
	Chairman	PFF, Sanghar
	Social mobilizer	Goth Sudhar Sangat, Sanghar
	Coordinator	Dharti Dost, Sanghar
	Executive Director	Sustainable Development Foundation, Sanghar
Journalists	Journalists	Sanghar press club
Landlords	Community heads	Feudal, Chotiari
		Fish contractors, Chotiari
Affected family heads	Affected family heads	Chotiari

ANNEX B

Selected daily press

N°	Name local dailies	N°	Name of national dailies
1	Kawish	1	DAWN
2	Ibrat	2	Daily times
3	Jang	3	The Nation
4	Tamer Sindh	4	The NEWS
5	Awami Awaz	5	Pakistan
6	Mehran	6	STAR
7	Khabrain		
8	Pak		
9	Sach		
10	Sham		

ANNEX C

Network matrix of stakeholders

i) Actors in favor of Chotiari reservoir

	World Bank & Other donor	Planning commission of Pakistan	WAPDA	Pakistan Environmental Protection agency	SIDA	Sindh Forest Department	Local politicians and landlords	Police department
World Bank & Other donor agencies	---	1	1	0	0	0	0	0
Planning commission of Pakistan	1	---	1	0	0	0	0	0
WAPDA	1	1	---	1	1	1	1	0
Pakistan Environmental Protection agency	0	0	1	---	0	0	0	0
SIDA	0	0	1	0	--	1	1	1
Sindh Forest Department	0	0	1	0	1	---	0	1
Local politicians and landlords	0	0	1	0	1	0	---	1
Police department	0	0	0	0	1	1	1	---

ii) Actors in opposition of Chotiari reservoir

	Local population	Pakistan Fisher-folk Forum	Agro-based industries	Market related organisations	Sangi foundation	Journalists
Local population	---	1	1	1	1	1
Pakistan Fisher-folk Forum	1	---	0	0	1	0
Agro-based industries	1	0	---	1	0	0
Market related organisations	1	0	1	---	0	0
Sangi foundation	1	1	0	0	---	0
Journalists	1	0	0	0	0	---

Note: 1= in tie; 0= not in tie

ANNEX D

Questionnaire

(Expert opinions on conflicts caused by Chotiari water reservoir)

Date of interview:……

Brief introduction of interviewee

Name of interviewee…… Designation……..

Organization……City/Taluka…….

Before construction of Chotiari reservoir

a. During feasibility study of the project, did government consult to local habitants?

b. What means of compensations were envisaged for the affected people?

After construction

Conflict perspective

a. Identification of conflicts:

- What type of conflict was recorded and which were main causes of the conflict?
- Who were main actors of the conflict?
- When did it start?
- How long it was rested?

b. Events of conflicting period:

- What were main events of the period?
- At what stages it was crucial by both sides? And how it was managed?
- What was your position during the period?
- Did the actors contact you during the conflict period?
- What were your contributions in resolving the conflict?

c. Intensity of conflict:

- Which were the stages of conflict?

- In which stage it was more intense? (Any protest/ demonstration/ agitation/ press-conference/ consultation etc, by both sides)

- In which years: (from 1994 to 2010)

- Reaction in their protest (by government / courts)

- Did it finish?

- □ Yes □ No if yes which measures have been taken:

Social impacts

a. Health:

- Health facilities and services, especially for low income individuals because they may find it difficult to meet daily needs due to the loss of facilities and services on which they depend on.

- Does proper medical care has been provided?

- □ Yes □ No If yes which type of facilities:

b. Education:

- Education facilities and services especially for the households with school age children

c. Livelihood:

- Social relationship (social barriers between displaced and the original habitants)

- Emotional attachment to a particular home or neighborhood, especially for the old age persons (it is difficult for them to adjusting in new surrounding)

- The existence of public facilities

Economic impacts

a. Economic activities and their contributions in regional economy:

- Who were the man economic actors in the region?

- Impact on regional and individual income (especially of regional actors; Agriculturist, Fishermen, Herders, & Small industrialists: i.e. mat makers / rug makers / potters, etc)

b. Unemployment:

- Unemployment due to the loss of productive assets

- The change of structure of economy (composition of economic activities) after the relocation (the main economic activities after the relocation, the creation of new employment opportunities)

- Does employment opportunities have been created for affected families?

- □ Yes □ No If yes which type of employment:

- The poverty number after the relocation (increasing or decreasing)?

c. Means of compensation:

- Does compensation has paid to each actor on loss of their resources?

□ Yes □ No

- If yes how much for each actor?

Environmental impacts

a. Landscape degradation:

- Due to wetland, there were so, many touristic places, why tourism has not been promoted instead of water reservoir or why multi-functionality of and land use policy has not been adopted?

- Loss of biodiversity, destruction of ecosystem...

b. Any additional comments you would like to make?

Thank you very much for your time…

ANNEX E

REFLEXIONS POUR UNE MEILLEURE COMPREHENSION DES CONFLITS D'USAGE DANS LES PAYS EN DEVELOPPEMENT

H. Magsi

Revision in: *Géographie Economie Société*

Résumé

Cette recherche s'intéresse à l'étude des conflits d'usage en relation étroite avec les projets d'infrastructure et qui ont provoqué l'expropriation des propriétés privées, des entreprises agricoles et d'autres ressources productives dans les pays en développement. C'est depuis cinquante ans qu'au Pakistan, les conflits d'usage ont été accentués par l'inexistence d'une politique nationale de déménagement et de préservation de droit de l'homme et surtout le droit de propriété. On s'appuyant sur les données collectées à travers le projet de réservoir de « Chotiari » au Pakistan, cette recherche tente de démontrer que les décisions unilatérales vis-à-vis des projets de développement, ont impacté négativement la viabilité de la population indigène et ont détruit les ressources naturelles, l'environnement et la fertilité du sol. Tout d'abord, en se basant sur une étude de cas et plusieurs enquêtes effectuées auprès de la population locale et divers acteurs sociaux, cet article définit les conflits d'usage du sol et décrit leur dynamisme. La deuxième partie s'intéresse à l'étude des différents rôles de chaque acteur social impliqué dans la prise de décision. Par la suite, une discussion sera faite sur l'impact de la construction du réservoir sur le territoire et aussi sur le rôle du gouvernement et ses responsabilités envers la promotion du projet. L'objectif étant de démontrer comment les pouvoirs publics ont incité la population locale à se déplacer créant ainsi un conflit et une certaine méfiance. Enfin, sur la base des résultats, l'article suggère une meilleure implication politique comme moyen efficace pour résoudre les conflits d'usages dans l'avenir.

Mots clés: Conflits d'usage, projets d'infrastructure, pays en développement, réservoir de Chotiari, Pakistan

Abstract

It is to contribute in the research on land use conflicts created by infrastructural projects, which have entailed expropriation of homes, farm businesses and other productive resources in the developing countries. In Pakistan, land use conflicts have been germinated by non existence of national resettlement policy, and human and property right violators, since five decades. For this research the data from Chotiari water reservoir project (Pakistan) has been collected, which explores that unilateral decisions towards development projects disturbed the sustainability of indigenous population, devastated natural resources, environmental services and fertile lands. First the article defines the conflicts over land use with their dynamic features; as well as the description on case study and the principle actors. The next section highlights the nature and positions of stakeholders involved. There is then a discussion on the impacts of the reservoir on the territory; governance with roles and responsibilities; and to determine the root causes and consequences by indicating how public officials have pressurized local population to displace and oppose the project. The same section also testifies that how the institutional inconsistency towards justice has lead local population in mistrust. Finally, based on the results the article offers policy implications particularly in land use conflict perspective.

Keywords: Land use conflicts, infrastructural projects, developing countries, Chotiari reservoir, Pakistan

Introduction

Il est évident que les conflits sont les désaccords qui touchent les émotions et l'identité collective des groupes et des individus concernés. Éventuellement, il ya toujours des conflits d'intérêts entre les différents utilisateurs de l'espace (Awakul et Ogunlana, 2002), qui peuvent se produire à tout moment et à tout lieu (Wehrmann, 2008). Au cours du Vingtième siècle, beaucoup de changements et de mutations des terres ont marqué le monde. On assiste souvent à une diminution remarquable des superficies des terres cultivées, les prairies ont remplacé les champs de céréales, le pâturage a beaucoup diminué et la transhumance a pratiquement disparu (Garcia-Ruiz et Teodoro, 1993). Au cours de la même période, et plus particulièrement dans les pays en développement, l'accroissement démographique et urbain (Marshall et Shortle, 2005) justifie la demande accrue en projets de développement (Singhal, 2009). Ainsi, il en résulte une forte pression sur les terres agricoles (Robertson, 2010; Deininger et Castagnini, 2006) accentuée par la mise en place de nouvelles infrastructures notamment, la construction de réservoirs pour le stockage de l'eau destinée à l'irrigation ou à l'usage urbain, l'amélioration de l'infrastructure routière, la promotion du secteur touristique à travers la construction d'hôtels, la mise en place des terrains de ski ou de camping (Garcia-Ruiz et Teodoro, 1993). Un tel usage du sol pour le développement des projets urbains et la mise en place des infrastructures implique l'expropriation d'habitations, d'entreprises agricoles et d'autres ressources productives dans de nombreuses régions.

