

Background Appendix 4

Literature Review

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Understanding the nature of conflict, its causes and means of resolution have occupied academic disciplines for much of the 20th century¹. The following document provides a review of some of the literature on conflict. It aims to synthesise some of the major theoretical arguments on how conflict can be defined, how it is structured and why it develops.

The study of conflict does not sit happily within any one academic discipline and in fact each discipline adopts a slightly different treatment of the issue. At a very basic level sociologists see conflict as a function of social structure and an inimical part of the way society evolves. Political science sees conflict as a function of power relations, Marxist and Gramscian thought would see class struggle as the root cause. Economists on the other hand regard conflict as the result of rational decision making by an individual seeking to maximise their personal utility given a pool of scarce resources and might even contest that conflict and competition were one and the same². Thus, conflict is not only a complex issue, but the wide variety of views on the subject from a wide range of disciplines further complicates the picture. Much of the literature on conflict, as a result, tends to draw its support from the three major social sciences: sociology, politics and economics. The following does not attempt to distinguish the 'correct' discipline for analysis, rather to analyse the contradictory and complementary theory offered by the disciplines for the study of conflict.

This appendix is divided into 4 parts. The first part reviews the theoretical literature on why and how conflicts develop, part two takes a brief look at the theory of conflict resolution; part three concentrates on the issues that are pertinent to the discussion of natural resource conflict whilst part four provides a brief review of some case studies available on natural resource conflicts.

Some definitions of conflict

In order to study conflict it is essential to be able to identify it and in order to do this it has to be identified. This however is no easy task. The Dictionary of Social Sciences gives five possible definitions of conflict:

- 1) the indirect pursuit of mutually exclusive goals by eliminating or weakening the opposition
- 2) opposition process lacking a co-operative element
- 3) situation of goal incompatibility between individuals or groups
- 4) competitive situation in which each party seeks position he knows is incompatible with wishes of the other (Boulding)
- 5) fundamental opposition in society or group

Conflicts can include all altercations from those at the household level through those organised or instigated by pressure groups and social movements (environmentalists, feminists etc) right up to armed violent conflict, it can occur between sections of the same community, between communities and higher levels of authority and between

¹ For a history of social conflict going back to the 18th century see Oberschall (1973).

² The distinction between these two is by no means governed by hard and fast rules. However, a useful measure might be that competition involves rules, understood and recognised by the players in the game whilst conflict represents a situation where those rules are no longer considered legitimate or sustainable. An economic argument might state that under competition one has an efficient and equitable allocation of resources whereas under conflict the efficiency and equitability is undermined.

national governments. Herein lies the greatest problem – distinguishing between different types of conflict. Oberschall (1973:30) distinguishes between the Weberian notion of ‘conflict as action’ and ‘social conflict’ as defined by Coser. The former he considers too aligned to class struggle and physical violence whilst he claims that the latter definition allows for the non-violent differing of opinions and values. Wallace (1993) distinguishes on the basis of coercion – non-coercive or peaceful conflicts as opposed to coercive or violent conflict.

That conflicts are wide ranging in their possible definitions is evidenced by the numerous descriptions of them that appear in the literature. They can range from simple, non-violent disputes with positive outcomes (such as a football match, Powelson, 1972:34; Boulding, 1977:26) through spontaneous, poorly organised turmoil (riots) to highly organised and very violent (war). Conflicts can also be non-violent, well organised and focussed on changing government policy (Rothgeb, 1996:188). Hirschleifer (1991) describes conflict as the opposite condition to production: because force is used to acquire goods rather than using manpower to make them. Boulding (1977:26) describes conflict as a goal-directed activity designed to improve the position of one party at the expense of the other. Simmel (in Coser, 1972:34) describes conflict as the element that regulates relationships: the means by which society holds itself together by establishing consensus within groups.

