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BUILDING INSTITUTIONS FOR PEACEMAKING AND PEACEKEEPING

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Summary

This entry examines the design of institutions for peacemaking and peacekeeping from the point of view of systems theory and collective action theory. The former tells us what kinds of institutions are needed; the latter informs us about the how-to principles by which to design them or rather which errors to avoid in their design.

1. Introduction

Institutions emerged and evolved to solve problems posed to individuals. That institutions evolved means that no one individual deliberately set out to plan and design them. They are endogenous, organic outcomes of evolutionary processes. But in recent human history, institutions are increasingly and more deliberately designed to address pressing local,

regional, and global problems that perhaps cannot wait for organic solutions to evolve. One of these problems is the ever more far-reaching, destructive, and long-lasting power of the contemporary methods and arsenal of warfare and the concurrent need to keep the peace among and within nation-states.

Recent advances in systems control theory have been applied successfully to many technical problems, but have rarely been tried out on social problems. Of course, societies are far more complex than any technical system, but given the seriousness of problems we face, any method that may shed some light on possible solutions should be examined.

We can learn from the way natural systems protect themselves against adversity and adapt to changing external conditions. Any viable system, whether in nature or human society, needs numerous automatic feedback mechanisms to maintain it in a safe and healthy state. Such a system consists of three main components: (a) specification of a desired goal, (b) ways to measure deviations from the goal, and (c) corrective action to bring the system closer to the goal state if it has deviated. An example from nature is the human immune system, which constantly detects and eliminates disease germs. If the immune system is weakened, as in AIDS patients, the result is illness and death. An example of a regulatory feedback system in human society is the legal system, in which laws define non-acceptable behavior, courts determine whether laws have been violated, and the police and penal system enforce the laws. An example from a household appliance is a home heating and cooling system. On a thermostat, the user sets the desired temperature, the thermostat then continuously measures the actual temperature and compares it to the desired temperature, and if a sufficient degree of deviation is detected starts the heating or cooling apparatus to bring the home back to the desired state.

Such a system can fail in six possible ways. First, there may be no agreement on the goal (a matter of conflict resolution); second, even if the goal is clear, deviations may not be detected (a matter of observation and measurement); third, even if deviations are noticed, those who could correct them may have no incentive to do so (a matter of economic incentives, and also ethics); fourth, even if those who cause a problem will ultimately suffer from it themselves, they may fail to foresee delayed consequences or lack the incentives to do anything about it (a matter of long-run planning, especially in cases involving far-off future generations); fifth, even if people have timely and accurate information, they may fail to correct a problem due to prejudices or other sources of apparently irrational behavior (a matter of psychology and culture); and sixth, even if people are fully aware of a problem and wish to correct it, they may not know how or lack the necessary resources (a matter of resources, science, technology and education).

Thus, systems theory can tell us what kind of institutions we need to produce peace: namely (a) institutions to agree on goals, (b) institutions to provide feedback by monitoring convergence or deviation from those goals, and (c) corrective institutions. Collective action theory then provides some principles to tell us how to construct the needed institutions. When these principles are heeded, the outlook for attaining the overall objective--a functioning cycle of goal statement, feedback loop, and correction--are improved. Conversely, when these principles are not embodied, prospects for peacemaking and peacekeeping diminish accordingly.

2. Peace as a Collective Action Problem

Collective action arises when the efforts of two or more individuals are needed to accomplish an outcome. A collective action *problem* arises when a desirable action is not undertaken by those who might benefit from that action. The famous Prisoners' Dilemma allegory illustrates why mutually beneficial collective action may not be undertaken. Although the prisoners' dilemma metaphor is often seen as the archetype of collective action, the two are not equivalent. Whereas the prisoners' dilemma is a collective action problem, not every collective action problem is a prisoners' dilemma. Nonetheless, it still forms the basic paradigm from which to explore and expand one's knowledge base. The prisoners' dilemma is this. Two prisoners are held in isolation from one another. They are accused of a misdeed which each can confess or deny. If both adopt the strategy of denial, they can be convicted only on a minor charge and receive a two year sentence each. But if one confesses and implicates the other, the confessor gets one year for helping to convict the other whereas the one who continues to deny gets ten years. If both confess, both get five years for showing remorse and confession. Thus, looking at Figure 1 (a) below, the following pay-offs emerge for each prisoner (where A and B stand for prisoner A and B).