Dans les pays en développement, beaucoup de décisions économiques et sociales prises par les gouvernements vis-à-vis des projets de développement, ont des influences négatives sur le mode de vie des communautés rurales (Barron, 2004; PNUE, 2004). Généralement, dans ces régions, la plupart de la population autochtone (qui partage des ressources communes) souffre d'un manque de justice sociale et du non respect de ses droits humains (Ostrom, 1990). Cela est dû essentiellement au grand pourcentage de personnes illettrées et à la faiblesse du niveau d'éducation et de degré de conscience sociale. Comme résultat, ces projets de développement impactent négativement la vie économique et sociale des populations provoquant ainsi de nombreuses mutations socio-spatiales et génère souvent de nombreux conflits d'usage. Récemment, la question de ce

genre de conflits d'usage du sol (Darly et Torre, 2011; Mann et Jeanneaux, 2009; Deininger et Castagnini, 2006; Campbell *et al*, 2000; Owen et al, 2000; Burton, 1993) a occupé une place centrale dans la recherche économique, géographique, sociale et politique, où la confrontation sur la construction des grands réservoirs et barrages se trouve au cœur des débats politiques dans de nombreux pays du monde (PNUE, 2004). Actuellement, la plupart des projets dans les pays en développement, font face à des oppositions de la part des acteurs locaux qui deviennent de plus en plus conscients de la nécessité de préserver leurs terres et réclament la violation de leurs droits aux acquisitions foncières et aux compensations. C'est dans ce cadre que s'insère cette recherche qui a pour objectif d'analyser le projet de construction du réservoir de Chotiari qui constitue l'un des plus grands projets d'infrastructure générateur de conflits d'usage au Pakistan. Depuis le commencement des travaux, le projet de réservoir se trouve confronté à l'opposition de construction dans tout le pays vu qu'il a entrainé de nombreuses conséquences négatives sur le mode de vie de la population locale qui jusqu'à maintenant conteste son droit à l'indemnisation.

Cette recherche, essentiellement empirique, tente alors de définir les conflits d'usage du sol crées par les projets d'infrastructure, d'évaluer les impacts du réservoir de Chotiari sur la vie sociale, économique et environnementale de la population locale et de discuter sur les origines de ces conflits et sur la faiblesse de la gouvernance. Plus précisément, nous posons l'hypothèse que la source du conflit provient essentiellement du désaccord et du non participation de la population dans le projet du réservoir (Awakul et Ogunlana, 2002). De même, l'augmentation de la concurrence sur les terres par les autres projets a provoqué aussi l'émergence de nouveaux conflits d'usage. (Singhal, 2009). Nous tentons alors de fournir une estimation quantitative qui peut aider à quantifier les pertes économiques, engendrées essentiellement par ce genre de conflit. L'article se trouve descriptif en quelques parties, mais essaie surtout de donner un exemple de projet générateur de conflits dans un pays en développement à travers une méthodologie basée sur un travail de terrain effectué auprès de la population locale. Ce projet qui, au lieu d'être une source de revenue pour cette population, il l'a obligé à migrer sans indemnités et sans respect de ses droits (Magsi, 2012). Il a aussi impacté négativement la biodiversité et a dégradé l'environnement (Magsi et Torre, 2012; WWF, 2008; Iqbal, 2004; Nauman, 2003).

L'article sera alors structuré comme suit : La première partie tente de définir et de présenter les principaux conflits d'usage dans les pays en développement. On s'appuie sur des exemples tirés de la littérature disponible et sur l'étude de cas. La deuxième partie donne un aperçu sur la méthodologie de travail qui se base sur la collecte des données et les techniques d'analyse utilisées. La troisième partie décrit les principaux résultats concernant la participation des parties concernées, les causes et les conséquences du projet, et discute sur l'opposition de la population locale et les échecs de la gouvernance. La dernière partie essaye de trouver des solutions à ce genre de conflits et propose la réconciliation entre le gouvernement et la population et la mise en place des bases d'une bonne gouvernance dans les pays en développement.

1. Conflits d'usage du sol dans les pays en développement

En se basant sur la littérature disponible, nous essayerons de définir la notion du conflit d'usage, de décrire ses formes, ses caractéristiques et bien évidemment ses impacts sur la vie socioéconomique des populations des pays en développement.

I.1. Définition et principaux caractéristiques

Au cours de ces dernières années et suite aux grandes améliorations au niveau de la recherche scientifique et de la technologie, le monde entier a été marqué par un grand développement économique dans tous les domaines. Toutefois, malgré les avantages et les améliorations qu'ils ont assurés au niveau de mode de vie, beaucoup de projets ont provoqué des tensions et de nombreux conflits entre les utilisateurs de l'espace touchés par l'aménagement et les autorités publiques, tel est le cas dans le monde en développement. En effet, un grand nombre de projets de développement économiques mal étudiés a impacté négativement le mode de vie de la population locale en les obligeant à déménager et par la suite à abandonner leurs travaux qui constituent leurs seuls moyens de subsistance. (Magsi, 2012; Tilt *et al*, 2009; Lama, 2008; Awakul et Ogunlana, 2002; PNUE, 2004). La réalisation des projets se trouve alors en face d'une population frustrée

et en colère qui s'oppose à la construction de l'infrastructure sur ces terres et qui réclament son droit d'être bien informée avant la mise en place de n'importe quel projet (Awakul et Ogunlana, 2002). Cette déception conduit souvent à l'émergence de nombreux conflits qui naissent, non seulement à cause du mal entendu entre la population et le gouvernement mais aussi à cause des différents usages des terres qui se trouvent confrontées à une concurrence entre divers travaux notamment la construction des réservoirs (Magsi, 2012), l'industrialisation, la construction des aéroports et la mise en place de l'infrastructure routière, etc. (Pham, 2010). La perte et le mauvais usage de ces terres ont de nombreuses conséquences sur la vie économique et sociale et sur la sécurité alimentaire des communautés locales, qui, se trouvent souvent dépourvues de leur seule source de revenus.

Comme exemple de conflits d'usage, selon l'Institut Social Indien (ISI) le développement et le commencement des travaux en Inde ont induit le déplacement d'environ 21,3 millions de personnes; dont 16,4 millions ont déménagé à cause de la construction des barrages, 2,55 millions à cause des mines, 1,25 millions à cause des projets industriels et 0,6 millions à cause des projets de mise en place des réserves naturelles et des parcs nationaux (Lama, 2008). En Chine, les projets d'infrastructures et d'urbanisation ont généré de nombreux conflits d'usage dû aux mauvaises négociations sur les acquisitions foncières et les désaccords de compensation (Rooij, 2007). Selon Robertson (2010) l'expropriation des terres en Chine est une question polémique sociale, où tant de maisons ont été démolies par la force en utilisant des stratégies illégales comme la mise hors tension ou couper l'eau de beaucoup de maisons. Les habitants se trouvent alors obligés de quitter leurs propriétés.