While all the above might provide very different interpretations of conflict, there are a number of issues highlighted here that may help define conflicts. Firstly, conflict has a role to play in society although this might only be obvious *ex post*. Whether that role is positive or negative is open to debate (see below) and dictated by the context of the dispute. Secondly, conflict is fundamentally about a disagreement of objectives or values. The degree of disagreement and the nature of the objectives affect the type of conflict that emerges, this is discussed below. Thirdly, the presence of violence or physical interaction is a sufficient but not necessary condition for conflict.

However, this does not provide any concise definition that helps distinguish between the personal quarrel, the social movement in conflict with the state or the armed uprising. Much of the problem in this endeavour comes down to semantics but there is an avenue of study that has, to an extent, overcome this. Game theory is a tool for understanding decision making and is used by all three social sciences. In the classic decision making model (the Prisoner’s Dilemma³), the best possible move for player A given the best possible move for player B is to not co-operate. Thus the socially optimal outcome of the ‘game’ is not a Nash Equilibrium⁴ (Gibbons, 1992). Therefore failure to produce a Nash Equilibrium result to a decision making process could be defined as conflict because it is a situation of non-cooperation. (Jennings, 1999 pers. comm; Parker and King, 1995; Varian, 1990).

³ This is but one of a number of ‘games’ used by game theory to analyse decisions. In the prisoners’ dilemma two individuals, in separate rooms, have to decide whether to confess to a crime or deny it. If both deny they get a lesser sentence than if they both confess, but should one confess and the other not, the confessor gets an even lower sentence than the both deny option, but the one that denies gets a much higher sentence. The dilemma is thus attempting to second guess the decision of the other prisoner while trying to ensure the best outcome for oneself.

⁴ Briefly, a Nash Equilibrium occurs when player A makes the best possible decision given the best possible decision for Player B.

Although the term ‘conflict’ often has negative values attached to it, this is not necessarily the case (see for example Warner and Jones, 1998). Conflict is negative when the outcomes are a zero-sum game (no-one benefits) rather than a positive sum-game (everyone benefits) (Powelson, 1972). The deadweight loss of social resources as a result of diverted resources (Neary, 1997:493) – the guns vs butter argument⁵ is also an example of negative conflict and best describes ‘armed conflict’ and wars.

Conflict can be positive because it encourages goods to be produced more cheaply, government to become more efficient, flaws in the set-up of institutions (from marriage to tax to clubs) to be ironed out and allows society to function efficiently by resolving small conflicts often (Powelson, 1972)⁶. Conflicts thus can also be positive because they can be a catalyst for change. Because conflicts often cannot be ignored there is a chance that the underlying cause of the conflict will be solved. Because dealing with the underlying cause of the conflict will, of necessity cause change (form A of society causes conflict, form B doesn’t) conflict can act as a positive catalyst. Boulding, however, points out that this is not always the case. If the political climate militates against change because the system is under the control of a more powerful fraction than the instigators of conflicts, change is unlikely to result (Boulding, 1966: 245).

Conflicts are dynamic and need to be studied as such. As conflicts progress, minor compromises are reached, the conflict changes as a result and moves on until a state of equilibrium is reached (Boulding, 1966: 236; Dixon, 1996:655). Thus, given the right context conflict is a fundamental societal need because it provides the arena within which debates are held and decisions taken. More fundamentally, Powelson (1972:54) argues that if there were never any conflict over the immediate goals, the ultimate goals which arise from the immediate ones would not exist. In other words, society and its institutions are the product of repeated conflict, negotiation, disagreement and compromise (Powelson, 1972:13; Jabri, 1996:54).

In order to help clarify the position on whether conflict is positive or negative it is often helpful to look at what the conflict is over and how fundamental that disagreement is to the social *status quo*.

