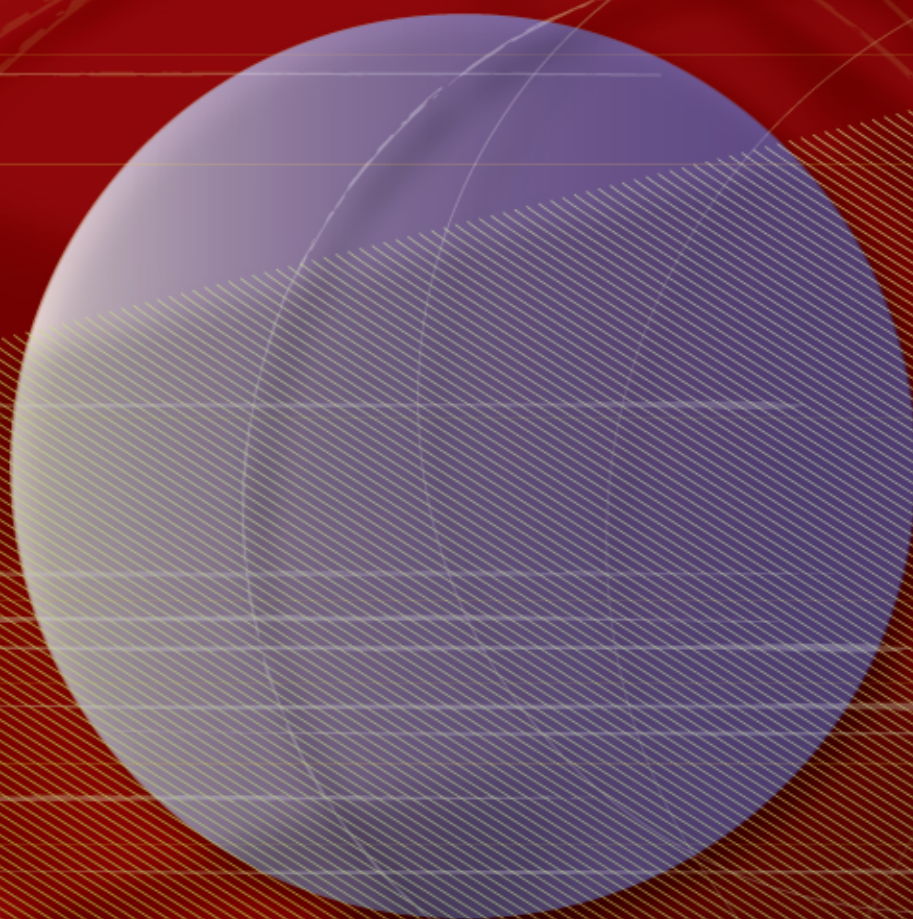


options

Summer 2004

The Processes of International Negotiation



New Dimensions to Normative Findings

options summer 2004

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Options magazine features the activities of the International Institute for Applied Systems Analysis (IIASA), located in Laxenburg, Austria. IIASA is an interdisciplinary, nongovernmental research institution sponsored by a consortium of National Member Organizations in Africa, Asia, Europe, and North America. The Institute's research focuses on sustainability and the human dimensions of global change. IIASA's studies are international and interdisciplinary, providing timely and relevant insights for the scientific community, policy makers, and the public.

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Cover design
by Anka James



Leen Hordijk
Director of IIASA

Editorial

During the past decade, IIASA has striven to become a leader in global change research. Our research programs cover a wide range of topics related to global change, spanning from population aging to climate change and from flood management to the dispersion of technologies. Global change manifests itself as a series of rapid and large changes in many realms of society and nature. The impacts of these changes are sometimes global—they cross national boundaries and can only be mitigated by joint action. Sometimes they are of a universal nature—they emerge within the boundaries of a nation, but are shared by many nations. Examples of the first category are globalization and climate change; universal change problems include HIV/AIDS and floods and earthquakes. As these examples indicate, global change is not restricted to such large-scale topics as climate change.

In the scientific literature, global change has been mostly interpreted as global *environmental* change. In this interpretation, changes in population, economics, energy, and technology are seen as drivers of global environmental change. However, they also have their own dynamics and their own considerable influence on the welfare of the world. For this reason, IIASA's scientific program takes a much broader perspective and aims to study the linkages between these various global changes. Systems analysis provides an important framework that links several aspects of global change. Moreover, it provides a common basis for our research programs, which are truly interdisciplinary: at IIASA, the research questions and methodology are developed jointly by scientists from different disciplines, who then carry out the research together. It is important to stress this approach to collaboration, because in many research programs throughout the world, interdisciplinarity has proved to be a very difficult endeavor. In my own experience, I have noticed that, more often than not, research questions are formulated by scientists in closely related disciplines, with scientists from other disciplines only participating in the execution of the research. This way of operating often leads to frustration on the part of the scientists involved and, even worse, to one-sided analyses.