	B denies	*B confesses*
A denies	A: 2 years B: 2 years	A: 10 years B: 1 year
A confesses	A: 1 year B: 10 years	A: 5 years B: 5 years

(a)

	B denies	*B confesses*
A denies	A: 1 year B: 1 year	A: 10 years B: 2 years
A confesses	A: 2 years B: 10 years	A: 5 years B: 5 years

(b)

Figure 1: The pay-offs for each prisoner

In Figure 1 (a), block out the bottom row (i.e., assume that A is going to deny). Then B is better off confessing (1 year is better than 2 years). Now block out the top row and assume that A confesses. Again, B is better off confessing (5 years is better than 10 years). Similarly, block out the second column, assuming that B denies. In this case it would be better for A to confess (1 year is better than 2). Finally, block out the first column, assuming that B confesses. And again, A will confess (5 years is better than 10). Both prisoners possess a dominant strategy. The dominant strategy is to confess, regardless of the strategy the other might choose. Therefore, both will confess and get 5 years each which, for the collective of two prisoners, is an outcome worse than if both had denied the misdeed.

Countries or groups within a nation-state that are locked in interminable conflict can be represented as prisoners' dilemma game players, as in Figure 2 where the numbers represent some pay-off rank.

	B cooperates (keeps peace)	*B defects (fights war)*
A cooperates (keeps peace)	A: 5 B: 5	A: 0 B: 10
A defects (fights war)	A: 10 B: 0	A: 1 B: 1

Figure 2: Prisoner's Dilemma

Thus, even though both players may agree that it is preferable to keep the peace (cooperate), the pay-off matrix may be structured to produce war (mutual defection). Monitoring and correction thus become important, as systems theory suggests. But before correction mechanisms can be designed, it is necessary to recognize that the outcome of mutual defection in the prisoners' dilemma game is the result of a highly specific set of *institutional circumstances*, and the answer to why countries, or groups within countries, keep fighting lies in uncovering the specifics of these circumstances, and only then in devising appropriate intervention mechanisms that might change the game structure to favor the alternative outcome of mutual and stable peace. For example, the problem our prisoners have is that they cannot change these circumstances. For our prisoners the constraints include, but are not limited to, the following: (a) the prisoners cannot communicate with one another and therefore cannot threaten each other with post-prison punishment should one confess to the detriment of the other; (b) the prisoners play this game only once whereas in many real-life situations players face each other repeatedly so that one player's cooperation tomorrow may depend on the other's cooperation today, and each therefore has an incentive to cooperate even today (the "shadow of the future"); and (c) if the pay-offs were slightly different, different strategies would become dominant. In Figure 1(b), for instance, B should deny if A denies and confess if A confesses. Similarly, A should deny if B denies and confess if B confesses. If both prisoners are required to simultaneously reveal their strategy (players make *simultaneous moves*), Figure 1 (b) will have no unique equilibrium outcome. But if the prisoners may make *sequential moves* where B chooses after A has chosen, or A chooses after B, then a superior collective action outcome will result: both deny. To see this, assume that A moves first. A can assure B the minimum sentence of one year by denying. By confessing, B can undermine this outcome only at the expense of getting two years instead of one. Thus, the sequence of moves is an *institutional feature*, as are the possibilities of loyalty and retribution. If B is loyal to A, surely B will deny once A has denied. But perhaps B holds a grudge against A, and delights in the opportunity to get A ten years at the expense of getting two years him/herself (when A first denies and then B confesses). In this case, A would have been better off confessing in the first place. Both then get 5 years. To avoid this outcome, *honor among thieves* (*honor among rogue states*) may eventually pay off.

The example and elaboration attest that the actual strategies chosen depend on a host of circumstantial institutional features. It is the analyst's task to identify and precisely specify this complex host of variables. In the past, analysts have taken a positivistic approach by observing an outcome and reasoning backward as to which underlying institutional structure could have brought about a specific observed outcome. This approach

reconstructs or "reverse engineers" an institutional structure or set of possible institutional structures capable of generating the observed outcome. A contrary, constructionist, approach would attempt to specify and create an institutional structure such that a desired outcome, such as peace, results "naturally" as in the players' own best interest.

3. Institutions Matter

An important conclusion of collective action theory is therefore simply that institutions are not an afterthought. They matter. By that we mean not the mere presence of an institution such as, say, a World Criminal Court, but its internal functioning and exactly how its presence and functioning influence the players' pay-off matrix. Behavior does not take place in an institutional vacuum. The actions players take (the strategies they decide to play) are determined by the institutions within which they must take effect.