Conflicts have been categorised as either being ‘over consensus’ or ‘within consensus’ and as being over the ‘ultimate’ or ‘immediate goals’ (Powelson, 1972:52). Aubert (1963) describes conflicts as dissensual (over consensus) and consensual (within consensus). In much the same vein Boulding (1966:345) distinguishes between benign and malign conflicts and those that maintain and explode society. Dissensual conflicts or those over consensus are those that dispute the ultimate goal, in other words, there is disagreement over a fundamental issue that forms the basis of the community. Conflicts within consensus or consensual are those that dispute the immediate goals. In other words, the parties agree about the value of what they seek but not the means of achieving it, or don’t get as much as they would have hoped from it. That is, the fundamental basis of the community is not threatened, but a minor point of order is at issue. That this difference is important is emphasised

⁵ This refers to the decision to allocate more of the national budget to arms rather than to food (or education, health etc).

⁶ Note that this description applies equally well to competition, demonstrating the way the two words can be used interchangeably, lending to the complexity of the issue.

by Coser's argument that the impact of conflict depends upon the degree of consensual framework within which they are contested and the degree of conflict over basic consensus (Coser, 1972:73).

The structure of conflict

If it were possible to 'dissect' conflict three principle constituents would be found: the attitudes of the participants, the behaviour of those participants and the structures that influence the needs of the participants (University of Bradford, 1999). The attitudes of the participants include their perceptions and mis-conceptions of each other and these attitudes are influenced by other factors such as fear and prejudice. The behaviour of the participants can include anything from co-operation and coercion through to threats, violence and hostility. The structures that influence needs are the 'institutions' that make up the fabric of society: the legal and political structures, the economy and the market etc. By understanding the relationship between the parts that make up the structure of conflict it is possible to understand something of the nature and process of the conflict.

Having established that conflict is a fundamental disagreement over objectives or values and that it does not necessarily involve any physical interaction between the parties, why do some disagreements escalate into violence and physical interactions whilst others do not? Numerous studies have attempted to answer this question, none so far has succeeded in creating a satisfactory model (Rothgeb, 1996; Galtung, 1971). Santandreu and Gudynas (1998) suggest that the reason some processes do not lead to conflict but remain as isolated actions is that they fail to achieve sufficient collective action or even if they do, this action does not have the power to set off a reaction. Based on the above tri-partite view of the structure of conflict, it could be argued that any substantial change in the relationship between the parts (attitudes, behaviours and needs) leads to (minor) conflict. If the change is not accommodated within society then the conflict is likely to escalate. Why relationships change and why some changes are accommodated within the structure is complex.

From a theoretical point of view utility models can explain attitudes and behaviours and how they influence the emergence of conflict. Individuals as objective utility maximisers who will choose the option that best fulfils their utility function. If conflict is the option that will best fulfil this, then this is chosen over the alternatives (Jabri, 1996:56; Mesquita, 1980). However, assuming that individuals make rational choices given a set of options can fail to take account of the more complex nature of conflict. Cognitive rationality helps address this by taking into account preferences, changed preference order and its dynamic processes which moves the decision making process beyond the simple cost-benefit analysis of outcomes and probability (Jabri, 1996:57). This raises an additional point of the distinction between individual and social rationality. Nicholson (1970) states that game theory proves that individual rationality and social rationality are not the same which highlights some interesting points for conflict: if conflict is understood as a group activity rather than an individual pursuit, then the rationality that leads to conflict will have to be a group decision rather than an individual one. What an individual might choose to do given a set of choices and preferences will be very different to what a group might do: understanding how the two operate in distinction is perhaps crucial to understanding

how conflicts arise from individual quarrels and the functional relationship between individuals and community⁷.

This provides a useful introduction to the role of institutional analysis in conflict theory.