An important reason for the difficulties of interdisciplinary research is, of course, the fact that researchers in different fields have been trained to think and analyze in different ways. Therefore, it takes a fair amount of time for scientists to really engage in interdisciplinary work. They have to understand each other's way of thinking and learn to accept and appreciate that no single, unique scientific language exists, and that in reality there is no one "best methodology."

Although program titles such as Transboundary Air Pollution and Forestry may seem to indicate work done within individual disciplines such as air chemistry and meteorology or forest economics, this is not the case. IIASA's research programs draw on the work of scientists from a mixture of disciplines. A recent survey of the scientific backgrounds of IIASA staff revealed that about 40 percent have a background in the social sciences (including economics) and 60 percent come from the natural sciences and mathematics. This makes IIASA very different from research departments in universities and most other research institutes.

This issue of *Options* shows IIASA's character as an interdisciplinary institute for global change. It provides information about new research such as our Greenhouse Gas Initiative and new research results from our population and biology programs. This issue also reports on our activities for young scientists from developing countries, including a new research and training institute on "vulnerability to global change and environmental risks."

Most of this issue of *Options* is, however, devoted to the results of our Processes of International Negotiation (PIN) Network. In a series of articles, members of the Network discuss such diverse subjects as negotiating the Caspian Sea, negotiation processes between Europe and Central America, and "peace versus justice." Other articles are devoted to theoretical and fundamental issues in negotiation such as the concept of dialogue and new modes of negotiation for new security challenges.

I am sure that this issue of *Options* will bring you, as readers interested in IIASA and global change research, a large variety of interesting reading material.

A handwritten signature in blue ink, appearing to read 'L. Hordijk', with a stylized flourish at the end.

New Dimensions to Normative Findings

Through its research, IIASA develops solutions to complex problems. The Processes of International Negotiation (PIN) Network focuses on the ways to get these solutions (and others like them) into the appropriate decision stream.

Negotiation is the unique means of finding a peaceful, cooperative solution to a shared problem or conflict. While technical, and even optimal, solutions may be available, they need to enter into the social, political, and psychological decision process in order to emerge as an adopted outcome. That process itself involves conflict, which means that the ways conflict is and can be resolved need to be understood in order to resolve the problem at issue. Thus, those involved in the analysis and practice of negotiations on major international issues—such as security, resource distribution, the environment, and welfare—need to improve the “negotiable” dimension of their relations, not only to extend the scope of possible solutions but also to find new ones.

to develop the ingredients of negotiation analysis in terms of a process of gradual convergence and creativity for dealing with international conflicts and issues, which suggested a wide agenda for research and training.

Such work has both shown the need and paved the way for further research into additional, innovative problem-solving mechanisms concerning international issues related to resource sharing, conflict resolution, and cooperative agenda setting, among other matters. With the waning of the Cold War era, the opportunity arose to both develop and apply better knowledge about negotiation. This challenge was particularly appropriate for IIASA, an organization created to foster scientific cooperation. Such has been the thrust of the PIN Network, addressing both the expansion of theory and the improvement of practice.

The evolution of PIN at IIASA

IIASA's first director, Howard Raiffa, believed that international negotiations should be a major element of IIASA's research agenda. He saw the importance of negotiation in seeking solutions to international disputes and the possibility that IIASA, a multicultural and multidisciplinary institution bringing together East and West, could play a role in leveling differences in the negotiating styles and habits of major negotiating partners in international relations. Raiffa's interest in international negotiation was shared by others, and in early 1980, IIASA's National Member Organizations (NMOs), including those of the United States and the Soviet Union, agreed that a project for analyzing the patterns and systems of negotiation should be established. After several years of drafting proposals and seeking funds (which at that time came from the Carnegie Corporation of New York), the PIN Project was born.

Strategy for research

The new PIN Project began with a conference organized to take stock of the scope of issues falling within the framework of negotiation analysis and the audience for such research. A major international conference was held in 1987 that attracted participants from the diplomatic, academic, and business communities. The results of the conference, presented in *Processes of International Negotiations*, the first publication of the PIN Project, revealed a vast space relevant for research both at IIASA and beyond.

