

**“Art and Science” on Nuancing Conflict:  
Theoretic Approach and Its Application**

**Yun Ho Chung**

JEL Classification : D74—Conflict; Conflict Resolution; Alliances, D78—  
Positive Analysis of Policy-Making and Implementation, F33—  
International Monetary Arrangements and Institutions

## CHAPTER 1

---

### Introduction

#### 1-1. The Problem

In this paper, we would like to talk about the 'art and science' of nuancing conflict situations. In doing so we shall discuss somewhat the conflict between developing and developed nations. In the title of this paper, we use the word 'art', specifically to designate non-scientific factors. But when we employ the term 'art and science', we have in mind the use of non-economic factors, for example diplomatic know-how and negotiation skill, that are intertwined with factors which emanate from a rigorous scientific analysis of a conflict.

As is well known, over sixty years ago there was a work that was expected to solve many significant conflicts: the monumental work of von Neumann and Morgenstern on game theory. Unfortunately, that work and numerous other works by economists, peace scientists and others who have improved and greatly extended game and related theory have had little effective application.<sup>1</sup> Why is this so? The answer lies in the fact that they have given only lip-service to non-economic factors such as politics, social conditions and culture. They have in general failed to integrate effectively the scientific and non-scientific factors. In this paper we will attempt a bit of integration.

In this paper, we shall point up what we consider to be one possible way to do so. In the potential full process, we shall:

(1) Scientifically develop empirical materials based on pairwise comparisons of the objectives and perspectives of actors (decision makers) in a conflict situation. These empirical materials would be on the relative importance of these objectives to the actors. They would be used to

---

<sup>1</sup> Typical game-theoretic approaches to conflict studies have been in use of the prisoners' dilemma model and the bargaining model. Political scientists, in general, have been adopting in many cases the prisoners' dilemma model and its extension to understand international conflicts. Brams, for instance, has introduced many applications of prisoners' dilemma model to international conflicts (Brams, 1994). The bargaining model, ever since Nash (1950), has also been an important concept to explain many social conflicts, and its extension (especially with concession concept incorporated, Zeuthen, 1955) has been developed in many forms. However, these game-theoretic approaches to conflict studies mainly focus on 'measurable' factors, and failed to model conflicts when 'non-measurable' factors need to be incorporated. See Chung (2001, Chapter 2) for some critiques on game-theoretic approaches to conflict studies.

establish for each actor levels of satisfaction or index of achievement or relative utility of different joint actions (sets of joint concessions).<sup>2</sup>

(2) Construct discrete-based “inferred indifference” curves given the reality of these objectives and perspectives.

(3) Employ “art” to help nuance a first cooperative joint action (as a first set of small concessions). If necessary, develop a scientific reassessment of the situation.

(4) Employ “art” again to nuance a second cooperative joint action (as a second set of small concessions), and so forth, hopefully to achieve a dynamic path for the mediation effort. However, one anticipates that such an effort will be brought to a halt before a rational (or complete, or equilibrium) solution to the conflict situation is achieved.

## 1-2. The Motivation

To point up the failure of the scientific approaches in economics, peace science and other scientific areas to resolve most conflicts, let us quote extensively from the brilliant paper of Ravi Kanbur (2001). He defines two broad groups in conflict in the global system. Group A (labelable as Finance Ministry) would include “some who work in finance ministries in the North, and in the South ... also many economic analysts, economic policy managers and operational managers in the International Financial Institutions (IFIs) and the Regional Multilateral Banks” (Kanbur, 2001, p. 1084).<sup>3</sup> Group B (labelable as Civil Society) would include “analysts and advocates in the full range of advocacy and operational NGOs ... also people who work in some of the UN specialized agencies, in aid ministries in the North and social sector ministries in the South” (Kanbur, 2001, p. 1084).<sup>4</sup>

---

<sup>2</sup> In discussions with diplomats, political figures and those who are responsible for deciding upon policies to be implemented, we would avoid use of the term relative utility which has meaning for economists, but perhaps not so for diplomats and political figures. For them, we suggest the use of such terms as levels of satisfaction, or index of achievement.

<sup>3</sup> It would also cover many, though not all, academic economists trained in the Anglo-Saxon tradition.

<sup>4</sup> Amongst academics, non-economists would tend to be covered in this group. Note that Kanbur states “such classification is bound to be too simple a reflection of reality. Although the terminology of ‘Group A’ and ‘Group B’ is easier to deploy, A and B are better thought of as tendencies rather than as defined and specific individuals. There are clearly people who work in the IFIs who are not ‘Finance Ministry types’, just as there are academic economists trained in the Anglo-Saxon tradition who would, for example, caution strongly on capital account liberalization. The UN specialized agencies and Northern aid agencies are often a battle ground between Finance Ministry and Civil Society tendencies. And, some NGO positions on specific policies would be approved of in Finance Ministries, and vice versa.

This being said, however, the proposed classification offers a sharp enough, and recognizable enough, characterization of divisions to help us understand the nature of disagreements. Group A types are those who tend to believe that the cause of poverty reduction is best served by more rapid adjustment to fiscal imbalances, rapid adjustment to lower inflation and external deficits and the use of high interest rates to achieve these ends, internal and external financial sector liberalization, deregulation of capital controls, deep and rapid privatization of state-owned enterprises and, perhaps the strongest unifying factor in this

As clearly and forcibly witnessed at Seattle and subsequently at Ottawa, and elsewhere there are strongly-held views and sharp differences between Groups A and B on global policy issues. Kanbur observes that perspective and stances taken are so polarized and inflexible on three basic issues that differences on several other issues on which there may be much common interest become exaggerated and consequently less subject to cooperative action.

Between Groups A and B, Kanbur finds three key differences in their perspectives and ways of thinking. These relate to matters of Aggregation, Time Horizon and Market Structure. Succinctly put, the differences associated with aggregation may relate to measurement of welfare based on the presence of poverty (say the fraction of people in a country who fall below a critical level of income (for example the famous \$1 per person per day).<sup>5</sup> Group A might tend to consider this measure appropriate and employ it. However, it obviously fails to get at the effects of a policy on the distribution of poverty. For example, for a nation the fraction may fall, but as is often the case this fraction may significantly increase for one or more regions of a nation. Additionally, and more important, this measure fails to capture effects of a policy that are non-measurable, in particular deterioration of the quality and availability of public services, such as those relating to health and education. So to Group B personnel often working in communities with a high fraction of poverty and significant deterioration in non-measurable public services the national fraction is most inappropriate for measurement of the welfare effect a policy has or might have.<sup>6</sup>

A second key difference between Groups A and B in Kanbur's work relates to time horizon. As Kanbur puts it, "medium term is the instinctive time horizon that Group A uses when thinking about the consequences of trade policy, for example. This is implicit in the equilibrium theory which underlies much of the reasoning behind the impact of policy on growth and distribution. It is also implicit in the way empirical analysts interpret their cross-country econometric relationships between growth, equity or poverty on one side and measures of openness on the other" (Kanbur, 2001, p. 1088).