The process of conflict and some possible causes

Social structures or institutions can also have a very powerful role to play in the emergence of conflicts because they have the ability to mediate, control and filter social behaviour and attitudes. Institutions can range from formal bodies that have a set of written rules and objectives to 'socially recognised and supported procedures and rules' (Scott, 1988:289). They can be defined as an understanding between individuals or group about the way they interact in a specific activity for a collectively valued purpose. They take the nature of regularised practices, or 'behavioural norms', performed over time. Economists have often overlooked the importance of the role of institutions. This situation has changed recently, however, with research that comes under the catholic umbrella of the New Institutional Economics (NIE)⁸ school of thought. NIE argues that institutions exist to minimise transaction costs⁹. It also states that institutions are a means of transcending the social welfare dilemmas that arise out of individual action and that they help maximise collective welfare (Bates, 1995). Institutions have also been described as the means of filling the gap left by market failure (in insurance, risk assessment etc), a bank of 'goodwill' should the need arise for it. (Bates, 1998:35). Property rights are also an institution and exist to minimise the transaction costs inherent in natural resources (Heltberg, nd).

From a theoretical point of view, different political forms of governance influence the likelihood of conflict developing and its degree of intensity (Obserchall, 1973). From an initial observation, history shows us that democratic societies with clear law making functions are less likely to see negative, malign conflicts arise because there is a transparent legal and political institution that allows disagreements to be managed. Authoritarian governments, however, whilst witnessing less conflict because it is quashed at an early stage, are more likely to experience violent protracted conflict should it arise. Related to the 'democratic' argument, Van Doorn (1966) argues that a high degree of functional autonomy leads to less conflict because it has a higher capacity to absorb and survive disputes, low functional autonomy leaves conflict as the only way out of the dispute. Matlosa (1998) cites increased political liberalisation as putting excessive demand on institutions and thus causing conflict. Lasswell (1966) observes that systems become unstable and prone to conflict when control is divorced from authority. For control to work it has to have legitimacy; if legitimacy rests with the authority then divorcing control from the system will result in conflict, as the resolution of disputes is perceived as non-legitimate. A strict social or cultural

⁷ Jennings (1998) for example provides an explanation of how society gets dragged into a conflict when it is clearly not in the interests of all in society to participate.

⁸ NIE is not a homogenous set of knowledge but the result of economists realising that the study of institutions may indeed be relevant to the understanding of markets, preferences etc. A major criticism of neo-classical economics by NIE is that it is too hung up on statics and equilibrium, rationality and decision making and is in denial that preferences can change (Nabli and Nugent, 1989:xx)

⁹ Transaction costs (TCs) are, according to Williamson, cited in Hubbard (1997) the economic equivalent of friction in the world of physics. TCs represent the cost to the individual or group of acquiring information or services.

hierarchy might also dictate the ease with which institutions work. In communities where inequality and injustice are perceived as normal and part of the fabric of life (the caste system for example), disputes over allocation or access to scarce resources are less likely to develop into conflict because they are understood as simply part of the system (Homer-Dixon, 1994). This is, however, not a hard and fast rule. Even in democratic societies, the lack of conflict might be more a reflection of apathy on the part of the citizens than anything else. In other words, disputes may not develop into conflicts because the participants do not believe it would accomplish anything and would therefore be a waste of resources.

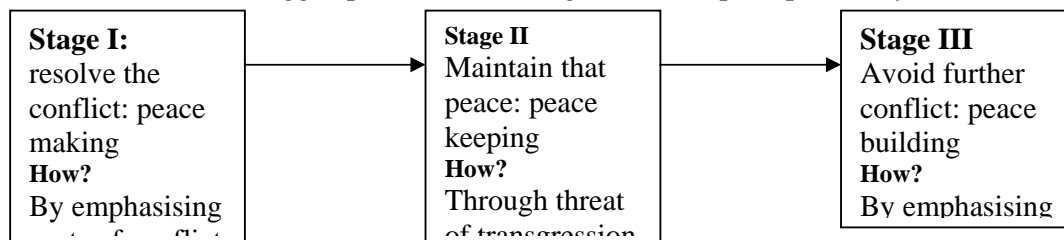
Conflict resolution

Understanding the process of conflict resolution helps highlight the formation and structure of conflicts themselves. Much of the work done on resolution started with studies of the Arab-Israeli conflicts in the late 1960s and had a recent resurgence in the rise of European conflicts following the end of the Cold War¹⁰. The principles of conflict resolution have spread into a wide range of other disciplines such as personnel management (Wallace, 1993; Chen, 1991). Conflict resolution is either the manner in which the conflict is settled once and for all or the *modus vivendi* – that is the situation of conflict becomes the status quo (much like the equilibrium status described by Boulding).