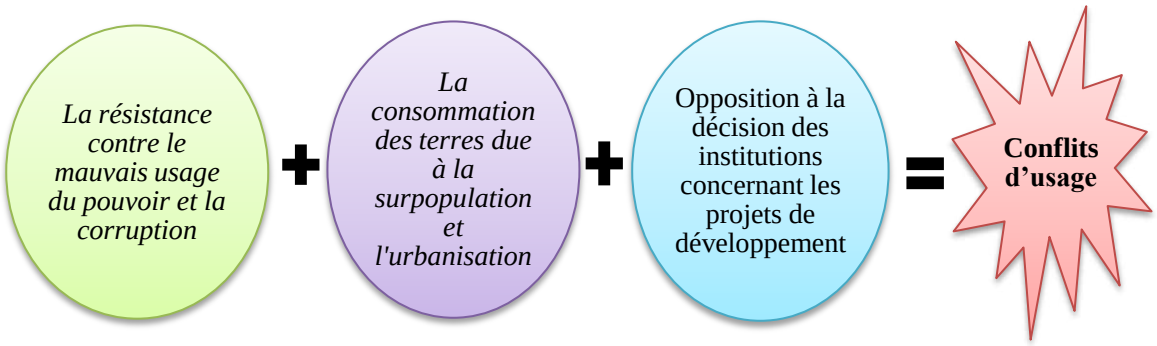
Outre les projets d'infrastructures, l'urbanisation semble être également une source de conflits dans les pays en développement (Marshall et Shortle, 2005). Dans les franges périurbaines, la construction de logements surgit rapidement et exerce une grande pression sur les terres agricoles (Darly et Torre, 2011). Ainsi, suite à l'étalement urbain inéluctable ainsi que la forte pression des infrastructures, les propriétaires fonciers se trouvent de plus en plus encouragés à vendre leurs terres à des prix plus élevés. Sans doute, les banlieues urbaines ont besoin de projets d'infrastructure pour répondre aux demandes croissantes de développement économique et de l'amélioration de mode de vie

dans les villes. C'est pour cette raison que le fait d'augmenter le nombre de logement et de diversifier les services publics (les infrastructures des routes, des parcs, des écoles, des hôpitaux, des centres sportifs, des aéroports, des gares, des crématoriums et des cimetières, des bureaux et des espaces de vente des produits manufacturés etc.) devient le résultat de la forte croissance urbaine et une nécessité de plus en plus demandée par la population (Singhal, 2009). Ainsi, plus l'usage des terres augmente et varie selon la nature des projets, plus les conflits d'usage se multiplient et deviennent plus accentués.

Les conflits d'usage du sol peuvent être définis comme des demandes concurrentielles au présent pour assister à des utilisations des terres au futur, entraînant des répercussions négatives sur d'autres usages. Ils peuvent être définis aussi comme étant des disputes sociales (Deininger et Castagnini, 2006) qui augmentent avec la participation des institutions, des industries, des développeurs, des organisations non gouvernementales, de la fonction publique et des organismes de réglementation, et sont généralement lancés par les actions d'un acteur central qui donne l'idée principale et incite aux développements des projets. Dans la plupart des cas, les conflits d'usage sont liés à la mise en place d'infrastructures initiés par les pouvoirs publics ou semi-publics.

Dans les pays en développement, les conflits d'usage des terres, en relation avec les questions liées aux inégalités sociales, émergent très vite. Par exemple, de tels conflits sont généralement déclenchés par l'exploitation injuste des terres par le gouvernement pour la mise en place des projets publics (les autoroutes, les aéroports, les industries, les travaux hydrauliques, etc.). Cette exploitation se fait souvent au dépend des propriétaires fonciers qui se trouvent obligés, même forcés, de céder leurs terres qui constituent leurs seuls moyens de subsistance (Ostrom et Nagendra, 2006). Ces conflits d'usage varient toujours en fonction de leur cadre juridique, politique et institutionnel, les contraintes économiques, les pressions, la structure sociale, l'intérêt des parties prenantes, la situation de l'environnement, l'histoire du conflit (Jones *et al,* 2005) et aussi de leur localisation géographique. En général, nous pouvons définir les conflits d'usage de l'espace comme étant le résultat de la compétition actuelle exercée sur cet espace pour son utilisation future, ce qui justifie la forte probabilité de confrontation. Nous présentons, par la suite, un résumé des caractéristiques principales qui définissent les conflits d'usage (figure 25).

Figure 25: la définition du conflit d'usage selon la presse quotidienne régionale



La figure ci-dessus indique que le conflit lié aux usages du sol est le résultat du désaccord entre les institutions, le gouvernement et le système judiciaire, dans la prise de décisions relatives à la mise en place des projets de développement. Ainsi, la décision non démocratique pour un projet d'infrastructure affecte directement la survie des propriétaires des terrains et crée des tensions qui génèrent finalement de nombreux conflits. Par conséquent, de tels conflits émergent lorsqu'il y aura une tendance à ignorer ou à contester ces décisions.

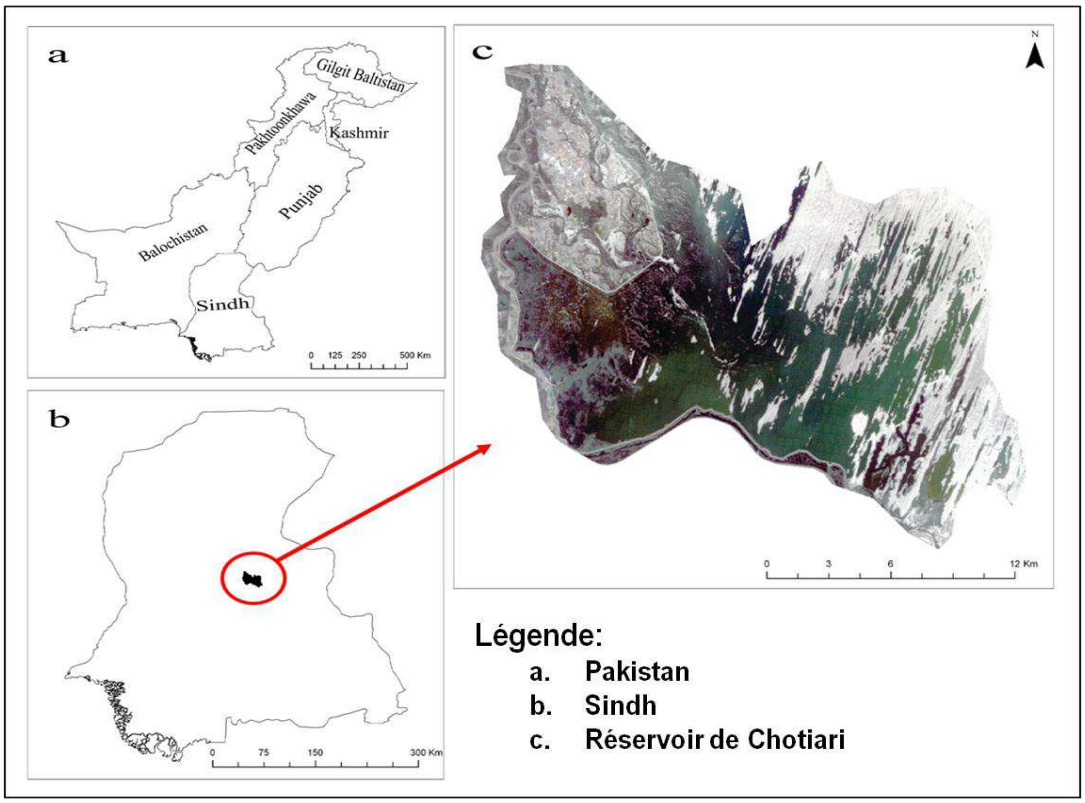
I.2. Etude de cas : Le réservoir de Chotiari

Comme exemple de projet de développement générateur de nombreux conflits d'usage, le réservoir de Chotiari au Pakistan, semble intéressant pour étudier l'origine et la nature de ces conflits (figure 26). En effet, ce projet est conçu pour augmenter la capacité de stockage des lacs existants dans la zone humide[30] de Chotiari, dont la superficie est environ 18.000 hectares. En premier lieu, le réservoir a été conçu pour stocker les eaux des crues de l'Indus pendant les saisons des inondations (de Juin à Septembre) et de libérer l'eau pendant la saison d'hiver (de Décembre à Mars), ainsi que pendant l'été (au début d'Avril à Juin). Son principal objectif était d'irriguer environ 0,12 millions

[30] Les zones humides sont définies comme des zones inondées en permanence ou occasionnellement, avec l'écoulement d'eau douce, saumâtre et salée. Comme caractéristiques générales, les zones humides possèdent les propriétés suivantes (i) la zone doit assurer la vie des animaux et des plantes, qui sont adaptés aux conditions des zones humides ; (ii) le substratum des sols non drainés doit être suffisamment saturés pour développer les conditions anaérobiques dans les couches supérieures.

d'hectares dans le pays. La capacité du réservoir est augmentée pour stocker jusqu'à 92,5 million de mètres cubes d'eau, qui inondera une zone d'environ 160 kilomètres carrés (Gouvernement du Pakistan, 1993). Le coût de construction du réservoir est susceptible d'atteindre environ 105 millions de dollars, comparativement à l'estimation précédente qui a été faite lorsque le projet devait être terminé en 1997 et qui était à d'environ de 26,3 millions de dollars (PNUE, 2004). Ce projet avait comme appuie financier, l'aide financière donnée par la Banque mondiale et le Fonds Saoudien de Développement (Abro, 2001).