The following year, a Steering Committee was appointed to run the PIN Project. The Steering Committee currently consists of seven persons: Rudolf Avenhaus, a statistician and game theorist from the German Armed Forces University in Munich; Franz Cede, a diplomat currently serving as the Austrian ambassador to Belgium and NATO;

The processes of international negotiation

International negotiation may be approached from three angles. First, it is an interactive decision-making procedure by which sovereign parties try to find an appropriate solution to a disputed problem. These parties may be governments, corporations, international organizations, nongovernmental organizations, or other groups that have the power and interest to seek solutions by bargaining. International negotiation is also a means of communicating through the exchange of views, information, and concessions that plays a salient role in establishing the framework of international cooperation. Finally, it is a strategy that combines unilateral and bi- or multilateral actions that are pursued by actors in international relations in order to achieve a certain type of decision.

In all three approaches, the key to creating outcomes lies in understanding the process involved, the dynamic space that links the problem or conflict and the outcome. Negotiation takes place where unilateral efforts to resolve a problem fail or become irrelevant. There need to be processes by which conflict, in the basic sense of an incompatibility of positions, can be overcome so that cooperation can take place and problems can be resolved.

Attention was drawn to such processes in the early 1960s by a number of analysts. It was during this period, the heyday of the Cold War, that Thomas Schelling at Harvard University pointed out that mixed-motive or bargaining games involve both mutual dependence and conflict (a non-zero-sum game approach), allowing for strategic moves of threats and deterrence. In this view, negotiation was a prevention of war by other means, to turn Clausewitz on his head. This approach was expanded by Anatol Rapoport at the University of Michigan, who identified productive competition between parties in games (as opposed to fights and debates), which allowed both parties to win without eliminating each other. Once such an approach was accepted, negotiation could take its legitimate place as a means of both problem solving and conflict resolution. Fred Charles Iklé, of Harvard and RAND, further identified negotiation as an alternative to the zero-sum process of “yes or no” through a third possibility of continuing to talk in order to fashion a jointly agreeable outcome.

The stage was thus set for a new group of writers on negotiation, including Roger Fisher and Howard Raiffa of Harvard, I. William Zartman of the Johns Hopkins University, Dean Pruitt of the State University of New York, Jeffrey Rubin of Tufts University, and Robert Axelrod of the University of Michigan. In the early 1980s, these writers began

Guy Olivier Faure, a sociologist from the University of Paris V–Sorbonne; Victor Kremenyuk, a political historian from the Russian Academy of Sciences; Paul Meerts, a political scientist and diplomatic trainer from the Netherlands Institute of International Relations–Clingendael; Gunnar Sjöstedt, a political economist from the Swedish Institute of International Affairs; and I. William Zartman, a political scientist from the Johns Hopkins University. Members serve on a volunteer basis.

The flagship publication of the PIN Network, *International Negotiation: Approaches, Analysis, Issues*, a thematic state-of-the-art presentation of international negotiation, was the result of a second conference organized in 1989. The work identified the parameters of negotiation analysis (actors, structure, strategies, processes, outcomes), the major approaches to the study of negotiations (historical, legal, economic, organizational, cognitive, formal modeling, etc.), major areas of negotiation (arms control, conflict resolution, international cooperation, economic relations, environmental issues, etc.), and the prospects for training for negotiation. The volume has frequently been adopted as a textbook, and its revised second edition was awarded a prize by a major dispute-settlement organization in 2002.

Working from its initial publications, PIN's research strategy has been to organize international teams to examine and build on the latest research on topics chosen by the Steering Committee. Subjects of the annual PIN workshop and publication alternate between *conceptual development*—relating negotiation to escalation, risk, culture, power, formal models, and regimes, for example—and *applied analysis*—examining negotiations on matters such as nuclear issues, the European Union, environmental issues, climate change, and conflict prevention. PIN books generally conclude with "lessons for theory" and "lessons for practice."

Organization of PIN's negotiation research

At the core of PIN's activities is the PIN Steering Committee, which meets three times a year and serves as a headquarters for negotiation research, planning new research activities and administering ongoing projects. Around this core are the members of the international working groups engaged in the individual research projects. PIN activities are supported by the Hewlett Foundation and by occasional funding for individual projects. In the early 1990s, the PIN Project also had a resident leader at IIASA, Bertram Spector. In late 2004, PIN will take on a junior scholar–administrator as project coordinator. The in-house component of the PIN activities at IIASA currently is limited to administrative assistance and support.

In addition to its planning responsibilities and its role coordinating research, the Steering Committee also serves as a liaison between IIASA and the wide audience of people engaged in negotiation research all over the world. One of its activities is to organize "Road Shows"—one-day conferences on negotiation topics (see article on page 15 for a more complete description of PIN's Road Shows). To date, a dozen Road Shows have been held at venues around the world, with more planned for the future. Road Shows serve to encourage interest in negotiation research, stimulate the formation of PIN networks and the involvement of individuals in PIN workshops, and promote an interest in IIASA among new constituencies.