But clearly it is no solace to families at the starvation level, or who have to pull their children out of school to work in 'sweat shops' to sell its assets at fire sales prices, etc., to be told that in five years from now things will be much better for them. Nor is it any solace for other members of group B to be told that degradation of the environment and resource depletion resulting from industrial and consumption practices associated with growth

---

group—rapid and major opening up of an economy to trade and foreign direct investment. On each of these issues, Group B types tend to lean the other way" (Kanbur, 2001, pp. 1084-1085).

<sup>5</sup> Per capita income of a nation has often been used as a measure in the past—a measure which is now considered most unsatisfactory.

<sup>6</sup> Another shortcoming, as seen by Group B, is that in nations of high population growth, the fraction might fall, but the absolute number of people at or below the poverty level might significantly increase.

policies (for example, openness of trade) will be offset and adequately controlled through knowledge and technological enhancement.

A third key difference pertains to market structure. Group A invokes the basic theories of trade policy in their spaceless (no dimension) competitive product and factor world where each nation is considered to be a point (or where it is convenient to do so to avoid complications and/or intractability of their 'revered' scientific models). But their statement that openness of trade will increase the price of (and thus benefit) the more abundant factor (for example, which for developing countries is frequently unskilled labor) from the increase in the demand for it is frequently not observed to be the case in reality. Moreover, what is also perceived and observed by Group B is that major non-competitive multinational corporations come to exercise undue influence on, if not control of, economic policy to their benefit and at the expense of the poor. The pure competitive equilibrium doctrine which many in Group A profess to be the result of open trade is in actuality precluded by the presence of physical space. It is a gross lie that many advanced economic theorists continue to perpetuate, to the suffering and misery of many poor.

Despite his brilliant analysis, Kanbur ends up with no effective recommendation other than there is a need for more educated dialogue, more interaction and more real, motivated effort at understanding.<sup>7,8</sup>

This is the current situation for basic conflict between Groups A and B (as defined above) in the global system. But there are many differently defined Groups A and B in other major and admittedly exceedingly complex conflicts: e.g., the Arab/Israeli conflict, the Kashmir conflict, the set of conflicts generated by the dissolution of the former Yugoslav nation, the North and South Korea conflict and so forth. More recently, there shows tendency that Kanbur's grouping, Groups A and B, gets more polarized—one end with G7 nations for which the IFIs tend to represent and the other end with the South as a whole.<sup>9</sup> The conflicts within each of the groups as

---

<sup>7</sup> "This paper has argued that underlying the seemingly intractable differences are key differences of perspective and framework on Aggregation, Time Horizon and Market Structure. Simply recognizing and understanding the underlying nature of the disagreements in these terms would be one step in bridging the gap. But more is needed. More is needed from both sides, but my focus here is on Group A. For those at the more academic end of that spectrum, the message is that explicitly taking into account these complications is more likely to shift the intellectual frontier than falling back yet again on conventional analysis. For those at the more operational and policy end of the spectrum, especially those in policy making and policy implementing institutions, the message is that recognizing and trying to understand legitimate alternative views on economic policy, being open and nuanced in messages rather than being closed and hard, is not only good analytics, it is good politics as well" (Kanbur, 2001, p. 1093).

<sup>8</sup> Another illustration of a brilliant work of one of the very best minds in the social sciences is that of Amartya Sen (2000) in his paper on "India and the Bomb". His analysis of the failure of deterrence as a policy is the very best, but he ends up with no thought or even a hint how India and Pakistan (or other individuals or institutions) can help temper the escalated conflict situation.

<sup>9</sup> The traditional sovereign debt problem between two countries becomes an emerging issue within the IMF's policy discussion (Krueger, 2002, Bossone and Sdravovich, 2002). The IMF proposes a new approach to Sovereign Debt Restructuring Mechanism (SDRM) to

well as between them become more complex. It gets us even more motivated to put effort at understanding the nature of conflicts, and ultimately at providing a possible procedure toward the first step on conflict resolution.

What we now wish to do is to present one way of going beyond the type of recommendation that Kanbur ends up with. We wish to suggest a way for nibbling at conflict resolution using the word nuancing to cover the achieving of small (building-up trust) concessions by parties to a conflict.

In the next chapter, we will present a theoretic framework within which we will discuss the significance of small concessions on resolving a conflict situation. In the following chapter, we will develop a method which incorporates the theoretic framework to a conflict resolution procedure. In doing so, we shall touch upon the important conflict between the IMF and Indonesia, and suggest a proposal to reach agreement on a financial aid package from the IMF for Indonesia's sustainable development.

---

intermediate the sovereign debt problem between creditors, mainly G7 countries, and highly indebted poor countries. Although the IMF's proposal is, in general, welcome by the international community, specific details of the proposal are still crucially debatable among both creditors and debtors. For example, the new proposal still does not guarantee to the debtors that the creditors would be bound to commit themselves to the implementation of the proposal, nor provides the creditors with a comprehensive incentive scheme for them to voluntarily participate in the mechanism.

## CHAPTER 2

---

# Theoretic Framework

### 2-1. Model Setting

We consider a conflict situation where two parties (participants), L and J, are involved. The situation is currently engaged with a joint action,  $\mathbf{a} = (a^L, a^J)$ , which is initially set up by both participants (or considered as the status quo), but is evaluated by each participant based on their objectives and some other criteria. Considering the objectives of the participant L, the action  $a^L$  is not the best action for him, nor is the action  $a^J$  the best for J based on his objectives. But  $\mathbf{a} = (a^L, a^J)$  is the current agreeable joint action, and they know there would be another joint action from which they mutually increase their satisfaction (utility) based on their own objectives. Then, they have willingness to negotiate for a better joint action, and we try to develop a procedure to help the conflict situation resolved or partially resolved by reaching another joint action at which both participants could be happier.<sup>10</sup>

In many situations, we might try to find a compromised joint action based on the initial one, but we fail in most cases. Especially when the joint action,  $\mathbf{a} = (a^L, a^J)$ , is an option which neither participant is willing to step away from, it is hard to convince them of reconsidering it with any compromised joint action. One of the reasons why a compromised joint action based on the initial one, or this kind of approach in general, is not successful is that it is the attempt to cut a pie for two which is assumed to be fixed.<sup>11</sup> In this assumption, a bigger piece for the other means a smaller piece for oneself.