Figure 26: Présentation de la zone d'étude



De point de vue richesse écologique, la zone du réservoir se caractérise par une mosaïque d'écosystèmes. Elle est très riche en faunes et flores et comporte des habitats variés de forêts riveraines, de nombreuses ressources d'eau notamment les lacs d'eau douce et d'eau saumâtre, des terres agricoles, des zones de pâturage, des dunes de sable, des roselières et des marais. Cette richesse écologique justifie l'existence de nombreuses espèces en voie de disparition (Raza, 2009). En plus de cela, plusieurs recherches et enquêtes effectuées par différents organismes et chercheurs ont signalé que Chotiari pourrait devenir la plus

grande réserve de crocodiles (Husnain *et al,* 2010; WWF, 2008 et 2007), et la station touristique la plus importante dans le pays (Laghari, 2001).

Depuis des générations, la population locale était dispersée dans les villages, à l'intérieur de la zone du réservoir et les dunes voisines. Elle formait un mélange qui pratiquaient des activités économiques variées : la pêche, l'agriculture, l'élevage, la mécanique,…etc. (WWF, 2008; gouvernement du Pakistan, 1998). Généralement, les personnes qui ne possédaient pas des terres étaient dépendantes de la pêche et de l'élevage pour leur survie (UICN, 2004). Et même si ces personnes avaient un faible niveau d'éducation et de compétence sociale, leur situation économique n'était pas très mauvaise. Le revenu moyen par mois de chaque famille a été calculé au environ de 60 euros (WWF, 2008). Malgré que ce revenu n'assurait pas une vie de luxe, mais il était suffisant pour une famille qui vivait dans cette région.

II. Matériels et méthodes utilisés

Afin d'atteindre les objectifs de cette recherche empirique qui se base essentiellement sur l'identification et l'analyse des impacts des conflits d'usage sur les projets de développements, nous avons essayé de recueillir les données à partir de différentes sources. En premier temps, noua avons mené des enquêtes structurées auprès d'experts de différentes spécialités et de différents milieux professionnels[31]. Ces enquêtes ont été réalisées avec des questionnaires semi-planifiées, où certaines questions ont été faites pour chaque expert tout en prenant en considération sa fonction, sa position, sa situation et ses expériences. Ces entretiens ont été menés dans le but de collecter le maximum d'informations sur les variables principales : la situation du pré-conflit de la région, la position des acteurs, les approches comportementales des institutions envers l'acquisition des terrains, le processus de compensation et les conséquences de la construction du réservoir sur toute la région.

[31] L'enquête auprès d'experts a été réalisée en 2010, où 32 ont été choisis parmi (a) les administrateurs de secteur de l'eau et de l'irrigation, (b) les chercheurs et les experts juridiques, (d) les organisateurs du secteur privé (ONG et journalistes), et (d) les personnes affectées par la construction du projet (chefs des familles déplacées et propriétaires de terres).

En deuxième temps et afin de comprendre la nature des tensions et du conflit ainsi que leurs causes et conséquences, nous avons recueillis les informations secondaires à partir de la presse quotidienne[32]. Bien que cette technique de collecte de données n'est pas très couramment appliquée, mais dans l'analyse des conflits d'usage, il est impératif de comprendre la voix publique concernant les trois étapes du conflit à savoir le pré-conflit, le conflit en cours et le post-conflit (Torre *et al*, 2010; Awakul et Ogunlana, 2002; Rucht et Neidhardt, 1999). En raison du manque de bibliothèques numériques et d'accès en ligne aux quotidiens régionaux, nous avons choisi de visiter les bureaux de presse afin de collecter le maximum d'informations. Nous avons recueilli aussi des documents auprès des bureaux des organisations communautaires de base (OCB) ainsi que de nombreux articles et de nouvelles publications dans les quotidiens nationaux en les téléchargeant directement depuis leurs sites. D'autres données secondaires ont été recueillies par l'analyse de documents publiés par diverses organisations publiques et privées. En effet, tout au long de cette recherche documentaire, il est important de noter que nous avons accordé une attention particulière à la fiabilité des informations et des données recueillies afin d'assurer une analyse profonde des conflits et des tensions qui sont en relation avec l'usage du sol au niveau de la région de Chotiari.

III. Résultats et discussion

Dans cette partie, nous discutons sur les principales constatations concernant l'implication des parties prenantes dans la décision ainsi que dans les impacts et les conséquences (positives ou négatives) du projet. Nous illustrons également la faiblesse du système de gouvernance lors de l'exécution du projet, face aux demandes de déménagement et d'indemnisation.

III.1. Le lien entre les acteurs : les enjeux et les comportements

32 On a sélectionné 10 quotidiens régionaux sur 21, qui publient dans la langue locale, et 6 sur 30 quotidiens régionaux parmi les journaux les plus consultés par les gens depuis 1997-2011.

Pour analyser la nature de relations qui relient les acteurs impliqués activement dans la zone d'étude, nous avons identifié et classé ces acteurs en fonction de leur nature d'appartenance (tableau 9). Ainsi, l'administration publique est représentée à plusieurs niveaux (national, provincial, régional et local) avec différentes positions politiques. De même, la population locale, les organisations commerciales, les politiciens et la catégorie riche de la société ont également été impliqués dans la zone d'étude, pour leurs divers intérêts, c'est ce qui a rendu la gestion de ce projet plus complexe et plus génératrice de conflits.

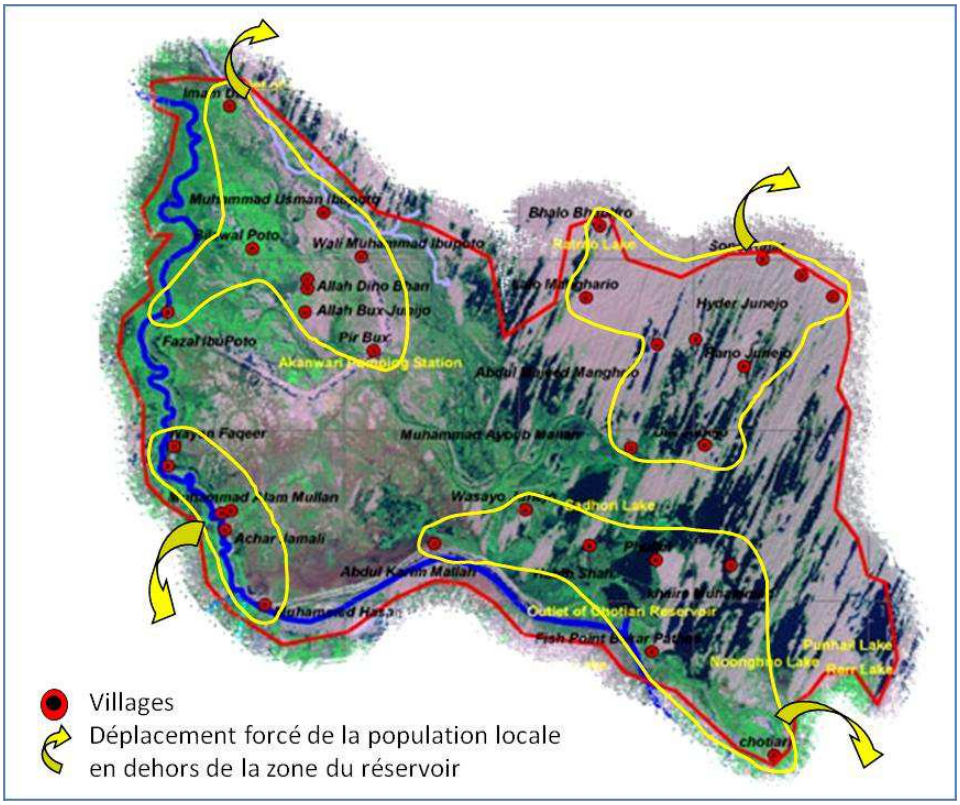
Tableau 9: Les acteurs présents dans la région d'étude