Galtung (1971, 1976) identifies 3 key stages of conflict resolution: peace making, peace keeping and peace building. He further breaks down these categories into peace-keeping (the dissociative approach) by which the two sides to the conflict withdraw from the arena; peace building (the associative approach) where symbiosis is developed and peace-making (conflict resolution). The distinction between the three is slight yet useful. Peace-making implies the first tentative steps, peace-keeping implies that a form of peace has been achieved and effort is now required to keep it, and peace building suggests the final step where cooperation and symbiosis between the two sides has to be engendered. The tools for maintaining each stage have to be economic and social incentives, and, Galtung argues, the threat of transgressing the agreement reached in stage I.

We could depict it thus:

The ‘tit-for-tat’ and trigger punishment strategies also help explain why incentives



might

be needed to maintain Stage II peace¹¹. Under a situation of repeated games, a tit-for-tat strategy indicates that player A will choose the same option in the next game as chosen by Player B in the previous game. If player B opts to abide by the rules, so

¹⁰ For a comprehensive analysis of post-Cold War conflict resolution see Miall et al (1999)

¹¹ This same argument can also be used to explain why conflicts remain stable or escalate.

will Player A and vice versa. Assuming that one player always chooses to abide by the rules, peace will be kept due to the threat of what will happen should they not abide. As described by Miall et al(1999), a tit-for-tat strategy actually involves cooperation, bears no grudges and, crucially, is predictable. They argue that in the first stages of conflict resolution, there has to be an ability to initiate cooperation. A more dramatic form of punishment for transgressing the peace agreement is the trigger strategy. As soon as Player B opts to break the agreement, Player A plays the Nash Equilibrium strategy forever which results in the breakdown of peace. Ideally, both players should choose the co-operative equilibrium as the rational choice in the face of the possible threats of the other side to retaliate to any failure to abide by the agreements. Thus, strong institutions capable of delivering credible threats are needed to maintain peace and manage conflicts.

Powelson (1972) and Nicholson (1970) use a modified production possibility frontier model to explain conflict resolution. On the basis that conflict is a result of unequal allocation of resources, it is argued that any resolution, ideally, has to be on the line BA, a points D or E, for example(see figure 1). Any moves beyond the line are not theoretically possible because this would involve allocation of resources that don't exist, any resolution that is inside the line (point C) is an inefficient use of resources.

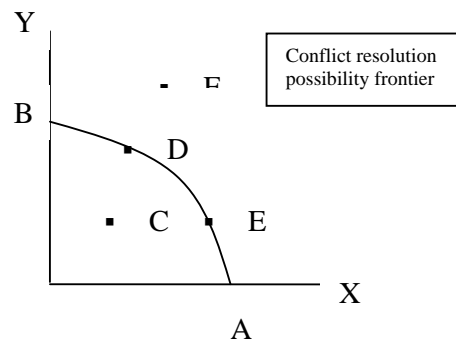


Figure 1: The conflict resolution production possibility frontier from Powelson (1972:35)

Moves towards the line BA are thus beneficial to society, those away from it non-beneficial. Just as in economic terms perfect markets would produce production solutions on the line, so in conflict resolution terms perfect institutions would produce solutions on the line (Powelson). Of course, if the conflict is over resource allocation and there is room for expanded production, then moving to the line should not be difficult, in most situations however, this is no longer a feasible option, so the goal would therefore be a move to as close to the line as possible¹². Nash (1950) argued that the solution to the conflict must be the maximum product of utilities (ie that the solution must be on the line) and the agreement between parties must lie on the solution line and give equal division of payoffs to both sides in order that the agreement work.