The first step toward resolving a conflict is to change the conventional viewpoint to the conflict. Fisher and Ury (1981) suggest the participants start from the objectives supposed to be achieved by each of them rather than the actions per se used only to achieve the objectives. In other words, fully understanding the objectives of each participant will provide a resolution to this situation that might or might not be from the initial joint action. Instead of searching a resolution from the action spaces within which L and J's actions of current joint action are the best options, we try to

---

<sup>10</sup> In other settings, there might a mediator introduced who would have an interest to get involved with the situation and provide a solution to this conflict. But we will hold the mediator off from this framework just to make the model as simple as possible. See Chung (2001) for the case with a mediator involved in a conflict situation.

<sup>11</sup> Steven Brams extensively analyzes conflict situations where zero-sum game approach is appropriate to be applied. See Brams (1994, 1996).

expand the action space for each participant to see if from the expanded action space we can find a better solution to satisfy the objectives of each participant.<sup>1213</sup>

## 2-2. Diagrammatic Analysis

Assume that there is another dimension in L's action space in which we can find an action that is not affecting L's utility much at all but could increase the J's utility significantly. We call this additional action for L a concession from L to J. A similar argument applies for J as well. The concessions from L and J are simultaneously taken effect. Then, the net changes in utility for L and J from these actions can be turned out positive. We will present this model graphically in a three dimensional paradigm with two main dimensions of the action for L and J and a third dimension for concessions from L or J, and in a utility-disutility space of L and J. The actions each with a corresponding concession in the first diagram will be mapped into the second utility-disutility space to understand a progress of a conflict resolving.

Consider first, in Figure 2-1, L and J's action spaces with L's concession space.

Figure 2-1 Here

Two main dimensions are for L and J's actions, and the third dimension is representing the L's concession space. The initial situation is represented as a point,  $\mathbf{a} = (a^L, a^J)$ . The point,  $c^L$ , represents the concession made by L. Then the new joint action with L's concession,  $c^L$ , is represented at the point,  $\mathbf{a}' = (a^L; c^L, a^J)$ .<sup>14</sup> Notice that each action in the main dimensions for L and J of the new joint action,  $\mathbf{a}'$ , is unchanged. Only the L's concession to J,  $c^L$ , is reflected in the new joint action. Then, the changes in the utility levels for L and J from the initial joint action,  $\mathbf{a}$ , to the new joint action,  $\mathbf{a}'$ , are mapped into the utility-disutility space in Figure 2-2.

Figure 2-2 Here

The vertical axis is representing J's utility, the right side of the origin on the horizontal axis for L's utility and the left side for L's disutility from the

---

<sup>12</sup> We do not, ex ante, presume that there exists a solution to this approach. What we emphasize here is to search a procedure in which the situation could move forward from the stalemate. The stalemate is where there is no other possible joint actions available with the current action planning by both participants. In this case, we would introduce this procedure that possibly provides a solution to the conflict situation.

<sup>13</sup> If a solution is gained from this approach, it is in fact a Pareto efficient solution. A more detailed description of this solution concept is following in the later chapters.

<sup>14</sup> Once the joint action  $\mathbf{a}'$  is written in the form of  $(a^L; c^L, a^J)$ ,  $\mathbf{a}$  can be interpreted as  $(a^L; c^L, a^J)$  where the value of  $c^L$  is 0 (the origin).

concession. We assume that the initial joint action,  $\mathbf{a}$ , provides L and J with zero level of utility. Then, the level of utility of the new joint action,  $\mathbf{a}'$ , reflects the changes in utility from the concession made by L to J. As noted above, the concession is made in the way that it is negligible to the level of L's utility and significant to the level of J's utility. The move from the initial joint action,  $\mathbf{a} = (a^L, a^J)$ , to the new joint action,  $\mathbf{a}' = (a^L; c^L, a^J)$ , with the concession,  $c^L$ , in Figure 2-1 is mapped in the utility-disutility space in Figure 2-2.

Now we consider, in Figure 2-3, L and J's action spaces with J's concession space. As we have shown above in Figure 2-1 with the L's concession, likewise in Figure 2-3 we find an action, or we call it concession, of J which is not affecting J's utility much at all but could increase the L's utility significantly. The point,  $c^J$ , represents the concession made by J. Then the new joint action with J's concession,  $c^J$ , is represented at the point,  $\mathbf{a}'' = (a^L, a^J; c^J)$ . Notice that each action in the main dimension for L and J of the new joint action,  $\mathbf{a}''$ , is unchanged. Only the J's concession to L,  $c^J$ , is reflected in the new joint action.

Figure 2-3 Here

Then, the changes in the utility levels for L and J from the initial joint action,  $\mathbf{a}$ , to the new joint action,  $\mathbf{a}''$ , are mapped into the utility-disutility space in Figure 2-4.

Figure 2-4 Here

The horizontal axis is representing L's utility, the upper side of the origin on the vertical axis for J's utility and the lower side for J's disutility from the concession. The level of utility of the new joint action,  $\mathbf{a}''$ , reflects the changes in utility from the concession made by J to L. As noted above, the concession is made in the way that it is negligible to the level of J's utility and significant to the level of L's utility. The move from the initial joint action,  $\mathbf{a} = (a^L, a^J)$ , to the new joint action,  $\mathbf{a}'' = (a^L, a^J; c^J)$ , with the concession,  $c^J$ , in Figure 2-3 is mapped in the utility-disutility space in Figure 2-4.

So far, we have looked graphically at the changes in utility levels from the concession in two separate sets of figures, one for L's concession and the other for J's concession. But, the concessions are made simultaneously by each participant for an agreement on a more improved potential joint action and we need to see the net effect on the utility level to each participant from the both concessions. In Figure 2-5, the net effect of the concessions on both L and J's utility levels is illustrated in a utility-disutility space for L and J.

Figure 2-5 Here

Notice that the new joint action  $\mathbf{a}''$  now reflects the concessions made by both L and J to the others based on the initial joint action  $\mathbf{a}$ , and also that each action of L and J from the initial joint action is unchanged. From the initial joint action  $\mathbf{a}$ , each experiences a small loss of utility, or minimally increased disutility, from the concessions which they provide the others with, but at the same time, they experience a big gain from the concessions that the other participant has made, and thus the net effect of the utility is positive to both participants.