Types d'intervenants		**Acteurs**
Administration publique	Nationale	Développement d'eau et d'énergie (WAPDA) La commission de planification du Pakistan Agence de protection de l'environnement de Pakistan Ministère de l'irrigation
	Provinciale	Autorité d'irrigation et de drainage du Sind (SIDA) Département des forêts du Sind Agence de protection de l'environnement du Sind Département de gestion de la faune de Sind
	Régionale	Gouvernement de la ville Fondation Mondiale de la Faune (bureau régional)
	Locale	Le gouvernement local Agence de Réinstallation de Chotiari
Les acteurs principaux (La population locale)		Pêcheurs Agriculteurs Les éleveurs Autres (mécaniciens, plombiers, charpentiers, bûcherons, fonctionnaires gouvernementaux, éleveurs de volailles)
Marchés commerciaux		Locaux agro-industriels (poissons, légumes, coton et lait)
La catégorie puissante (intéressées pour l'accaparement des terres)		Politiciens locaux (personnalités élues) Féodal

En se basant sur la presse quotidienne et sur les enquêtes effectuées auprès des experts et de la population locale affectée dans la zone d'étude, nous avons constaté une différence d'avis entre les parties prenantes qui vivaient dans des villages dispersés dans la zone de Chotiari (figure 27) dont le plus proche se situe à une distance de 35 kilomètres loin des

centres urbains. Cet isolement social explique le manque d'informations et de conseils avant l'initiation du projet. C'est pour cette raison que la décision du réservoir se trouve en opposition de construction de la part de la population locale, alors que les autres parties qui ont des intérêts personnels à savoir les administrations publiques avec l'appui des élus locaux et d'autres acteurs externes, approuvent la décision. Pour soutenir les contestations populaires, les ONG, les journalistes et d'autres organisations volontaires ont commencé de parcourir un long chemin de débat et de lutte contre la construction du réservoir. En effet, grâce à l'analyse de la presse quotidienne, la population locale a pu exprimer son opposition et démontrer les impacts socio-économiques et environnementaux du projet à travers diverses manières, à savoir les manifestations, les agitations, les conférences de presse ainsi que les lettres envoyées aux autorités publiques et les médias électroniques.

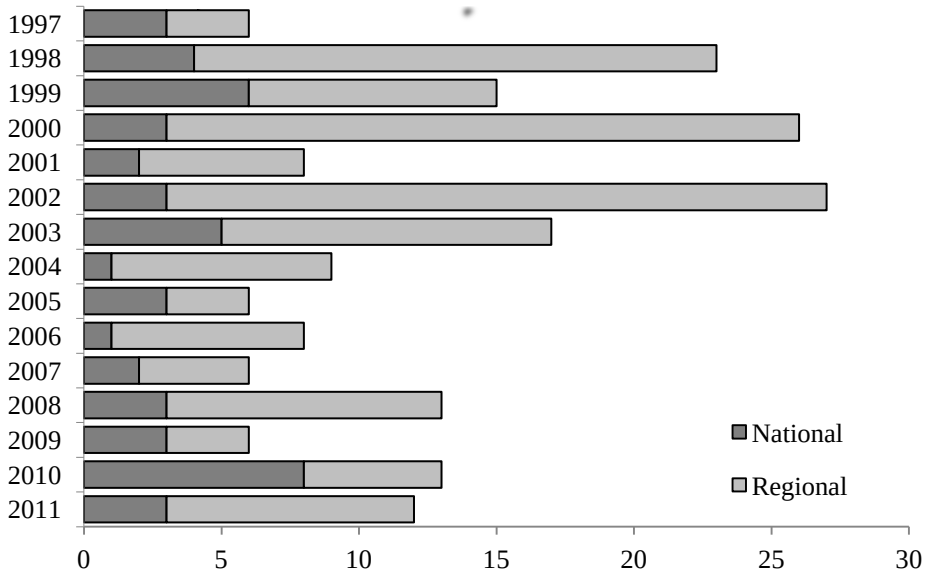
Figure 27: Les villages dispersés dans la zone de Chotiari et mouvement d'immigration et de la population locale



III.2. Les oppositions: causes et conséquences

Selon la recherche que nous avons effectuée et les résultats trouvés, nous démontrons que suite à la réaction d'opposition de la population locale contre la construction du réservoir, les journalistes locaux ont fait preuve de liberté d'expression pour transmettre les voix de réclamations et de contestations aux autorités publiques. Sur le plan scientifique, cette opposition a contribué à ouvrir de nouveaux champs de réflexions pour les chercheurs qui, depuis des années, essayent de comprendre et de résoudre les conflits d'usage dans la région de Chotiari (figure 28). Comme résultats, plus de quatre-vingts pour cent d'articles prouvent qu'il ya eu d'importants impacts liés aux acquisitions foncières, la rémunération et les plans de réinstallation. Ces publications ont été sélectionnées grâce à un critère prédéfini[33]. Les articles ont été classés et analysés selon (i) l'origine de la situation ou du conflit, (ii) le mode d'action et (iii) les conséquences (économiques, sociales ou environnementales) du projet.

Figure 28: Nombre d'articles publiés dans la presse concernant le réservoir de Chotiari



Source: La presse quotidienne (1997-2011)

[33] La procédure de sélection des articles était difficile en raison de différentes langues (le sindhi, l'ourdou et l'anglais), à cet égard, les informations et les données ont été recherchées par mots-clés spécifiques. Les mots-clés sélectionnés qui suivent le mot «Chotiari » sont comme suit: personnes affectées, agriculture, avantages sociaux, conflits, coûts, barrage, développement, déplacements, écologie, économie, environnement, pêche, conférence de presse, projets, protestation, réadaptation, réservoirs, zones humides.

La presse quotidienne indique différents titres thématiques: "le respect de nos activités traditionnelles", "sauver nos ressources naturelles", "pour arrêter le déplacement de la population locale», « pour arrêter la construction du barrage", etc. Ces titres montrent bien la relation étroite qui relie la population locale à ses activités naturelles et traditionnelles ainsi qu'à son environnement ce qui nous permet de bien comprendre la nature des conflits existants. De même, il ya aussi des suggestions pour la promotion d'autres activités économiques en relation avec le tourisme et la protection de l'environnement, nous citons par exemples ces titres : «pour promouvoir le tourisme", "pour protéger les zones humides considérées comme parc national", "pour protéger la vie naturelle", etc. Cette volonté de créer d'autres ressources économiques qui ne posent aucun risque et qui sont en relation avec l'environnement est susceptible de créer d'autres opportunités de travail pour les communautés locales tout en préservant la nature et l'écosystème très fragile de la zone de réservoir.

Actuellement et selon les experts, à cause du projet de construction de réservoir, les familles qui vivaient dans la région depuis de nombreuses générations ont été forcées non seulement à quitter leurs terres mais aussi à laisser leurs seuls moyens de subsistance (Magsi, 2012). Les experts ainsi que la presse quotidienne ont accusé les élus locaux et la catégorie riche de la société (féodal), qui sont fortement impliqués dans le projet de construction du réservoir, d'avoir des intérêts personnels et de mauvaises intentions derrières leur décision, telles que la souscription des contrats de pêche pour des personnes bien spécifiques au dépend des autres et peut être aussi la volonté de déposséder la population locale de leurs droits de propriété, etc…Suite à cela, plusieurs manifestations ont été faites de la part des personnes affectées qui réclament leurs droits d'avoir le maximum d'informations concernant le projet et d'avoir la liste officielle détaillée des personnes qui ont le droit de compensations (sous forme de maisons ou de terres) et aussi de ceux qui ont été déjà indemnisés. C'est ce manque de transparence et de responsabilité de la part des autorités publiques qui a augmenté la corruption au niveau local et a généré le conflit.