The bargaining process is an intrinsic part of conflict resolution. One of the ways in which bargaining functions as a means of conflict resolution is that A will capitulate to B's demands provided that A's relative loss of utility is less than that of B's. But, in order for capitulation to happen when the relative difference in losses are at their greatest, can involve large costs as the conclusion of negotiations is anticipated. Each side refrains from capitulation for as long as possible, but the longer the conflict continues the higher the costs (be they capital or social). Nicholson argues that in fact bargaining can introduce the problem of escalation into the conflict: it may either speed up resolution or escalate the conflict further as each side attempts to gain the most from the new position any resolution will leave them in.

Galtung (1971) warns that conflict has a habit of changing as it develops and that, by solving the current incompatibilities, the original problems are not solved in the process of conflict resolution. If conflict has become institutionalised, he argues resolution could actually threaten the institution (1971:184) which is why the resolution process must come from the two sides in the argument rather than being planted from outside (Olomola, 1998). Resolution techniques will also depend upon the degree of polarisation reached in the conflict: Galtung lists 1st order polarisation techniques where one side has reached the point that it refuses to talk with the enemy and 2nd order polarisation where one side refuses to talk to those that talk to the enemy: thus making resolution of the conflict much more difficult. Given these difficulties he suggests that the most viable option might be to maintain the status quo and give the parties to the conflict something else to think about so that the original problem fades into the background.

A key issue of resolution would appear to be that it has to come from within the community which means the role of an outsider is to facilitate the process but have no part to play in the process as such.

Conflict over natural resources

We have now established from the theory a number of core principles related to conflict. It is a state of non-cooperation, it is dynamic, can be positive or negative and is often a disagreement over values or objectives. However, there are two key

¹² This does raise the spectre of equity and efficiency which is dealt with later on.

elements to understanding the cause of conflicts: the allocation of resources and the role of institutions in that allocation.

The allocation of resources is a fundamental issue around which all conflicts rotate. The allocation of land, rights, power and entitlements can be cited as the cause in conflicts ranging from ethnic conflicts in the Balkans to civil rights movements. Similarly, when looking at conflicts over natural resources the key issues are the allocation of rights and access and the role of the institutions that allocate them. This following section takes the theoretical principles outlined in parts 1-3 and uses it as a basis to discuss conflicts over natural resources.

Natural resource conflicts occur when the resource in question has become so scarce or degraded as to raise issues of allocation amongst the community of users. Under perfect environmental conditions, as the ratio of users to resource grows¹³ (either because there are more users or less resources) so expansion takes place: extra land is brought into cultivation, new areas of forest are exploited, different species are fished or fishery activity moves along the coast or further out to sea. Powelson (1972:33) argues that so long as the answer to 'who gets how much' is 'produce more' conflicts over allocation are positive because they encourage growth.¹⁴ When the absolute ecological boundaries of the resource have been reached, further expansion is no longer possible (without adverse consequences) so using the cake metaphor: the division of the cake has to change because the option of increasing the size of the cake is not possible. The division of the cake however raises the issues of equity and efficiency. From an economic point of view an equitable distribution of resources is not necessarily the most efficient and vice versa (Baland and Platteau, 1999). This trade-off between equity and efficiency of resource allocation is often at the hub of natural resource conflicts.

Resource allocation decisions are taken by a wide range of institutions from government down to local communities. The form and function of those institutions is a product of the political and economic context within which they operate. Thus, a failure to recognise the role of politics and economics in the formation of institutions is to fundamentally misunderstand the context of the political economy of unequal distribution and the nature of the conflict (Neary, 1997; Homer-Dixon, 1994). Ronnfeldt (1997:477) finds that extensive research has tended to indicate that the features of the prevailing political and economic system rather than environmental stress are far more likely to lead to conflict, although Barbier and Homer-Dixon (1996) and Homer-Dixon (1991, 1994) argue that resource scarcity is the catalyst that highlights other underlying problems in society.