The significance of this method is that we have tried to find a way of expanding the action space rather than to find a compromised solution from the initial joint action. In this way, neither of the participants involved the conflict would have to give up the important issues based on their objectives.

## CHAPTER 3

### Nuancing Conflict - Application

In other papers, we have presented the pairwise comparison procedure yielding priorities among a set of policies, or the most likely one (including do nothing), and in general relative utilities of joint actions.<sup>15</sup> A key feature of this approach is that one can accumulate data on a conflict situation where otherwise there is only dialogue and discussion, for example, as in the North and South Korea and the Kashmir conflicts. These data are to be elicited, in a friendly and non-suggestive way, from well-informed (usually non-political) members from each party to the conflict. It is assumed that the views and perceptions of each member can be taken as representative (reflective) of those of his/her party. These data are based on pairwise comparisons made by each member and yield the relative importance of objectives and goals and other relevant factors to the parties. These objectives, goals and factors are those that are perceived and specified by the participants themselves. They can be both general and specific, the specific factors generally being disaggregates of the former, so that a hierarchy of factors is obtained. Further, each participant can specify the scale he/she considers most appropriate for him/her in making pairwise comparisons; and if inconsistencies creep up in his/her statement of pairwise comparisons, these inconsistencies can easily be weeded out. If a participant insists on sticking to a set of highly inconsistent statements, then this proposed procedure cannot be used.

#### 3-1. Recognizing the Conflict

To illustrate the use of pairwise comparisons and the relative utility approach, let us start with an application of this approach regarding to the important conflict between Indonesia and the IFIs.<sup>16</sup> As is well known in the

---

<sup>15</sup> See Isard and Chung (2000a, 2000b) and for a more theoretic presentation of this method, Chung (2001).

<sup>16</sup> For an earlier study of this approach, see Isard and Chung (2000a) where a proposal was made which resulted from a careful application of this method to the intense North and South Korea conflict of 1997 and earlier years. In this study, participants stated the general and specific objectives for economic cooperation they considered to be relevant. They then were asked to make pairwise comparisons. A number of possible joint actions were found to be unacceptable by one or both parties. Finally, there emerged a proposal for a small economic development in or close by the DMZ (De-Militarized Zone) of North Korea. This study and the resulting proposal was reported upon in a paper delivered at the December 1997 Peace Science Conference in Sydney Australia. This proposal was later implemented in June by the Hyundai

world financial community, Indonesia was disastrously affected by IMF conditions indirectly imposed on Indonesia in the years of the Asian crises. There has resulted political disintegration. Currently it is estimated that as many as 400 largely independent regional authorities will result, each handling considerable fiscal and regulatory matters; and already the central government has been considerably weakened.<sup>17</sup> In a recent conference on sustained long-term development of Indonesia and its regions, one new proposal for financial aid by the IFIs (primarily the IMF) amounting to \$400 million has been taken up.

Before proceeding to any project with the \$400 million from the IFIs, we need to consider the question of sustainable development for Indonesia. From the experience with the financial crisis during the late 1990s, we have learned what is significant for the sustainability of current and future Indonesian development. In a recent paper by Azis (2003), he presented a table (which we have modified to be Table 3-1) in which he listed sources of vulnerability.

Table 3-1 Here

It should be noted that the presentation of Azis contains all the elements of a basic learning model except that it doesn't represent explicitly the final outcome, namely learning. His aim was to suggest alternative joint actions (policies) that would have been more stable and satisfactory. However, his discussion leads us to an important piece of learning—namely, that one-sided imposition of policy by one party with little knowledge of the culture and desires (aims) of recipients can lead to disastrous results. From here on the policies of the IFIs that are imposed, or hopefully set forth for discussion, must recognize the specific objectives and goals, and take into consideration the culture and perspectives of recipients.

The IFIs in particular may respond that they have now learned this and are now trying to take into account the desires and perspectives of recipients. They may, however, maintain that desires and perspectives are subjective matters and lead to endless discussion of what joint action, or what conditions should be set when they are involved in financially supporting needy nations. There always emerge conflicts (differences) over what these conditions should be.

To begin to overcome this problem of overcoming endless discussion and debate we will present an approach that is based on the framework introduced in the previous chapter. This approach aims to reach some

---

Group and North Korea's ruling party when permission was given to the Hyundai Group to develop tourism business on the Mt. Kumgang area (on the East Coast of North Korea near the DMZ zone). This step broke the ice and the subsequent cooperative agreements of the two Koreas and the effective entrance of North Korea into the international community are well-known.

<sup>17</sup> See Azis (2003) for his critique on IMF policies during the financial crisis in Indonesia in late 1990s.

agreement on conditions (joint policy or joint action), however small. Such agreement may potentially lead to other small (or large) concessions.<sup>18</sup> Incidentally, this approach will also be relevant to help manage conflicts over policies set forth to obtain sustainable development for Indonesia.

### **3-2. Identifying the Hierarchy of Objectives**

To examine the feasibility of this proposal, (a) well-informed Indonesians were asked to identify the general and specific objectives of Indonesia for sustainable long-term development and (b) well-informed individuals were asked to specify the objectives of the IMF regarding financial aid to developing countries—in particular to Indonesia and her sustainable development program. The procedure in detail is presented in the appendix.

In Figure 3-1A in the appendix we present the hierarchy of general and specific objectives proposed by one Indonesian. Hierarchies were obtained from other Indonesians that were not presented but considered on our analysis. There were major differences over the relative importance of political and economic objectives. But in each hierarchy, jobs loomed large, although in one hierarchy political objectives (in particular, effective democracy in a integrated national government) was considered of primary significance. However, in every one sound environmental management (inclusive of sustainable resource exploitation) was considered to be of small importance.<sup>19</sup>

In Figure 3-2A in the appendix we present what were obtained as the key conditions (objectives) of the IMF for provision of financial aid to Indonesia. They were sound exchange rate management by Indonesia and avoidance of major fluctuations in that rate, stability of Indonesia's banking system involving adequate reserves and balance between short-run and long-term loans, open capital markets in Indonesia with no controls of capital flows, and avoidance of government deficits. On these four key conditions there were differences among the interviewers in their statement of conditions and weights assigned; but they were minor. In all, environmental regulation and management played a small role.