An equally important consideration concerns the nature of the collective action good in question. Not all collective action goods are alike. Even the goal of peace is not alike in all places. In some cases, peace (or at least cessation of continued violence) is a best-shot affair, in others a weakest-link affair, and in still others the outcome of a summation game among multiple players. A best-shot peace is one in which a single player could unilaterally bring about the desired good, wherefore others will wait and free-ride until the capable player moves. For example, the violent intervention in the Persian Gulf War in 1990 and 1991 was possible only because of the United States' overwhelming advantage in force mobility and projection. From a game theoretic point of view it was clear that others could and would free-ride on US efforts. Despite what was said in the news media at the time, the US had no particular incentive to act unilaterally in spite of its ability to do so. Another game developed: between the US and those who wanted it to intervene. The US could credibly threaten to withhold benefits from potential free-riders by delaying intervention and thereby coerce various forms of contributions. In the absence of the US's ability to provide the best-shot at addressing the problem, the collective action good of peace in the Persian Gulf may not have come about or at much greater total cost in prolonged fighting, involving more Middle Eastern countries, more lives injured and lost, and more and more heavily disrupted economies and environments. Once the subgames involving the generation of net benefits for the US were solved, the US then provided the best shot to bring the Persian Gulf War to a quick conclusion.

In other cases, the production technology by which the collective action good of peace is produced is a weakest-link technology. This means that if even one player refuses to contribute, the good will not come about. Keeping the peace (rather than making it once war started) is a weakest-link technology because if in a neighborhood of players even one player defects from a state of mutual peace, the good is not available any longer to any of them.

From these considerations we conclude that even the specification of the goal depends on some underlying institutional features that need careful examination and specification. For example, it is now widely recognized that one cannot merely catalog examples of economic incentives and disincentives ("sanctions") to arrive at insights about which approach or mixture of the two works better. Which works better depends on the institutional context,

including the nature of the good to be produced. A set of sanctions imposed in one set of circumstances may work, in another it may not. Similarly, a set of incentives offered may work under some set of circumstances or institutional framework, but not in another. Economic sanctions imposed on Iraq during the 1990s entrenched and enriched its leadership but further enfeebled its population. But economic and other sanctions imposed on South Africa did contribute to the dissolution of its apartheid system. In the non-democratic circumstances of Iraq, the leadership could be oblivious to sanctions and deflect them to impose further miseries on Iraqi citizens, whereas in the whites-only semi-democratic circumstances of South Africa, the economic and moral effect of sanctions on the white population could not permanently be ignored by South Africa's leaders.

Not only do institutions matter but the *design of institutions* matters. Moreover, as we have seen, it is important to bear in mind that designing a solution to one problem may generate subgames elsewhere. If the primary game is unwittingly made dependent on successful resolution of various subgames, then the prospects for peace (in the primary game) diminish rapidly.

4. Design Principles

This section examines some design principles, not design prescriptions, for building institutions for peacemaking and peacekeeping. These design principles, if followed, should explain the successful making and keeping of peace. Conversely, their violation or absence should explain the breakdown of peace or the continuance of war. We draw on the work of three authors in particular (Axelrod, 1984; Ostrom, 1990; and Sandler, 1997). Whereas some principles aim more clearly than others at any of the three systems theory elements--goals, monitoring, and corrective feedback--one needs to appreciate that the design principles address a second layer of concern: *how* to construct any of the three systems theory elements.

The Principle of Changing Pay-offs: The idea here is to minimize incentives to defect and maximize incentives to cooperate, to induce players towards cooperative action. A number of contemporary civil wars are unnecessarily prolonged because the incentives to defect are large. For example, in Angola in the 1990s UNITA's ability to mine and sell raw diamonds created a huge amount of cash flow and little incentive to settle political differences. Similarly, the Angolan government's ability to extract and sell petroleum kept it financed also. Both sides were flush with money and had no reason to settle, even as generations of ordinary Angolans suffered. To change the pay-off for UNITA, it was unlikely that anybody could offer them more than what they could make on diamond and raw materials trade. Therefore, the onus would fall on diamond consumers, which involved another prisoners' dilemma game: for the individual in the supply chain it may have been costly to switch from Angolan diamonds. Another way to change pay-offs would be to contribute superior military intelligence and arms to one side (or to deny arms to one side), thus changing the balance of force. Sometimes the solution applied, as in the Iran-Iraq war of the 1980s, was to supply both sides so that they would fight to exhaustion and a truce, if not peace. These examples suggest that the game structure itself is changed to a *conditional sum game* in which side A is forced to the negotiation table by an outside force but if side B does not reciprocate with fair negotiations, the outside force can withdraw and impose the

cost of renewed fighting on both parties.