Pour une analyse plus détaillée de ce qu'on a déjà dit, nous avons vu important de visualiser, de quantifier et d'anticiper la dynamique des facteurs structurels et de

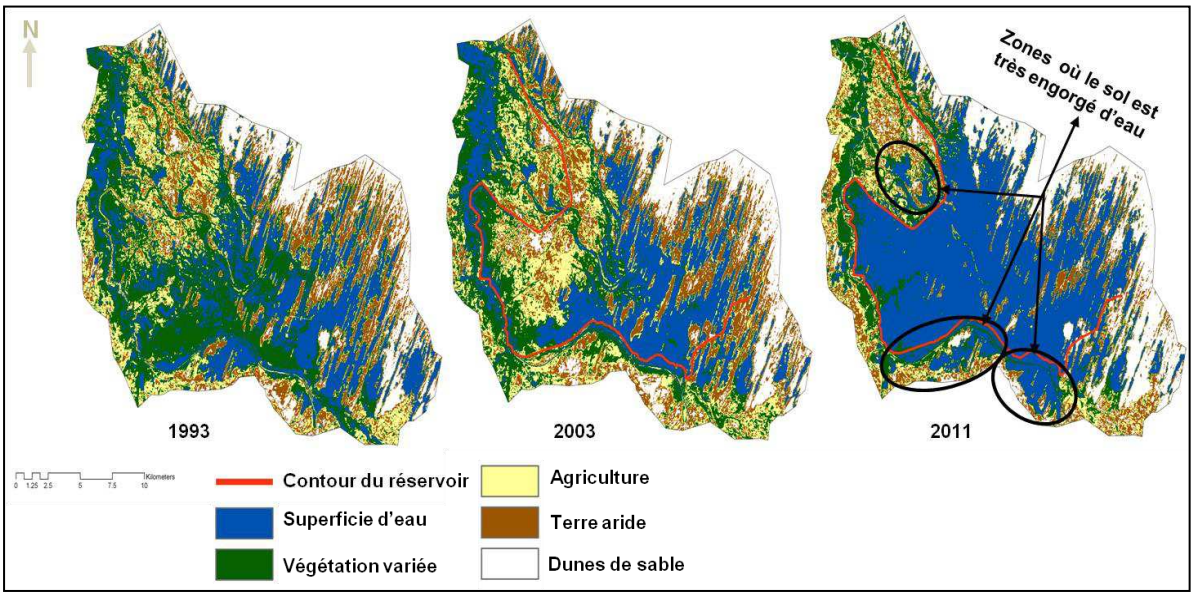
proximité, qui ont généré, non seulement l'ascension des conflits d'usage des sols, mais aussi de nombreux troubles au niveau de la population locale. En effet, avant la construction du réservoir, la majeure partie des zones humides de la région de Chotiari était habitée par la population locale (Nauman *et al,* 2001) qui bénéficiait de tous les droits de propriété. Mais la plupart des propriétaires étaient pauvres, analphabètes et n'avaient pas un niveau suffisant de conscience sociale et d'éducation (Khan, 2006). Dans cette situation, certains intervenants de l'extérieur ont profité de ces lacunes pour créer de faux documents de propriété et de fausses listes de compensations au dépend des personnes réellement concernées (Nauman, 2003). Alors que la corruption des fonctionnaires est un fait indéniable dans le pays (Khan, 2006) on trouve que pour le cas du réservoir de Chotiari, c'est le gouvernement qui autorise et exerce lui même la corruption et le détournement des fonds (Iqbal, 2004). De même, c'est depuis cinq décennies que le pays encourage et réalise les projets de développement (PNUE, 2004), mais il n'a pas mis en place une politique nationale de réinstallation. «En dépit des conflits de réinstallation et d'indemnisation dans le pays, les législateurs n'ont pas pensé à mettre en place une politique de réinstallation propre à chacun d'entre nous », a affirmé le chef d'une famille déplacée. Normalement, les institutions sont chargées de mettre en place une interface sociale entre la population et les autorités publiques (Ostrom, 1990). Mais, on trouve qu'au Pakistan, la plupart des propriétaires ont des confrontations avec les institutions existantes à cause de leur mauvaise structure, mauvaise gestion, leur ignorance et leur comportement bureaucratique (Khan, 2006; Nauman, 2003). On peut noter comme exemple de leur inefficacité, le système d'enregistrement foncier qui est très ancien et très complexe avec une longue hiérarchie (Ali et Nasir, 2001).

Au Pakistan les droits de propriété sont constitutionnellement établis de manière à permettre aux propriétaires de prendre les décisions concernant l'usage de leurs terres. Concernant les terres destinées à l'usage public, l'indemnisation doit prendre en considération leurs valeurs réelles qui correspondent aux prix de marché actuel (Khan, 2006). A l'inverse, dans le cas du projet de Chotiari, aucune enquête sérieuse n'a été menée pour l'évaluation des dommages qui ont touché les moyens de subsistance de la population locale, transmis, depuis des siècles d'une génération à une autre. Les experts affirment que, dans le cas du projet de Chotiari, les autorités publiques ont complètement ignoré les situations d'opposition, l'expropriation et la corruption. Nous avons déjà

indiqué que cette ignorance des droits des personnes affectées est due à l'implication de plusieurs parties telles que les politiciens et les fonctionnaires dans le projet de construction. Certaines de ces personnes ont profité de leur pouvoir pour atteindre leurs propres intérêts au dépend des autres (Eitzen et Zinn, 1990; Bredariol et Magrini, 2003). C'est pour cette raison que la population qui n'a pas été conseillée lors de la planification et la mise en œuvre du projet, décident de développer des voix antagonistes plutôt que d'accepter la décision du projet.

D'un autre côté, le projet a non seulement créé d'importants impacts socio-économiques, mais a aussi entraîné des destructions à longs termes au niveau de l'environnement (Magsi et Torre, 2012; Nauman et al, 2001). Les habitats de la faune et la flore qui sont uniques dans la région ont subi de nombreux dégâts et se trouvent fragmentés. De même, le volume d'eau stockée dans le réservoir a submergé et a détruit la forêt riveraine, les parcours et les terres aboutissant ainsi à la perte de la biodiversité et des fourrages. A cause de la faible qualité de terre sur les berges, la montée de l'eau est devenue une source de destruction des terres agricoles suite à d'infiltration et d'engorgement du sol (figure 29).

Figure 29: L'augmentation de volume d'eau et ses impacts sur les terres agricoles et les ressources naturelles



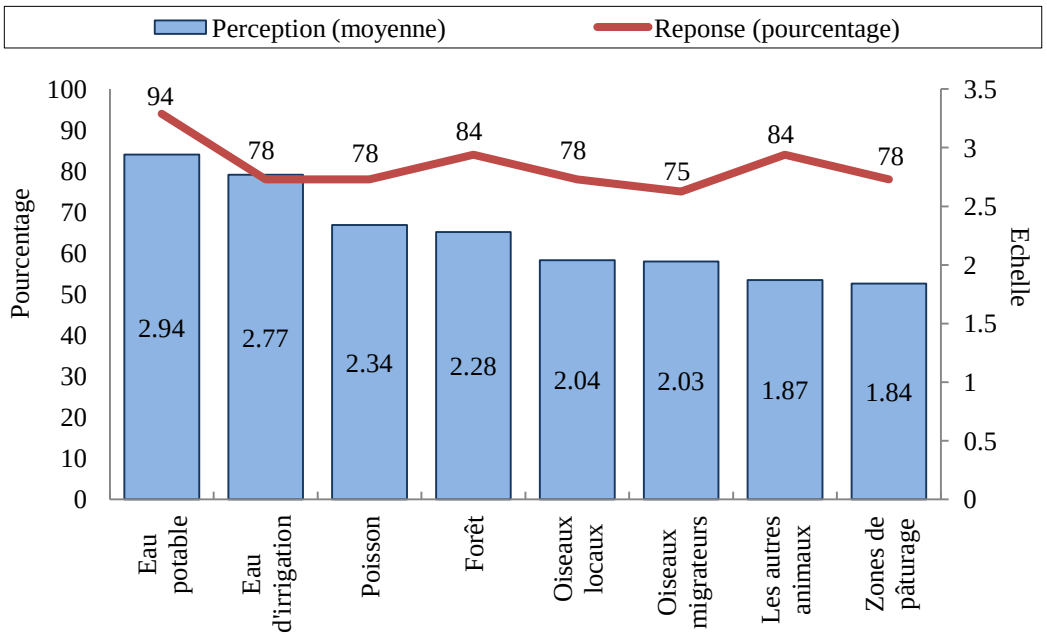
Source: Landsat, Avril 2011

Comme dans le reste du monde, l'évaluation d'impact environnemental des projets d'infrastructure au Pakistan est obligatoire. Mais il manque encore de bonnes stratégies pour protéger les ressources socio-économiques et environnementales des communautés concernées (Aslam, 2006). Compte tenu des pertes de ressources naturelles dans la région de Chotiari (destruction des zones de pâturage, l'épuisement des poissons, la déforestation et la perte de biodiversité), on peut envisager que les pertes économiques du projet de réservoir sont beaucoup plus élevés que leurs bénéfices.