From examining the set of objectives perceived by (a) Indonesians to be of primary significance for Indonesia's sustainable development and (b) the conditions for financial aid perceived by well informed persons to be necessary for IMF participation, it is clear that little chance exists for the \$400 million loan to be realized. The central authorities of Indonesia may be willing to agree to these conditions, but will not be able to meet (before full

---

<sup>18</sup> This approach stems from the pioneering work of Saaty (1994) who has developed what he has designated the Analytic Hierarchy Process (AHP).

<sup>19</sup> It should be noted that there are different possible ways to derive and apply hierarchies. For example, in the case of the North and South Korea conflict, it was possible to construct for each party both a benefits hierarchy and a costs hierarchy so that benefit/cost ratios of different policies could be derived. See Isard and Chung (2000a).

financial aid is provided) the conditions that are required. Its cultural heritage, and especially its politically disintegrated system stand in the way. The decision-makers (political figures) at the IMF and Indonesia involved in these discussions are barking up the wrong tree. Effective enforcement and regulation of Indonesia's financial institutions and effective governance in Indonesia to meet IMF conditions (however the IMF may relax them) cannot be achieved. Now we need to consider what accommodations can be made.

### **3-3. Plan for Sustainable Development**

As implied in the previous chapter, areas that might be explored are those of other than economic objective. The economic objectives for both Indonesia and IFIs are by far the most important—0.8 (out of 1) for Indonesia and 0.85 for IFIs. However, the specific objectives under the general 'economic' objective are perceived by Indonesia differently from IFIs. Indonesia values some immediate results, such as concerns of jobs, exports and imports, more than medium- or long-term structural changes, such as sound exchange rate, free flow of capital and stability of banking system, which the IFIs value more. Any policy of the IFIs toward Indonesia's sustainable development focused on the economic objective will confront the resistance from Indonesia. It is in the same context as the lesson that we have learned from IMF operation during the Asian crisis.

Consistent with our current approach in seeking cooperative action between Indonesia and the IFIs (where in the minds of many, the IFIs are morally bound to help out Indonesia given the disastrous results of the conditions imposed in their past interaction with Indonesia),<sup>20</sup> we look for a possible situation where agreement on a small package of aid is possible. The situation that we look for need to satisfy not only that it is agreeable by Indonesia and the IFIs but also that it is not against the most important objectives perceived by both Indonesia and the IFIs.

First of all, we must recognize that sound exchange rate management associated with the proper variation of the interest rate is a basic requirement of the IFIs. Secondly, the open market, the free (unencumbered) flow of capital is still perceived as basic for the growth and healthy development of the global system and its constituent nations. Environmental management is also being increasingly considered to be a basic goal of the IFIs; however, here there is not much experience with this problem and there are great differences among scholars as to what the environmental dangers are and what tools are available for their effective management. Just to point to pollution from automobile and other energy use is not very useful. We need to know wind conditions, diffusion processes, useful scientific studies about the effects on health etc., and not intelligent guesswork. Here is an area where the IFIs have views that seem

---

<sup>20</sup> See Tobin and Ranis (1998) for a critical evaluation of IMF policy in the Asian crises.

to us to be less uniform, more flexible and about which useful dialogue can be attempted. Civil rights is also an area where scientific studies cannot be effectively conducted, and thus where there is less evidence of what precise policies would yield improvement. Here, there is less uniformity on what good policy is, and thus dialogue can be gainfully pursued in a flexible manner by the IFIs.

Looked at from Indonesia's standpoint, we imagine that, on the basis of the experience of the recent crisis and the continuing problems, a number of conditions that the IFIs might set for financial assistance may be regarded as unacceptable. These conditions might relate to government deficits, to control of short-run and long-run capital, to bank and government reserves and to other regulations and their enforcement. This might be so even if the IFIs interpret more flexibly their mandates and objectives. On the other hand, discussions on environmental policy and enforcement, and on civil rights and their improvement are matters for discussion by interested parties in Indonesia. There are no fixed, inflexible views, but rather much diversity. These are policy areas where much useful dialogue is possible.

The agreement on some joint policy by both the IFIs and Indonesia would be significant in more ways than directly with regard to environmental management and civil rights. One way that is important relates to establishing friendliness, trust and mutual respect among the parties. Here we can visualize 'concession' and agreement by Indonesia and the IFIs on some joint policy with regard to environmental management and civil rights.

For example, one specific environmental project that is likely to achieve mutual improvement would involve the replacement of burning by cutting in forest commercial operations. As Azis has noted, the "use of fire in forest conversion, combined with the dry weather partially caused by El Nino, led to massive forest fire (damage) in 1997. More than 300,000 hectares of forest was burnt, and thick smoke spread over large areas of South East Asia. The smoke, combined with urban air pollution, caused immense health, social and economic damage. The agricultural and forestry officials have neither the political will to enforce the laws nor sufficient budget to deal with the matter" (Azis, 2000, p. 310).

Burning to clear Indonesian forest areas for commercial exploitation is a less costly operation than cutting. However, it is recognized widely throughout the world as highly undesirable, particularly by the IFIs, the UN and the neighbors of Indonesia who suffer directly from the pollution generated. Thus, mutual improvement could clearly be realized if the World Bank, the UN, neighboring countries and others were to provide funds for Indonesia for a resource management project such as follows:

- (1) Wood burning to clear forests would be legally prohibited
- (2) To avoid higher costs of timber operation to the private firms, the costs of their cutting operations would not be allowed to exceed their current costs of burning.

(3) The resulting increase in costs from wood cutting rather than burning would be borne by Indonesia in the use of a grant that would be provided to Indonesia for this resource management project.

(4) New Jobs, the current most important objective of Indonesia in its sustainable development program, would be provided. These in turn would increase the income of the population of the timber resource regions of Indonesia. Through spread effects to jobs and income in other regions, it would have non-negligible positive impact on the reduction of poverty and perhaps alleviate the highly uneven pattern of income distribution throughout Indonesia.

(5) If the financial aid is in the form of a loan, repayment should be effected through a feasible tax on commercial operations. Or to the extent that Indonesia spends its own funds on cutting to avoid burning, its outstanding debt to the IFIs and others should be correspondingly reduced.

(6) This project should not be viewed as a final step in one of Indonesia's efforts to achieve sustainable development. Obviously, it should be followed by legislation governing the extent of the utilization of Indonesia's forest resources—legislation that would need to be designed in the light of the best available research on what a highly desirable sustainable resource management plan might be, including an alternative to destroying Indonesia's forests.