The principle of changing pay-offs also includes consideration of so-called "linkage benefits" and "linkage costs." For example, existing NATO members faced additional costs in admitting Poland, Hungary, and the Czech Republic to NATO in 1999. But the existing members also derive additional benefits outside of NATO by being more closely aligned with the three new members. In another example of linkages, China's accession to the WTO is linked by the US and others to improvements in its human rights record. The idea here is to change China's pay-off matrix by linking the question of WTO accession to human rights agendas.

The Principle of Creating Vested Interests and Leadership: If two players are themselves unable to change the relevant pay-offs, an external force (a "leader") may need to intervene. A leader is an external actor able to organize changes in the pay-off structure and/or the rules of the game (say, from simultaneous to sequential moves). But the intervention of a potential leader needs to be rewarded with its own positive pay-offs, for why else should a leader intervene? This can be illustrated with the sad case of US intervention in Somalia in the early 1990s. The US government decided to intervene only once its own citizens demanded action. They demanded action when shocking pictures of starving people appeared on US TV screens. Ironically, different TV pictures, showing US soldiers being dragged through the streets of Mogadishu, led the US population to demand US troop withdrawal and to leave the people of Somalia to their own devices. This, indeed, is what the US government then decided to do because the internal pay-offs to US leadership had become negative.

Similarly, in the case of Haiti, it was the refugee streams arriving on Florida's shores that prompted the US government to intervene. In the case of the Balkan wars of the 1990s, the initial vested interest was to contain the slaughter within the Balkans. It was only when massive refugee streams spilled into the richer, western European nations, and when there was a real danger of the conflicts spilling into Macedonia, Greece, Bulgaria, and Turkey, that the EU and NATO began to intervene, i.e. once they had a vested interest that affected their own pay-off matrix. Therefore, one way to foster peace is to deliberately engineer or trigger vested interests. In practice, this may not be easy as the horrific examples of mass slaughter in Rwanda, Burundi, southern Sudan, and other places show. (Indeed, for many years outside forces had a vested interest to stoke such conflicts.)

The Principle of Graduated Reciprocity and Clarity: Research has shown that a game strategy called "tit-for-tat" is a highly successful and evolutionarily stable strategy. The tit-for-tat strategy works as follows. Suppose there are two players, A and B. In the first interaction with B, A will cooperate. Thereafter, A will always do what B did in the prior round of play. If B cooperates, so will A in the next round. If B defects, so will A in the next round. One important advantage of this strategy is its unmistakable clarity and automaticity. This strategy builds reputation and consequently credible commitments to cooperate, but also credible threats to defect. There can be no second-guessing about what A will do conditional on what B has done. The tit-for-tat strategy holds no grudge and forgives a past defection by B, as A readily resumes cooperation once B cooperates again. But even though tit-for-tat is a forgiving strategy, if B misunderstands or mistrusts A, there

can be set in motion a series of rounds of mutual defection. Therefore, scholars recommend that A assume a graduated response and show limited provocability. This means that if B defects, so will A but only by something less than full defection. If B continues to defect, then A's defections will gradually move toward full defection also.

The Principle of Engaging in Repeated Small Steps: Cooperation is fostered in circumstances where the parties interact with one another repeatedly and where the end of the interaction is unknown or at least uncertain. By breaking a larger problem of violent conflict or potentially violent hostility into smaller parcels, players are forced to interact with one another repeatedly. This increases the frequency of rounds played and lengthens the duration of the overall interaction. If any one small round can be driven to a cooperative outcome, for example with so-called confidence-building measures (CBMs), both sides risk losing gains already made if they fail to continue to cooperate in subsequent rounds. Also, if the last round of the game were known, then players would adopt the strategy of defection and thereby forego mutually possible gains. Thus, changing the game into an assurance or conditional game, where A commits to cooperate conditional on B's cooperation and vice versa, will assist in bringing about peace.