The role of institutions has already been discussed but suffice to indicate here that the failure of institutions is often cited as one of the causes of natural resource conflicts. There is a large body of literature concerned with the function of (common property) institutions and why they can fail. One of the underlying factors mentioned is the failure of the institution to adapt to change. Thomson, Feeny and Oakerson (1992: 132) and Feeny (1988) for example discuss the supply and demand model for

¹³ Political ecology literature tackles the link between population and environment. See Myers (1987) for a discussion on the role of population growth in conflict.

¹⁴ Valid though this argument may be at first, it fails to take into account the economic and social cost of increased production and economic growth.

institutional change: when the demand for institutional change (to capture gains not possible under existing arrangements) outstrips the ability to supply change, failure emerges. They list relative factor or product prices, the size of the market, technology change and fundamental decisions of government as causes of change that lead to what they term 'institutional disequilibrium'. However, they also recognise that change depends on the State's willingness and ability to help new institutions emerge. This picks up on Boulding's earlier comment that although conflict can lead to change, this is conditional on a number of factors beyond the control of the immediate participants. There is a large body of literature that uses game theory and behaviour modelling to explain why (in particular) common property management institutions often fail (see for example: Ostrom, 1994; Ostrom et al 1994; Olsen, 1968 or Walton, 1998 on the role of Collective action in this regard). NIE can also provide indications of why institutions might fail. Institutions are a means of minimising transaction costs which are expensive where there are thin or missing markets for information (Hubbard, 1997). The more embedded and vertical the relationship between institutions, the lower the transaction costs (Bates, 1998:11; Williamson, 1996), the more stable the institution and the more capable it is of performing. When the institution is no longer able to effectively minimise transaction costs, its position is weakened and it is increasingly unable to deliver services effectively or be allocatively efficient (Klitgaard, 1998:337) – this applies both to formal institutions such as Fisheries Departments and to informal institutions such as the local level fisherman's management committee (see for example Alegret, 1999). Property rights are also a form of institution, and exist to minimise the transaction costs associated with managing common property resources. Property rights also fail when the cost of the information needed to maintain them rises. Thus any discussion on transaction costs and institutions has to regard institutions as both a collection of people allocating resources and as an allocation itself. (Heltberg, nd)

Peripheral but important to the discussion on institutions and resource allocation is the conundrum surrounding the impact of resource scarcity or degradation on conflict. The conundrum goes along these lines: is conflict the result of resource scarcity (because the allocation of resources becomes unfair) or, is resource scarcity the result of conflict which has erupted as a result of unfair distribution of resources and led to the degradation of resources. Many studies on conflict have focussed on what is perceived to be a direct link between these two: conflict being the dependent variable, resource scarcity the independent variable. This dichotomous relationship however fails to account for the overarching role of the institution and the often cyclical and dynamic nature of the conflict.

Santandreu (1998), Stanley (1998), Streiffeler (1996), Sithole and Bradley (1995) have all studied conflicts arising directly from environmental degradation or increased pressure on natural resources but fail to address the allocation issue that lay at the root of the problem. Closely linked to the issue of allocation and resource degradation is the question of resource endowment and entitlement. Neary (1997) argues that relative resource endowment is more significant than absolute endowment; the more skewed the allocation, the more likely that conflict will result because the *perception* of inequality is powerful and often proves a catalyst for action. Whilst Neary concentrates his discussion on the influence of resource endowment on armed conflict, the same arguments could equally apply to non-violent conflict. Galtung, Homer-Dixon and Powelson all see conflict as a result of material conditions that

constrain development and thus impinge upon allocation of resources. The most eloquent and incisive discussion of the role of entitlement to resources was put forward by Sen (1995). He argues that the absolute distribution of resources is largely irrelevant if the distribution of the *means* of acquiring those resources is ignored.