The resource management project outlined above would be a first step only in Indonesia's plan for sustainable development. More specifically and pointedly, the Indonesian effort to obtain a \$400 million loan from the IMF, which has little chance of being effectively arranged (from the standpoint of both Indonesia and the IMF), should be replaced by the effort for a \$400 million resource project to be financed by the World Bank, the UN, and other interested parties. Positive job and income effects are much more likely to be realized than the hypothetical effects of a financial loan from the IMF which is consistent with conditions that IMF interpretation of its mandate dictates. At best, it seems that such financial aid can be realized only in piecemeal fashion.

## CHAPTER 4

### Concluding Remarks

Our relative utility approach is, as we have indicated, a way of gathering empirical materials on specific objectives as perceived by participants, and the relative importance of specific policies for achieving these objectives, again as perceived by participants. Where there are areas of major differences regarding the perceptions of participants as to what policies should be, we have not investigated at this stage conflict management in these areas. Rather we look at less important areas of differences where more flexibility may exist, and where concessions are perceived to involve small losses if losses do arise. Thus we look for dialogue, discussion that might lead to concessions that have a positive probability of realizing mutual improvement in less important policy areas. Once such is realized, more trust, more friendliness and willingness to discuss other conflictual issues of greater import can be taken up and hopefully more successfully dealt with. This was the experience of our use of the relative utility approach in the case of Indonesia on its sustainable development.

In this paper, we have only considered how to reach agreement on a financial aid package for Indonesia's sustainable development. In doing so, we have suggested a simple proposal based on environmental management and civil rights improvement that are common in perspectives of both the IMF and Indonesia. However, reaching agreement between the IMF and Indonesia is by no means final in planning for sustainable development of Indonesia. It would be necessary to develop a better geographic information system (GIS) for Indonesia to obtain a more adequate data base of the resources of each Indonesian region. When there are jobs created with the aid package, it would also be necessary to develop an appropriate program to balanced contribution among regions. Furthermore, direct or indirect effects of the program need to be evaluated for Indonesia's sustainable development. For these matters, we suggest that the further research be in an inter-disciplinary manner. The inter-disciplinary research would only be done when scholars from many fields—such economics, political science, geography, humanities, and even natural science, to name a few—share their perspectives and attack the problem. These matters will be left as the further research topics.

## References

- Azis, Iwan J. 2000. "Incorporating Economic and Environmental Dimensions in Measuring Development Progress: The Case of Indonesia", in Lo, F., H. Tokuda and N. Cooray (eds), *The Sustainable Future of the Global System III*, Tokyo: United Nations University Press.
- Azis, Iwan J. 2003. "IMF Perspectives and Alternative Views on the Asian Crisis: An Application of Analytic Hierarchy Process and Game Theory Approaches", in Gangopadhyay, P. and M. Chatterji (eds), *Globalization and Economic Reform*, Northampton, MA: Edward Elgar Publishing, (forthcoming).
- Bossone, Biagio and Carlo Sdravovich. 2002. "The New Approach to Sovereign Debt Restructuring: Setting the Incentives Right", *IMF Policy Discussion Paper*, 2002-04.
- Brams, Steven J. 1994. *Theory of Moves*, New York, NY: Cambridge University Press.
- Brams, Steven J. and Alan D. Taylor. 1996. *Fair Division: From Cake Cutting to Dispute Resolution*, New York, NY: Cambridge University Press.
- Chung, Yun H. 2001. *Conflict Management within a Relative Utility Framework: Theory and Applications*, Ph.D. dissertation, Cornell University.
- Fisher, Roger and William Ury. 1981. *Getting to Yes: Negotiating Agreement without Giving In*, Boston, MA: Houghton Mifflin.
- Isard, Walter and Yun H. Chung. 2000a. "A Proposal for North/South Korea Cooperation that Proved Effective: A Plea for More Multi-Analytic Approaches in Conflict Management", *Peace Economics, Peace Science and Public Policy*, Vol. 6, No. 3, pp. 1-11.
- Isard, Walter and Yun H. Chung. 2000b. "A Preliminary Report on a Possible Proposal to Begin to Break the Kashmir Stalemate: A Relative Utility Approach", *Peace Economics, Peace Science and Public Policy*, Vol. 6, No. 4, pp. 1-15.
- Isard, Walter and Christine A. Smith. 1982. *Conflict Analysis and Practical Conflict Management Procedures: An Introduction to Peace Science*, Cambridge, MA: Ballinger Publishing Company.
- Kanbur, Ravi. 2001. "Economic Policy, Distribution and Poverty: The Nature of Disagreements", *World Development*, Vol. 29, No. 6, pp. 1083-1094.
- Krueger, Anne O. 2002. *A New Approach to Sovereign Debt Restructuring*, Washington, D.C.: The IMF Publication Services.
- Nash, John F. 1950. "The Bargaining Problem", *Econometrica*, Vol. 18, No. 2, pp. 155-162.
- Polachek, Solomon. 1992. "Conflict and Trade: An Economics Approach to Political International Interactions", in Isard, W. and C. Anderton (eds), *Economics of Arms Reduction and the Peace Process*, Amsterdam: North Holland Press.

- Rapoport, Anatol. 1983. *Mathematical Models in the Social and Behavioral Sciences*, New York, NY: John Wiley & Sons.
- Saaty, Thomas L. 1994. *Fundamentals of Decision Making and Priority Theory with the Analytic Hierarchy Process*, Pittsburgh, PA: RWS Publications.
- Seiglie, Carlos. 1992. "Determinants of Military Expenditures", in Isard, W. and C. Anderton (eds), *Economics of Arms Reduction and the Peace Process*, Amsterdam: North Holland Press.
- Sen, Amartya. 2000. "India and the Bomb", *Peace Economics, Peace Science and Public Policy*, Vol. 6, No. 4, pp. 16-34.
- Shubik, Martin. 1984. *A Game Theory Approach to Political Economy*, Cambridge, MA: The MIT Press.
- Tobin, James and Gustav Ranis. 1998. "Flawed Fund", *The New Republic*, 1998.3.9 Issue, p. 18.
- Zeuthen, Frederick. 1955. *Economic Theory and Method*, Cambridge, MA: Harvard University Press.

## Appendixes

### A-1. Procedure to Identify the Hierarchy of Objectives

To begin we set down one perspective that was obtained from an interview with Azis.<sup>21</sup> We asked him to make pairwise comparisons of the importance of specific objectives for achieving sustainable development for Indonesia where the IFIs may be involved for their own benefit given their concern over environmental degradation, civil rights (in part to protect the interests of certain politically powerful labor unions), etc. and to achieve their basic objective of free trade.

The set of perspectives perceived by Azis are presented in Figure 3-1A.