The Principle of Value-Formation: Formation of common tastes or preferences produces voluntary aggregations of "like-minded" individuals or entities ready to play cooperative games for mutual benefit. This applies to teenagers sharing particular musical tastes or trends in fashion as it applies to hobbyists (e.g., scuba divers, aficionados of classical guitar music, short-wave radio operators) and to nation-states (e.g., the EU, Arab League, ASEAN). This also accounts for the remarkable proclamations of former enemies who during intense negotiations learn that they personally share values such as leadership, political savvy, care for their respective citizens, and end up with personal respect and even friendship.

This principle also explains why "like-minded" nations tend to cooperate well, disagreements notwithstanding. Similarities in political and economic systems, religious beliefs, language, cultural heritage and so on tend to forge reliable bonds across nation-states to form a cluster of cooperative behavior. Large group size by itself will not necessarily make collective action impossible, and neither will small group size always promote it, but it will generally be easier to find commonalities of values among smaller than among larger groups.

The Principle of Democracy: Democracy means that those affected by collective action (peace or war) should have a voice in making the decision. Those affected by decisions must have a voice in shaping the decisions that affect them. This is true of individuals within groups, as it is of groups within countries, as it is of countries within the world system. (It is ironic that nation-states that deny their own citizens an effective voice demand it all the more in international settings.) This includes people's rights to organize, address and solve their own problems and conflicts, and to search for and find indigenous solutions to what may be unique problems. In the absence of a "voice," peace may not be stable. The principle of democracy also allows for gradual and continuous "self-transformation" of institutions, as old problems disperse and new problems arise that the affected communities need to address.

The Principle of Subsidiarity: Subsidiarity means that problems be addressed at the minimum necessary level of the affected population and that higher-level, "external," involvement not be automatic. Many conflicts can best be resolved at the local level without necessarily involving a government or outside nation-state or group of nation-states. Only if it becomes clear that the structure of the game and pay-offs lead to mutual defection by the affected groups should outsiders take a vested interest. In the case of nation-states, the vested interest may be the continued coherence and viability of the nation-state within which the conflict takes place. For example, in the conflagration over the introduction of Islamic law in some Nigerian provinces in the late 1990s one can well make the argument that Nigeria as a nation-state has the obligation to intervene in the provinces before the conflicts grow out of hand and lead to major civil war.

The principles of democracy and subsidiarity, if applied, virtually guarantee continued, gradual "self-transformation" of collective action institutions such as peacemaking and peacekeeping at the relevant decision-making level. For example, if a conflict over grazing rights is resolved by groups A and B, then a further, future conflict over water rights involving group C can also be resolved because democracy guarantees each group a voice and subsidiarity extends the reach to include group C.

The Principle of Conflict-Resolution Mechanisms: There must be speedy, low-cost access to dispute resolution venues. Peacemaking and peacekeeping rest on agreements, but disagreement over the agreements frequently arises. To keep these from escalating, ways must be found and stipulated by which to handle follow-on conflicts. The absence of such mechanisms to address further grievances and conflicts portends weak peacekeeping and the eventual breakdown of peace.

The Principle of Information: Information reduces uncertainty and leads to better forecasts of expected benefits and costs. By the same token, misinformation can create uncertainty or false certainty. (Sometime players have a vested interest in creating misinformation to win the game played within their own group.) The modern news and telecommunication industry can therefore be of tremendous assistance to peacemaking. But since this industry is caught in its own subgames (of profitability for example) there is an opportunity for very wealthy individuals to fund independent agencies for reporting and disseminating high-quality, accurate world news. The advent and spread of the Internet permits those with access to collect information about any topic from anywhere in the world, and this is a hopeful sign.

The Principle of Accountability: Information has the decided advantage of naming individuals responsible for war actions. Nowadays it is virtually impossible for leaders to remain anonymous in making war. With that comes accountability before the court of world opinion. Mere knowledge of who did what is not sufficient. Accountability requires a court, such as a permanent World Criminal Court. As before, the establishment of a World Criminal Court creates its own game but it is not impossible for a small set of like-minded nations to create one and be prepared to hold trials. This would be better than the uncertainty involved in whether or not the UN *might* create a special tribunal as new violent conflicts erupt. The principle of reciprocity and clarity should apply so that any future war-makers know ahead of time that they will be called to personally account for

their actions.