Another circle of activity involves the network of national PIN groups that exist in a number of countries, including France, Finland, Germany, and the Netherlands, among others. The largest circle comprises the nearly 5,000 recipients of the newsletter *PINPoints*, published by the Committee twice a year to report on PIN activities, including new publications and new ideas and applications related to negotiation research. *PINPoints* also brings IIASA to the attention of different audiences abroad.

The PIN Steering Committee also works with the international community of experts dealing with specific issues and producing negotiated results. Thus a book project on the impact of culture on negotiations was carried out in cooperation with the United Nations Educational, Scientific and Cultural Organization (UNESCO), which arranged its translation into several languages; a book project on regime building was carried out with the UN Conference on Environment and Development (UNCED) program; a study of negotiations on civilian and military uses of nuclear material was conducted in cooperation with the International Atomic Energy Agency (IAEA), with a foreword by Dr Hans Blix; a book on different cultural traditions of negotiation carried a foreword by Dr Abdoulaye Wade, president of Senegal; and a current project on formal models of, in, and for negotiation features the use of IIASA's RAINS model. Such projects put PIN in the midst of its subject as practiced and help to increase international cooperation.

In this issue of *Options*, which replaces the regular issue of *PINPoints*, members of the PIN Steering Committee present some major results from their current work as well as some aspects of negotiation analysis that have recently come to the forefront in discussions within the community of analysts and practitioners of the processes of international negotiations. ■

Processes of
International Negotiations
F. Mautner-Markhof, editor
Westview Press, Inc., 1989
ISBN 0-8133-7721-8



PROFESSIONAL CULTURES IN

INTERNATIONAL NEGOTIATION

Bridge or Rift?

GUNNAR SJÖSTEDT

Professional Cultures in International
Negotiation: Bridge or Rift?

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Seminal Texts in Negotiation Analysis

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Peace versus Justice: Findings of a Study on Negotiating Backward- and Forward-Looking Outcomes

Negotiations can be focused in two directions. Backward-looking negotiations are those that seek to end ongoing violence, try to resolve a confrontation of rights and status, and seek accountability for past actions in a conflict. Forward-looking negotiations look for mechanisms to prevent future violence, seek opportunities for cooperation and problem solving, and try to prevent the resurgence of the old conflict in a new form by resolving its underlying causes. It is not enough to bring current combat to an end if future incidents and underlying causes promise a return to conflict when the current phase has passed. Backward-looking outcomes that merely halt hostilities are no more than cease-fires if they do not deal with the deeper causes that are likely to produce future hostilities. To be fully effective, negotiations need to provide forward-looking outcomes as well, dealing with deeper causes and setting in place regimes to handle future outbreaks of conflict.

On the basis of a dozen case studies explored in the forthcoming PIN book *Peace versus Justice: Negotiating Forward- and Backward-Looking Outcomes* (see table of contents on page 5), clear conclusions can be drawn on the relationship of forward- and backward-looking negotiations to process and success. The small number and large variety of the cases from which these conclusions

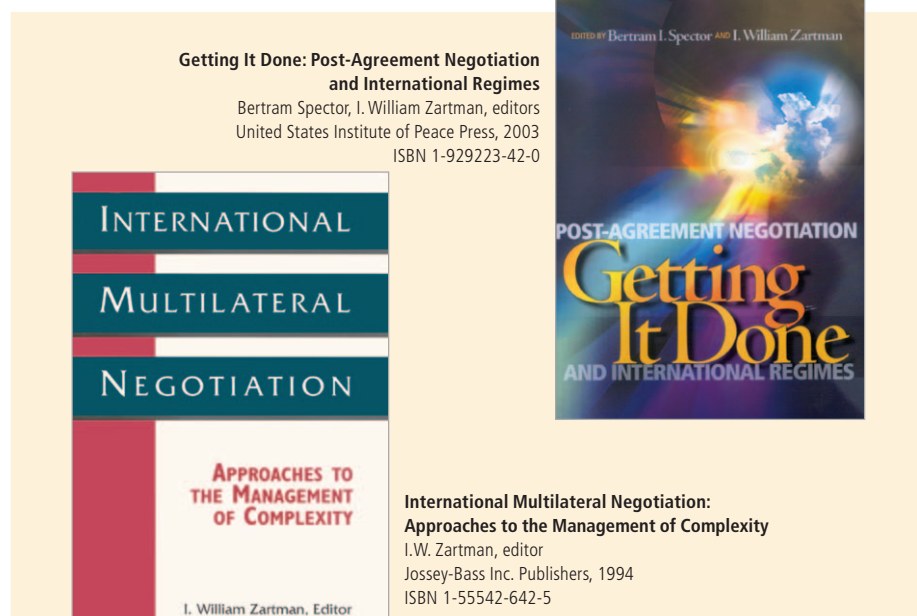
are drawn do not limit their validity; they merely set up hypotheses which are initially supported that other studies can then test further.