Figure 3-1A Here

We have at the top Indonesia's Objectives for Sustainable Development. This goal, Azis breaks down into three categories of general objectives: economic, environmental, and political and social. Using pairwise comparisons, we then asked him to indicate the relative importance of these three general factors. He stated that economic objective was 16 times as important as environmental and 5 to 6 times as important as political-social factor (we later set this figure at 5 1/3 times as important.) The comparison matrix is presented in the following table.

Table 3-1A. Pairwise Comparisons of General Objectives and Their Weights—Indonesia

	Economic	Environmental	Political and Social	Weights
Economic	1	16	5 1/3	16/20
Environmental	1/16	1	1/3	1/20
Political and Social	3/16	3	1	3/20

In each cell of the matrix, the relative importance of its row element compared to its column element is to be entered. Thus, in the first cell of the first row the unity, 1, is entered, indicating that the economic objective is equally important to itself. In the next cell of the first row, the entry is 16,

---

<sup>21</sup> The interview with Azis was conducted and mainly used to this analysis assuming that he would well represent the views of Indonesian policy makers. He, in fact, is an expert on the development issues in Indonesia, and has spent significant amount of time on consulting Indonesian policy makers. As noted in Chapter 3, we have also interviewed a group of three Indonesian graduate students at Cornell, where the author initially designed this research, who used to be policy makers in Indonesia. However, as also noted in Chapter 3, the views from those three students are only considered to construct the objective hierarchy for Indonesia which is mainly from the interview with Azis. There was no significant distortion from the students' views in getting a policy suggestion for Indonesia.

indicating that the economic objective is 16 times as important as environmental objective. Note that the entry in the first cell of the second row is 1/16 for consistency of pairwise comparisons between economic and environmental objectives. Once the entries are made in the pairwise comparison matrix, then these comparisons are to be normalized and listed in the last column of the table as weights. We adjusted these ratios to the decimals 0.8, 0.05 and 0.15 which preserve the relative importances. These decimals are placed next to the three general objectives in Figure 3-1A.

We next asked Azis to break down each of these general objectives into specific objectives. The general economic objective breaks down into the specific objectives: creation of jobs; expansion of export trade; and increase of imports of required raw materials, equipment and other desired imports for desirable industrial development and consumption. We then asked him to make pairwise comparisons. He stated that jobs were twice as important as exports and six times as important as imports. Thus we set next to these specific objectives the relative weights 0.6, 0.3, and 0.1 which preserve his statements on relative importance, and which we will find useful later.

In similar manner, we obtained from Azis pairwise comparisons that yield the relative weights of each specific objective under the general category environmental, and of each specific objective under the category political and social. These relative weights are recorded at the appropriate places in Figure 3-1A.

We now set down set of objectives that reflects the perspectives of the IFIs.<sup>22</sup> Here we are assuming that there is some recognition that financial assistance to Indonesia is appropriate to counter the unintended negative consequences of some of IFIs past policies. We have at the top IFIs' Objectives for Cooperation (Re: Indonesia's Sustainable Development Program and Global Welfare). Then what would be the set of specific objectives that the IFIs might have? Based on some beginning interviews, we accept the following hierarchy of general and specific objectives. There are three general objectives: economic, political, and social and environmental. From pairwise comparisons, economic objective was stated to be 17 times more important than political, and social and environmental objective was judged to be two times as important as political. And the relative weights turn out to be approximately represented by the decimals 0.85, 0.05 and 0.10.

Figure 3-2A Here

---

<sup>22</sup> To get the perspectives of the IFIs, we interviewed a professor of Regional Science Program at Cornell and two graduate students in the same program whom we assumed to be well acquainted with the IFIs' policies toward Indonesia. The author's selection of those interview participants was based on their then-current research experience on Asian financial crisis including the Indonesian case and the fact that they are all US citizens.

In turn, of the specific economic objective the relative importance of sound exchange rate management and free market were each considered to be of the same importance but at the same time  $6/5$  times more important<sup>23</sup> than stability of banking system; and the banking system was considered five times as important as avoidance of government deficits. The approximate decimals 0.33, 0.28, 0.33 and 0.06 are appropriately placed in Figure 3-2A. Of the specific political objective, the participant suggested only the elimination of corruption and cronyism as an important sub-objective. And, of course, the relative importance of the specific objective is obviously the unity, 1. Finally, we note that with regard to the general objective, social and environmental, contained environmental degradation is only  $2/3$  as important as improvement of civil rights. Thus, the decimals 0.4 and 0.6 are appropriately recorded.

---

<sup>23</sup> During the usual interviews, the participants do not specify  $6/5$  times more important for one over another. Instead, they indicate that one is about 20 percent more important than another, and for writing manner it is recorded as  $6/5$  times more important.



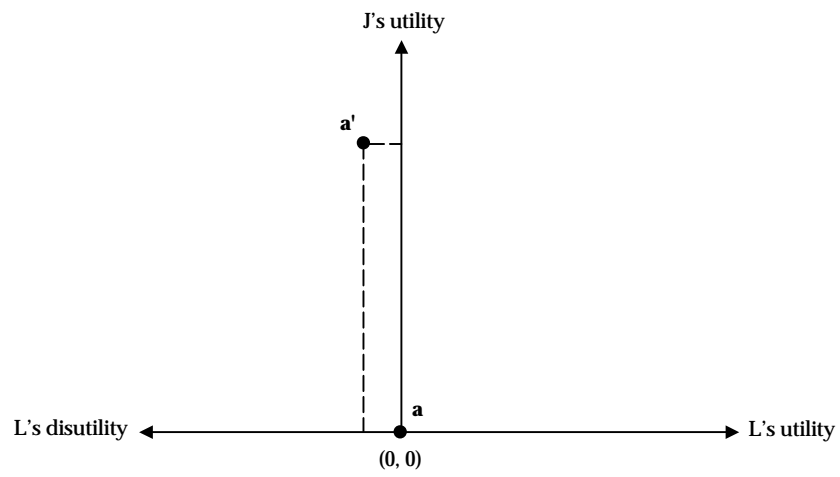


Figure 2-2. A Joint Action with L's Concession  
Presented on L-J Utility-Disutility Space