A review of the large body of case-study literature on natural resource conflicts highlights a number of key points. Firstly, conflicts over natural resources tend to occur in open access or common property resources and are often due to ill-defined property rights¹⁵. Secondly, the amount of research done into fisheries conflict is comparatively small compared to other resources and thirdly, economic analysis of the issue is insignificant compared to other social science disciplines.

The main areas reviewed by the literature are forests (FAO, 1996; Matose, 1997; Afikorah-Danquah, 1997); water (Livingstone, nd; Manig, 1994; Nickum and Easter, 1990, Mosse, 1997); land (Alston et al 1998; Herring, 1991; Malczewski et al 1997; Sithole and Bradley, 1995 and Fred-Mensah, 1999, Hussein et al 1999) and fisheries (Stanley, 1998; Alegret, 1995; Streiffeler, 1996; Alexander, 1977; Charles, 1992; Dnes, 1985; Olomola, 1998, Flaherty, 1999)

Conflict in fisheries is often rooted in the difficult trade-offs between the mutually exclusive social, economic and biological objectives assigned the fishery by government and society. Creating full employment would result in the economic objective (maximising resource rent) from not being fulfilled. Maximising resource rent, likewise, will result in the short to medium term reduction in employment offered by the activity (Cunningham et al, 1995). Both of these impact upon the social objective of the fishery either due to decreased landings or decreased earnings. In the long term of course, the stocks could be affected to such a degree that a fishing community or industry ceases to exist at all. These types of conflicts are not a novel phenomenon in fisheries. What is apparent, however, is that conflicts over these objectives are now more acute and occur more frequently in more fisheries due to an increasingly disproportionate number of fishermen chasing the available fish stocks. Studies of conflict in fisheries tend to fall into 3 camps: international conflicts concerning fishing nations¹⁶; case-studies of locally specific conflicts¹⁷ and discussions on the theory of conflicts in fisheries. This last section is comparatively thin.

The similarities between these resources in terms of conflicts tend to lie in the issues of access, use and ownership. Establishing ownership rights is equally difficult with fish, irrigation water and communal land; controlling access is also difficult due to physical factors such as size and ease of transportation. Identifying the community of users with all the resources is comparatively easy as they tend to be self-defining. Because of the common property nature of many of these resources – particularly in the third world the issues of allocation, access, use rights and property rights are paramount and, at a fundamental level, common to all natural resources.

¹⁵ Property rights are one form of access and use rights to resources allocated by institutions. See Skeperdas (1992) and Alston, Libecap and Mueller (1998) for a discussion on the link between conflict and property rights.

¹⁶ Such as the Cod War, US-Canada salmon disputes, the US-Mexico tuna-dolphin debate etc

¹⁷ Studies of the shrimp-focussed conflicts in Kerala, Thailand and Bangladesh figure highly here.

Conclusion

Conflicts can be defined as a situation of non-cooperation between parties and can include all interaction along a continuum between passive non-cooperation and violent physical conflict. In the context of natural resource conflicts, most conflicts involve passive and active non-cooperation, with violent physical conflict only erupting in rare and isolated cases. Conflict can be both negative and positive. The factors that influence the positive or negative result of conflict is whether the conflict is over a fundamental tenet of the community structure or social objectives or a relatively minor point of order. Because of its potential to cause positive change, it may not be desirable to eradicate all conflict rather it should be managed to ensure that its role is in fact positive rather than negative.

While many factors are put forward as causes of conflict, the allocation of resources is the one issue that runs through all discussion of conflict. In terms of natural resource conflicts the allocation of access and use rights to resources is the key to understanding how and why conflicts develop. In order to understand the allocation of resources the economic and political dynamics of the situation also have to be understood. Institutions are a key to understanding allocation issues, and they too are influenced by their political and economic context.

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