First, there is near unanimity that backward-looking negotiations are unable to reach a conclusion and only reiterate the conflict in diplomatic terms, as "war by other means." As long as France and Germany, and the parties to the Thirty Years and the Napoleonic Wars before them, continued to maintain their just rights and look for accountability and punishment, no settlement was possible. Similarly, as long as the occupying powers of Austria demanded reparations and restitution as the basis for a state treaty, no agreement could be achieved. As long as the Arab states and Israel resolutely looked backward and remained anchored in the three "Noes" of Khartoum 1968—no recognition, no negotiation, no peace—the negotiation remained at the same "dead point" of 20 years earlier. In Nagorno-Karabakh, the Armenians and the Azeris, and in Cyprus, the Greek and Turkish Cypriots (and behind them the Greeks and Turks), all peoples heavy with past grievances, have focused on these offences to the exclusion of any agreement. In Mozambique, too, the Frelimo government and the Renamo rebels harped for a long time on their grievances against each other and wondered why the other did not admit

its guilt, producing no effective negotiation. In South Africa, the two sides long focused on past grievances; the first move by the National Party was to offer to trade renunciation of violence by the African National Congress for Nelson Mandela's release from prison, an exchange that was rejected because it focused on the past rather than on the solution of common problems. Finally, Ecuador and Peru moved nowhere in their border dispute because each based its position on the legalities of its past title. The record is striking: When parties repeat their grievances from the past, their past legalities, their demands for reparations and punishment, as the basis of their position, negotiation is truly war—that is, the elimination of the other party—by other means, not the search for a solution.

Second, there is also considerable evidence in support of the reverse proposition, that forward-looking negotiations lead to a resolving outcome, although the numbers are not as overwhelming as in the first case. In 17th century Westphalia, it was the provision of a new state regime that allowed the parties to overcome their three decades of conflict; and in 19th century Vienna, it was the creation of a new inter-state regime in Europe that ended a decade of war. In the Austrian case, it was the provision of a new status for the country that opened the way to successful negotiations on a state treaty; in Ecuador–Peru, it was the agreement to substitute future development for past litigation that made resolution possible. Similarly, the new common trade status brought about by Mercosur allowed Argentina and Brazil to begin measures to overcome their past rivalry and to turn attention to building a common future. The French and the Germans consciously negotiated the spirit and institutions of future cooperation to replace the heritage of their past animosities, and it was the concomitant growth of Europe that allowed the two neighbors to constitute the Bonn–Paris axis of their common project. In the same way, black and white South Africans together built a new political system, working out new institutions to move beyond the deadlock to which the old system had led them, just as the Mozambicans did in transforming their wars into political competition. In the process, neither of these countries removed all their old grievances; rather, they used their new political mechanisms to work them out.

In a few cases, the results are more limited, sharpening the message. In Nagorno-Karabakh, the warring parties arrived at a cease-fire that has held for nearly a decade; however, as they have never turned to building future relationships, the basic conflict continues. Egypt and Israel settled their past grievances in their territorial and security settlement, but they prevented themselves from consummating that backward-looking basis with forward-looking relationships; both parties remain frustrated, disappointed, and embittered, unable to move ahead. In Bosnia, many parts of the Dayton Agreement were backward looking, reifying the ethnic divisions of



the country while consolidating the existence of one country. But other aspects provided mechanisms—such as courts and elections—with room to grow into dispute-settlement institutions for the future.

Third, in some settlements, backward-looking justice was set aside, usually as the price for peace. In the Austrian peace treaty, the very basis of the agreement was the giving up of reparations for past injustices; the provisions for a future status on which peace could be built then became possible. Between Ecuador and Peru, the justice of the past legal claims was pushed aside in favor of the construction of peaceful relations. Argentina and Brazil also provide a clear example of superordinate values, as they shifted from the pursuit of justice to the creation of welfare as the cooperative basis of peace. In the Middle East, the peace treaties of Israel with Egypt and Jordan dwelt little on justice as accountability, except for the justice of the recognized frontiers, and focused instead on mechanisms for keeping the peace in future relations. In Mozambique, the pursuit of justice regarding the perpetrators of the awful crimes of the past insurgency was put aside in the settlement, and instead forward-looking mechanisms were provided—notably in the provision for elections—to implement justice in the future.