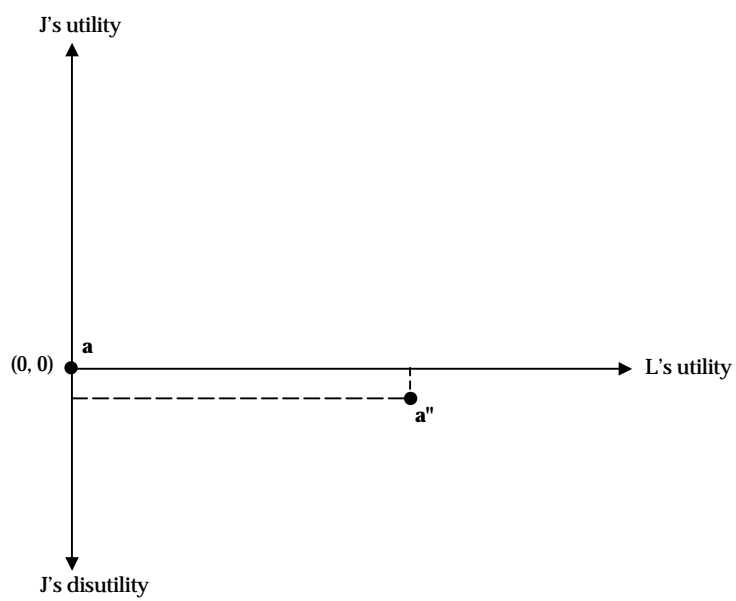


Figure 2-4. A Joint Action with J's Concession  
Presented on L-J Utility-Disutility Space

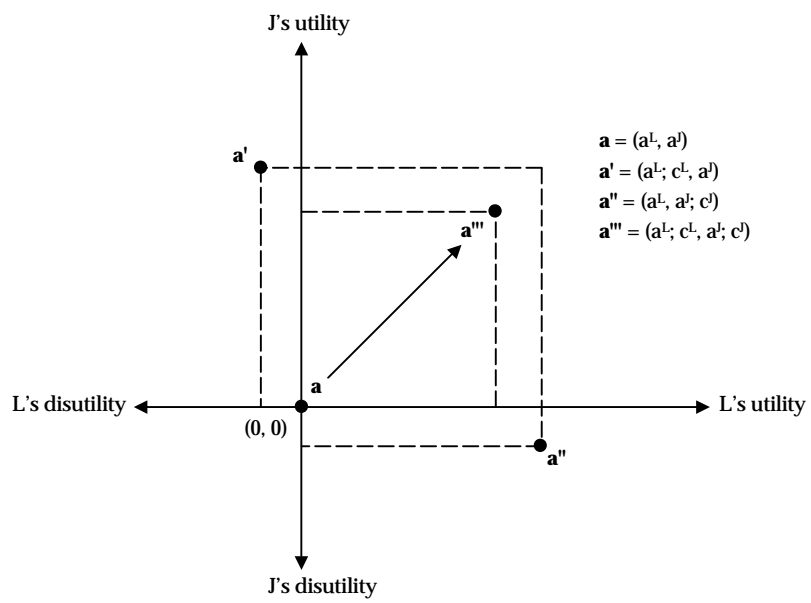


Figure 2-5. Effect of Concessions by L and J on a Joint Action Presented on L-J Utility-Disutility Space

Table 3-1. Sources of Vulnerability and Policy Response: IMF Perspectives and Alternative Views

IMF VIEWS			UNINTENDED OUTCOMES	ALTERNATIVE VIEW	
Sources	Policy	Expected Outcome		Sources	Policy
Weak banking system	Government budget balancing to control inflation, bank restructuring, fundamental reforms	Resumption of bank lending	High cost of bank recapitalization and ineffective restructuring	Massive capital inflows and resulting increases in corporate debts	Debt rescheduling to reduce extensive foreign debt of corporate and banking sectors
Pegged (Fixed) exchange rate subject to informal appreciation	Tight money policy – Raise interest rates to achieve net capital inflows	Positive net capital flows – Reduction of capital outflow, increase of inflow	No real (effective) improvement in the balance sheet positions and lending capability	Contagion – starting from Thailand's recession	Combination of moderately tight net financial policy and gradual bank and corporate restructuring
Poor management in corporations, financial institutions and government	Liquidity support from IMF and open capital accounts	Low inflation to avoid real exchange rate appreciation	No capital inflows and big windfall to savers from the increase in interest rates	Lack of and/or weak enforcement of prudential financial regulations	Some control measures on capital outflow
		Improved governance and improved balance of payments	High social cost – Severe deterioration of social conditions from tightening of government budget		

Source: Iwan J. Azis (2003).

Figure 3-1A. Indonesia's Objectives for Sustainable Development

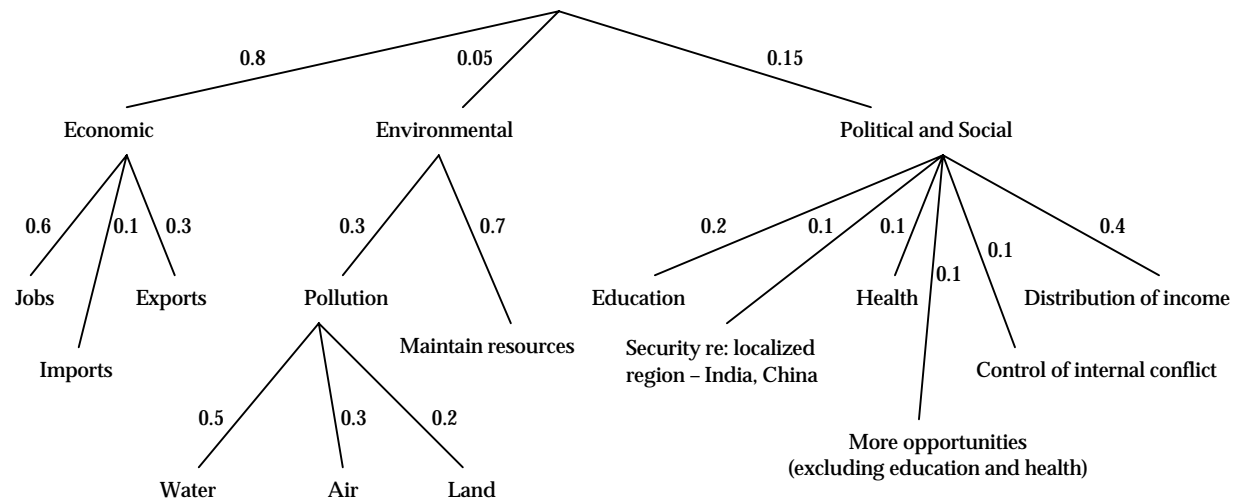


Figure 3-2A. IFIs' Objectives for Cooperation (Re: Indonesia's Sustainable Development Program and Global Welfare)