The Principle of Monitoring: Monitoring refers to the ability to collect, process, and verify information. It is the ability to effectively, efficiently, and accurately monitor the actions of the other player. This ability requires skills and skill development. On occasion, advanced, industrialized countries have shared results of their satellite monitoring with other countries. But such government monitoring is a club good (non-rival but excludable). In contrast, an international, but private spy-satellite and intelligence network that could monitor in real time various rebel and government troop movements in places such as Sri Lanka or Angola would virtually guarantee continued deadlock, and thereby force both sides into negotiation as their wars cannot be won when perfect information about the other sides' strength and movements is readily available. Existing peace research and strategic studies institutes form a valuable information function but one that could be expanded and be made much more useful. Monitoring and monitors must be accountable to the affected population. One way to assure this is to permit conflicting parties to select jointly approved monitors (rather like defense and prosecution agreeing jointly on a set of jurors in the US justice system).

Information processing is largely an aspect of education and institutional capacities within the affected players. Verification depends on technology, processing, and some degree of access to the other player. Where the principle of effective, efficient, and accurate monitoring does not apply one would predict more breakdowns in peace.

The Principle of Self-Policing Enforcement: There are two types of enforcement, external policing and self-policing. External policing generates its own prisoners' dilemma and free-rider problems. UN peacekeeping forces are financed on a mission-by-mission basis, often too late and too feeble to effectively intervene in conflicts, as one nation waits on another nation to commit troops or funds to the mission at hand. Therefore, a self-policing enforcement is, where possible, preferable. Self-policing is closely linked to monitoring. If monitoring shows that player B defects, a self-policing agreement will induce player A to also defect and thereby withhold future gains from B. In this regard, it is thus generally more efficient and effective to supply parties with the ability to monitor each other than to rely on external monitoring. Exceptions occur when economies-of-scale make it worthwhile to "outsource" at least part of the monitoring function (in which case that part can be extended to the parties at cost). For example, members of the UN could subscribe to shares in a UN-based and operated spy-satellite network to supply real-time information to subscribers.

The objection that this would help entrench repressive governments or help guerilla movements overthrow legitimate governments does not hold when this principle is combined with others such as changing pay-offs, creating vested interests, democracy, and accountability.

The Principle of Nesting: The foregoing suggests that economies-of-scale, of learning, and of scope may favor the nesting of institutions. The current UN system serves as an example of economies-of-scope as a large variety of specialized functions are more or less loosely organized under the auspices of a joint umbrella organization. Peacemaking

negotiations are unlikely to show economies-of-scale but peacekeeping (a ready, standing UN peacekeeping force) would.

5. Conclusion

Every period of war eventually ends in genuine peace. The fundamental question of peacemaking and peacekeeping is therefore how one can prevent war from arising in the first place or at least limit its duration and destruction. In this entry, we briefly sketch some principles whose application may not guarantee peace but whose violation would reduce the chances for reaching peaceful settlement of conflicts.

Glossary

Best-shot:	A single player capable of providing a public good.
Collective action:	Arises when the efforts of two or more individuals are needed to accomplish an outcome. This outcome may affect more people than those who undertake the effort.
Democracy:	Those affected by collective action have a voice in making the collective action decision.
Game theory:	Method for the study of interdependent decision-making by rational players where cooperative or non-cooperative outcomes are possible.
Graduated reciprocity:	To respond unequally (either more or less) to another player's action.
Institution:	A rule or set of rules governing the behavior of individuals in a group.
Leader:	A player able to organize changes in the pay-off structure or rules of the game.
Monitoring:	Refers to the ability to collect, process, and verify information.
Prisoners' dilemma:	A situation in which two players rationally choose strategies that make them jointly worse off.
Weakest-link:	A single player able to prevent the production of a public good.

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Biographical Sketches

Jurgen Brauer is professor of economics at Augusta State University's College of Business Administration (Georgia, USA). He is vice-chair of the board of directors of Economists Allied for Arms Reduction, a US-based group of economists, and serves on the editorial boards of the peer-reviewed journals Defence and Peace Economics (UK) and Nacao e Defesa (Portugal). He is widely published on the economics of military affairs, arms production, arms trade, disarmament, conflict, and peace. He has published several edited books, most recently with Prof. J. Paul Dunne ("Arming the South," Palgrave, 2002 and "Arms Trade and Economic Development," Routledge, 2004). Two monographs - on the environmental effects of war and on the economics of military history - are forthcoming.

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