However, in an equal number of cases, while the focus was on forward-looking peace agreements, justice was not forgotten. Instead, its provision under controlled conditions was the doorway to acceptance of the agreements. Between France and Germany, the very basis of the post–World War II settlement was to eschew the harsh justice that followed World War I and led to its successor. The peace of reconciliation was made possible, however, by the use of various forms of justice, from the Nuremberg Trials to settling accounts with collaborators, with many national measures in between, although the collective responsibility of Germany still remains debated. In South Africa, peace was achieved in part through the Truth and Reconciliation Commission, designed to assuage feelings of past injustices and replace the need for retribution. In Bosnia, the establishment of the International Criminal Tribunal for the former Yugoslavia (ICTY) two years before the Dayton Agreement freed the negotiation process of the need to deal with retributive justice and was explicitly accepted by the parties (probably with fingers crossed) in the agreements. In this case, justice was a condition of agreement for the mediator rather than for the parties.

Fourth, by extension, in notable cases where a forward-looking outcome was finally achieved, the establishment of a new relationship rested on the settlement of some very basic backward-looking elements of both peace and justice. A number of these cases were able to move to resolution and even transformation because a minimal peace was agreed to and observed. Only in Westphalia, Vienna (in a sense), and Dayton was peace the result, not the precondition,

of negotiation. The other settlements followed—sometimes after a considerable length of time—the end of combat; and even in the three exceptions, combat was much abated when the talks began.

Even once an end to the fighting had been established, a number of cases were resolved only because forward-looking provisions to deal with the underlying causes of injustice were the basis of the agreement. Peace would not have been achieved in South Africa if the racial majority had not been brought into political control, in exchange for the white minority's preservation of its economic and social position. Peace would not have been achieved in Mozambique without recognition of the equal standing of the parties before the tribunal of elections. The Camp David Agreements and the Washington Treaty between Egypt and Israel were based on the achievement of Egypt's primary goal, the reversal of two decades of Israeli occupation of the Egyptian Sinai, which Egypt paid for with the establishment of peaceful relations with its former occupier and only token linkage to the continued occupation of Palestinian territory.

The formulas for these agreements embodied a solution of justice, establishing a new basis of relations paid for by compensations to the concerns of the conceding party. They were not based on a backward-looking notion of justice as accountability or retribution. Even in cases such as Ecuador–Peru, France–Germany, and Argentina–Brazil, the formula for the agreement was the establishment of new relations on the basis of equal respect between parties constructing a forward-looking cooperative solution; in other words, a positive-sum notion of justice replaced a zero-sum notion of justice as the grounds for peace. In short, the establishment of a new relationship is the essence of forward-looking outcomes. The definition “a state of being mutually or reciprocally interested” comes close to a notion that incorporates interdependence, interaction, cooperation, collaboration, mutuality, respect, and predictability in dynamic patterns of dealings between parties. A relationship can comprise regular occasions to interact and cooperate, mutually profitable interdependencies, mechanisms for handling future conflicts, and growing norms

Peace versus Justice: Negotiating Forward- and Backward-Looking Outcomes

I. William Zartman and Victor Kremenyuk, editors

The forthcoming PIN book *Peace versus Justice: Negotiating Forward- and Backward-Looking Outcomes*, to be published by Rowman & Littlefield, seeks to elucidate a number of aspects of the peace versus justice dilemma, where both are necessary but one is often possible only at the expense of the other. The 12 case studies cover a wide range of relevant peacemaking situations and can be divided into three types of cases: large systemic international settlements from the past; major settlements of the late 20th century; and smaller cases, either bilateral cases or “unilateral” cases concerning internal conflicts.

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on mutual dealings. However, they must be institutionalized to provide regular, viable norms and expectations that impede future conflict.

In many cases, forward-looking peace and justice was achieved by ignoring demands for backward-looking justice; in others, provisions for handling backward-looking justice were the price paid for the establishment of forward-looking outcomes. How was such an approach instilled in some cases and ignored in others? And how could such an approach become so pervasive that it excluded insistence on settling past accounts?

In all of the forward-looking cases, including those concerning Austria, Mozambique, Argentina–Brazil (and then Chile), Ecuador–Peru, Israel–Egypt, Israel–Jordan, and the Oslo phase of Israel–Palestine, it was a state of mind or strategic approach by the parties that allowed the construction of positive relationships; these relationships did not simply grow out of the dynamics within the negotiating process itself. The parties came to a decision (or internal factions came to power after having made the decision) that peace could not be achieved through the exclusive pursuit of past grievances and that such pursuit was counterproductive, bringing neither retributive justice nor peace. A new tack was needed. The turn to forward-looking outcomes saw a new regime as preferable to continued violent conflict for rights and justice.