Lors de l'enquête effectuée pour savoir et évaluer les avis des experts et de la population locale sur le degré de dégradation des ressources naturelles, nous avons posé la question suivante « Est-ce que les ressources naturelles ont été fortement dégradées au cours de ces cinq dernières années à cause du début de la construction du réservoir ? ». Afin d'analyser les réponses à cette question, nous avons utilisé l'échelle psychométrique de Likert[34]. Les symboles de cette échelle permettent d'évaluer les différents types de réponse ; ainsi le symbole 1 représente « un accord fort » ; 2 représente « un accord normal »; 3 représente « indécis », 4 représente « en désaccord » et 5 représente « fortement en désaccord » (voir figure 30).

[34] Une approche couramment utilisée pour mesurer les réponses (selon l'échelle psychométrique) lors du sondage effectué sous forme de questionnaires (Likert, 1932).

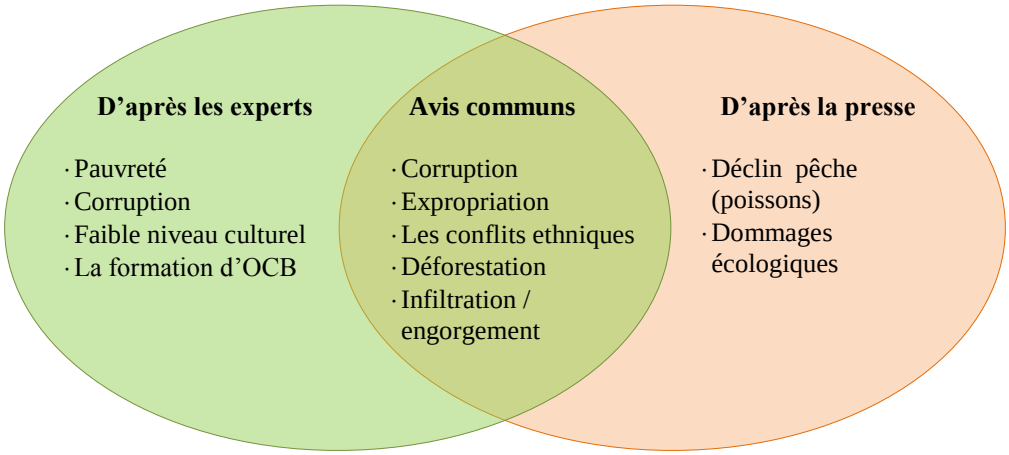
Figure 30: Degré de dégradation des ressources naturelles



Source: Données collectées à partir des opinions d'experts

La figure ci-dessus indique que la majorité des personnes questionnées étaient indécises quant à la baisse de la qualité et de la quantité d'eau potable et d'irrigation. Pour les questions relatives à l'épuisement des autres ressources naturelles, la majorité a été d'accord sur le déclin de la pêche et l'épuisement de la forêt en oiseaux migrateurs et d'autres espèces rares et aussi la diminution des terres de pâturage. Les estimations ci-dessus montrent que la population locale s'attache beaucoup à son environnement naturel et s'inquiète sur son devenir après la construction du réservoir. Les experts ont aussi des doutes sur la capacité de résistance de la faune qui se trouve au niveau des zones environnantes du réservoir et aux risques de l'augmentation de l'eau sur les parcelles agricoles. A travers le schéma ci-dessous nous essayons de présenter les avis des experts et de la presse quotidienne sur les conséquences (positives ou négatives) de la construction du réservoir sur son environnement socio-économique (figure 31).

Figure 31: Avis des experts et de la presse quotidienne sur les conséquences de la construction du réservoir



III.3. La formation d'organisations communautaires de base (OCB)

Dans cette analyse, nous essayerons de démontrer que les conflits d'usage n'ont pas seulement des effets négatifs mais aussi positifs (Baron, 1991). Certains conflits peuvent être déterminants dans la prise de décision : ils peuvent mettre l'accent sur les problèmes importants, encourager l'émergence de nouvelles approches ou augmenter les performances des acteurs, etc. Pour notre cas, la pression des autorités publics et des bailleurs de fonds pour la mise en place du réservoir ont incité la population locale à s'unir et à protester. De même, les communautés locales, les ONG, les journalistes et d'autres organisations volontaires sont toujours entrain de se battre pour la mise en place d'une action cohérente qui a pour objectif non seulement l'opposition contre la construction du réservoir mais aussi la préservation des zones humides de Chotiari à travers la promotion d'un parc national qui sera un centre d'attrait touristique de forte importance (Laghari, 2001). Au cours des années, cette opposition sur le projet de la part de la population locale et d'autres intervenants a augmenté d'une manière remarquable surtout lorsqu'ils ont commencé à remarquer la corruption dans les opérations de compensation sans oublier les impacts négatifs du projet sur les ressources naturelles telles que la mauvaise exploitation de l'eau ainsi que les dégradations environnementales et écologiques. Tout cela leur a encouragé la population locale à mettre en place de nombreux objectifs et à former des organisations communautaires de base (OCB) (Abro,

2001). En effet, la première organisation communautaire a été formée juste avant le processus d'indemnisation qui a débuté en 1995. Cette organisation nommée *Anjuman Mutasreen Chotiari* (Union des affectées de Chotiari) a représenté principalement les petits propriétaires et les locataires. Cette OCB, qui a été toujours confrontée à l'Agence de Réinstallation de Chotiari et les acteurs administratifs sur les questions de rémunération, a réussi à découvrir la corruption dans le processus d'indemnisation et a établit une liste des faux propriétaires fonciers.

Une autre OCB nommée *Makhi Welfare Organization* (Organisation de Bien-être de forêt de *Makhi*) a été aussi formée. Elle rassemble de nombreuses personnes affectées, en particulier, les éleveurs et les pêcheurs. Son rôle est en relation étroite avec l'éducation à la réinstallation, la sensibilisation de la population locale et aussi la protection de l'environnement de la forêt de *Makhi*. D'autre part, *Rural Women Development Organization* (l'Organisation de Développement de la Femme Rurale) est une organisation qui a été faite pour résoudre les problèmes de la femme rurale. Elle organise souvent des séminaires en liaison avec les questions d'éducation et de santé. Et vu que la majorité des personnes affectées par le projet de construction du réservoir sont des femmes (presque la moitié), l'objectif principal de l'organisation est de les sensibiliser et les préparer à la confrontation avec le gouvernement pour contester leurs droits (Nauman *et al*, 2001). Une autre organisation a été récemment formée. Elle est nommée *Charagah Bachayo Tahreek* (Mouvement pour la Protection du Pâturage) et son rôle principal est de collecter les voix qui contestent la baisse des prairies naturelles et la dégradation de l'environnement à cause de la construction du réservoir.

III.4. La gouvernance: rôles et responsabilités

Sur le plan gouvernemental, il importe de dire que, depuis le début du projet de Chotiari, la révision des nombreux dégâts liés à l'acquisition des terres, des documents de compensation et des plans de réinstallation a été faite plusieurs fois par les autorités publiques mais aucune publication n'a été diffusée (Iqbal, 2004). Dans la région de *Patipota*, située à environ 80 kilomètres au nord du réservoir, le gouvernement a déjà fixé l'emplacement du site de réinstallation des familles déplacées. Au début, certains travaux

d'aménagement ont été réalisés, mais à la fin, il a été déclaré que l'aménagement des sites n'est pas faisable, et le régime d'indemnisation doit être révisé (Nauman *et al,* 2001). Pour se justifier, les autorités publiques ont défendu, en plusieurs reprises, les objectifs sociaux du projet tels que l'amélioration de mode de vie des communautés locales (Iqbal, 2004; Mangrio, 2005).

Généralement, la transparence en ce qui concerne les politiques, les programmes, les objectifs et la diffusion des informations est nécessaire pour la réussite des projets de développement et la prévention des conflits. Par contre, les rapports, les documents et renseignements relatifs au projet du réservoir de Chotiari se trouvent en possession de divers organismes, à savoir, l'Agence de Réinstallation de Chotiari, la Comité de la Gestion Environnementale, les Fonds Saoudien de Développement, l'Autorité d'Irrigation et de Drainage du Sind, l'Autorité de Développement de l'Eau et de l'énergie et la Banque Mondiale. De même, les équipes de mission chargées de la visite de la région de Chotiari pendant l'exécution du projet, n'ont jamais partagé les données et les informations concernant le projet avec la population locale affectée, les organisations communautaires ou avec les ONG.