In most cases—for example, in the Middle East, the northern Andes, Bosnia, and Mozambique—new, forward-looking attitudes came from the mediator, who, tired of the continual recurrence of debilitating violence, called on the parties to search within themselves for a better instinct as an entry to a better future. In other cases—such as those involving Westphalia, Vienna, Austria, France–Germany, Mercosur, and, curiously, South Africa—one (or more) of the parties saw recent gains that it wished to preserve against impending loss and so enticed the others into negotiations that would preserve their gains or at least protect them from further losses. In line with the teaching of prospect theory, attitudinal change was designed to avoid losses or protect recent gains, rather than to achieve new ones.

On the other side of the ledger, the Palestinians and Israelis, against all theory and common sense, rushed into a mad cycle of imposing losses on themselves, and incidentally on each other, oblivious to the gains they could produce together. Perhaps more insightfully, one-sided gains in Cyprus, favoring the Greeks, and in Nagorno-Karabakh, favoring the Armenians, provided no incentive for either the stronger or the weaker party to put an end to conflict and seek forward-looking negotiations. Since both sides refused to feel any impelling pain in their situation, mediation attempts in all three cases had no purchase on the conflict and could not bring about the necessary change in attitude. ■

Science and Problem Solving in Multilateral Talks: A Weak State Problem

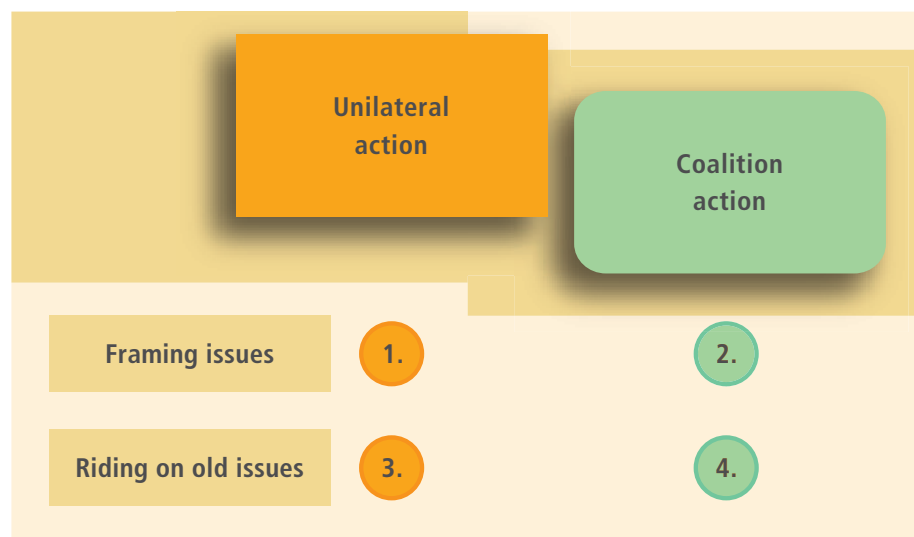
Many economic, environmental, and social issues need to be addressed through international negotiation because they are transboundary in nature. Their transboundary nature also contributes to making these issues complex and cumbersome to cope with in international talks. For this reason, multiparty negotiation on transboundary issues has typically contained a large element of problem solving. In turn, problem solving has required important input from the international scientific community. Scientific knowledge has been a critical factor in many multilateral negotiations, where it has performed a number of different roles. A comparison between the trade negotiations in the World Trade Organization (WTO) and the international talks on climate change illustrates this point.

In the WTO, neoclassical trade theory has functioned as a knowledge-based norm giving the trade negotiations a clear direction. To put it in simple terms, the theory of free trade has authoritatively explained why all countries have a long-term interest in eliminating barriers to trade, even when such barriers are defended by domestic pressure groups who claim they serve the national interest. To some extent, and on some occasions, the scientific knowledge embedded in free trade theory has driven the recurrent liberalization negotiations in the General Agreement on Tariffs and Trade (GATT)/WTO.¹ The free trade norm has constantly represented a constraint for the development of negotiation strategies and arguments in GATT/WTO. It has been illegitimate to argue that “I support this proposal

because it serves my interests.” Each position taken in a trade negotiation should be couched in terms of the theory of free trade on which the whole WTO regime rests: “I support this proposal because its implementation will reinforce free trade, which is in the interest of all of us.”

Scientific knowledge has also served as a driver in the negotiation on climate change, but in a different way than in the trade talks in GATT/WTO. In the climate talks, solid and certain knowledge about the issues was initially so limited that it became necessary to build up a platform of consensual knowledge in the negotiation process itself. This activity drove the negotiation forward by determining the climate problem, by identifying possible approaches for problem solving, and by simply establishing a science-based frame of reference, or discourse, for the negotiating parties.