Selon les experts, l'indemnisation a été versée à 260 familles d'un total de 993, qui sont soutenues par les propriétaires et les politiciens locaux. Ainsi, la catégorie puissante (autorités publiques, féodal, politiciens…) a réussi à donner environ 1 millions d'euros pour les faux propriétaires, ce qui représente environ 80 pour cent du montant total des décaissements (Nauman, 2003). Suite à cela, beaucoup de familles ont déposé plainte auprès des tribunaux de justice, soit parce qu'elles refusent la baisse du montant des compensations ou parce qu'elles n'ont pas été déclarées comme affectées. Comme première réaction, les tribunaux ont commencé à traiter cette affaire de corruption et de rémunération, mais l'ont abandonnée après l'inauguration du réservoir en 2003 à cause de l'implication de la catégorie puissante dans cette affaire (Mangrio, 2005).

En 1998 et après la découverte de la mauvaise gouvernance vis-à-vis du projet et des habitants, le gouvernement a élaboré un plan de gestion environnementale et de surveillance. Ce plan avait pour but de procéder à une prise de décision efficace pour résoudre les confrontations émergentes. Il a fortement recommandé : (i) la compensation

des terres selon la loi, (ii) le paiement immédiat du montant de l'indemnité pour les personnes affectées, (iii) la mise en œuvre des recommandations concernant les études d'impacts environnementaux, (iv) la création d'un autre plan de réinstallation pour les personnes affectées, et (v) la modification dans le processus de stockage des eaux des crues, en particulier pendant la saison des pluies. Encore une fois, comme la plupart des autres projets initiés dans le pays, aucune action sur les recommandations ci-dessus n'a été réalisée. En réalité, il est nécessaire de souligner que l'échec de la gouvernance est le résultat de la non participation du public dans les plans de mise en œuvre, de réinstallation et de compensation ainsi qu'à l'inexistence d'un contrôle démocratique sur les organismes de planification et d'exécution du projet. Toutefois, malgré qu'elle n'a pas pu contribuer à la prévention des conflits d'usage des sols, la bonne gouvernance constitue toujours une source de développement économique durable de l'état (Torre et Traversac, 2011; Ostrom et Nagendra, 2006).

IV. Conclusion et perspectives

Cet article explore les principales caractéristiques des conflits d'usage des sols dans les pays en développement, et en particulier dans la région de réservoir de Chotiari au Pakistan. Dans cette région, les conflits peuvent être définis comme une relation incompatible entre les acteurs, leurs comportements, leurs attitudes, leurs perceptions et leurs attentes ou volontés vis-à-vis de l'utilisation concurrentielle de leurs terres. Dans cet article, nous avons essayé d'analyser les comportements, les enjeux et les relations entre les parties prenantes afin de bien comprendre la nature des intentions et des intérêts qui sont en rapport ou derrière la décision du projet et les principales causes et conséquences. En effet, nous avons pu démontrer que la principale source de conflits provient de la réaction des agents publics et de leurs acteurs administratifs, en association avec les propriétaires locaux, qui ont utilisé leur pouvoir politique et financier pour exercer beaucoup de pressions sur les habitants de la zone du réservoir. Ces acteurs semblaient prêts à faire n'importe quoi pour la construction du projet qui répondait à leurs propres intérêts. A l'inverse, la population locale devient de plus en plus consciente de leurs mauvaises intentions et a commencé un long voyage de confrontation, qui s'est

matérialisé par les nombreuses manifestations et réclamations effectuées dans le but de faire entendre leurs voix.

Les résultats montrent que les conflits ont pour origine les décisions imposées par les pouvoirs publics ainsi que la participation des acteurs puissants dans l'initiation des projets de développement, sans prendre l'avis de la population locale concernée ou même les informer et les conseiller avant le début des projets . Il est également observé que ce projet constitue un risque et une menace pour les activités économiques de la région vu qu'il ne correspond pas aux politiques de la gestion durable souhaités. D'un autre côté, on note la présence d'une mauvaise gouvernance, des incohérences institutionnelles, des violations des droits de l'homme ainsi qu'une forte destruction écologique et environnementale. Comme solution envisagée, une forte volonté politique et institutionnelle capable de prendre des mesures de lutte efficaces contre les contrevenants doit avoir lieu. De même, il faut renforcer la relation entre le milieu universitaire et les ONG afin de les impliquer dans le processus de révision des études de cas, où une procédure de suivi doit être strictement adoptée.

Les décisions à l'égard des projets de développement comme le réservoir de Chotiari doivent être faites à la lumière des causes et des conséquences des conflits dominants relatifs aux usages du sol. Cela aidera à mettre en place les stratégies d'une meilleure gestion des conflits qui se base essentiellement sur la coopération et la décision collective de toutes les parties concernées. Comme outil de gestion, la diffusion des connaissances sur le projet avant son commencement à travers le système démocratique peut être l'une des meilleures solutions pour éviter ces conflits à un stade précoce. C'est la responsabilité des acteurs administratifs, politiques et économiques du pays qui doivent gérer efficacement les affaires de l'Etat tout en impliquant les acteurs publics et la population locale dans la prise de décision ce qui leur permet de mieux exercer leurs droits et par la suite de régler les tensions avant qu'elles se transforment en conflits.

Les initiations juridiques telles que la mise en œuvre, la promotion des droits de propriété et la sensibilisation des utilisateurs de l'espace, doivent être poursuivies par le gouvernement fédéral du Pakistan afin de développer un système qui peut stimuler le changement et assurer la sécurité des habitants locaux dans le pays. De même, avant de

planifier un projet de développement, un système de recours liés à l'acquisition des terres, de compensation et de déménagement doit être clairement établi, de façon à ce que les personnes concernées doivent regagner leur niveau de vie ancien et de prestige. Une telle stratégie, permettra aux familles affectées par la construction des projets de développement d'être remboursées par le gouvernement de toutes les pertes économiques et sociales, ce qui évitera la reproduction de ce genre de conflit à l'avenir.

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Abstract

This research discusses the tools of land use conflict analysis and methods for their prevention and management, on the basis of existing conflicts created by infrastructural projects in developing countries. Such conflicts have entailed expropriation of homes, farm businesses and other productive resources in rural settings. Specifically, we use data from the case of Chotiari water reservoir project in Pakistan, where we put stress on project impacts on socio-economic and natural resource values in the region, by highlighting root causes of the conflicts with response to land use decision. We also paid attention on the network of actors over land use and property right violation, which have created dissimilar power distribution and significant land use conflicts. Through this research we show that conflicts created by the project have resulted from structural factors (unilateral decision, lack of technical and scientific investigation, corruption, international interest, and non-existence of national resettlement policy) and proximate factors (nepotism, ethnic diversity/disarray, and illiteracy). Moreover, forceful displacement of local population has led for multiplication of the confrontations. From these results, we provide helpful insights and information for the recommendations in terms of land use conflict prevention and management, mainly based on proximity relations analysis.

Keywords: Land use conflicts; Governance; Social networks; Proximity relations; Prevention; Chotiari reservoir; Pakistan

Résumé

Ce travail est consacré à l'analyse des outils et méthodes de prévention et de pilotage des conflits d'usage dans les pays en voie de développement, et plus particulièrement à l'étude des conflits liés à l'installation de nouvelles infrastructures, qui ont provoqué l'expropriation d'habitations et d'exploitations agricoles ainsi que la disparition de nombreuses ressources productives dans les espaces ruraux. L'étude se fonde sur le cas du barrage de Chotiari, au Pakistan, avec une analyse de l'impact du projet sur les ressources naturelles et socio-économiques de la région, ainsi que des racines de ce conflit. Une attention particulière est accordée au réseau d'acteurs utilisateurs de l'espace, ainsi qu'à la violation des droits de propriété, qui a provoqué des asymétries de pouvoir et conduit à la montée des conflits d'usage de l'espace. Notre recherche montre que les conflits résultant du lancement de ce projet proviennent de causes structurelles (tels que des décisions unilatérales, l'absence d'études et d'expertises scientifiques et techniques, la corruption, l'importance d'intérêt internationaux et l'absence de politique nationale d'intégration) comme de facteurs plus locaux (comme le népotisme, la diversité ethnique et l'illettrisme). Par ailleurs, les déplacements forcés de populations locales ont conduit à une multiplication des oppositions et des confrontations. Pour finir nous tirons de ces résultats un certain nombre de recommandations en termes de prévention et de pilotage des conflits, fondées sur la mobilisation des relations de proximité.

Mots clés: Conflits d'usage; Gouvernance; Réseaux sociaux; Relations de proximités; Prévention; Réservoir de Chotiari; Pakistan