However, problem solving in a negotiation is not the same as problem solving in a laboratory environment controlled by scientists. Recall that negotiation is always a combination of cooperation and dispute settlement, or conflict resolution. Problem solving is always combined with a game of value (re-)distribution. In the trade negotiation, parties have an interest in policy cooperation that will increase world trade, but they also want to expand their market shares. In the climate talks, many parties may perceive a joint interest in halting the process of climate warming, but they also disagree about the principle for cost sharing.



Strategies for upgrading small stakes in the trade talks.

There is no simple association between, on the one hand, *cooperation and conflict resolution* and, on the other, *problem solving and value (re-)distribution*. For example, joint problem solving may indicate a strong manifestation of cooperation, but it may also represent a way of establishing a formula for value distribution in line with the interests of the strongest coalition in the game. Technical problem solving may be a prerequisite for a feasible solution to complex predicaments in negotiations on issues like climate warming or world trade. But problem solving may also represent a highly demanding strategic power game determining the whole direction of the negotiation by establishing criteria for the inclusion of relevant issues in the agenda and conditioning the outcome by indicating appropriate and feasible negotiation solutions.

Conventional wisdom holds that a multilateral setting is more favorable than a bilateral one for a small state dealing with a great or hegemonic power like the United States. Multilateral negotiations usually take place under an international regime that in different ways constrains the great power, hence preventing it from using all its power resources. It is believed that a confrontation between a great power and a small state will be less brutal if it takes place in an international organization rather than in an ad hoc situation that is not regulated by international rules or norms. This argument seems to imply that distributive bargaining embodies the most difficult part for a weak state negotiating with stronger parties, as developing countries do in the WTO negotiations or the climate talks. However, it may very well be that for weak states problem solving is

the most problematic dimension of the negotiation, for the simple reason that problem solving sets up critical determinants for the straightforward bargaining on value distribution. It is important that scientists servicing the negotiation process, or experts wanting to enhance the capacity of weak states, be fully aware of all the consequences of this proposition.

In a multilateral negotiation, a small state is typically confronted with a *small stakes problem*. What is an important issue for the small state typically represents a small stake for the greater powers that in reality largely control the whole negotiation process. The trade talks in GATT and the WTO are an illustrative example. To a large extent these negotiations have concerned issues of dispute between the United States and the European Union. Many of the issues of the trade negotiations were in reality framed in the Organisation for Economic Co-operation and Development (OECD), where industrialized countries let the Secretariat develop a single negotiation text that was later transferred to the trade talks in GATT. Until the present Doha Round of the WTO, most developing countries had a very weak or peripheral role in the multilateral trade negotiations, particularly with regard to agenda setting and other activities related to problem solving. Thus, although weak states have been relatively invulnerable with regard to direct coercion in a multilateral setting as compared to a bilateral situation, this advantage has not in itself given them a capacity to promote or defend their own trade interests. Great problems of small states representing small stakes for the big players will

not be considered unless they happen to fall into the boxes set up by the latter.

In order to increase its influence in agenda setting, a small state has to transform its own important but neglected stakes to larger issues that will be considered in the negotiations.² To do that, the small state essentially has a choice between four basic strategies (see figure on page 6).

First, the small states can choose between unilateral action and participation in a coalition. Second, the small states may either try to frame their own issues in such a way that they will be considered to represent large stakes by other parties, or they may try to support existing issues framed by others that—at least to some extent—indirectly help them to defend their trade interests. Generally speaking, *strategy 4* (coalition action / riding on old issues) seems to be the most realistic of the four approaches. However, this is clearly not an entirely satisfactory solution because the small state's own specific interests will be promoted only incidentally or purely by chance. This is particularly true when the small state relies on a large coalition like the Group of 77. It is true that this grouping of states may mobilize considerable power in a tug-of-war situation—for example, concerning the final exchange of concessions at the end of a negotiation process. The problem is that a large coalition is most effective in defending positions that have already been established. Typically, a coalition like the Group of 77 is only able to take a joint position with a low “common denominator,” in other words, a comparatively diffuse common interest.

Small and weak states need to enhance their own capacity to negotiate effectively in international talks on complex issues like trade and climate change. Institutions in the WTO and the United Nations offer support for such capacity building. Such efforts have typically focused on technical knowledge about the issues, which indeed represents a necessary condition for agenda setting and issue-clarification capacity. However, the capacity to maneuver in the negotiation process should be emphasized more in capacity building. Special attention should be given to coalition building and participation in coalitions for the purpose of framing issues and setting an agenda. This is a problem area that is now being considered in an ongoing PIN project on how to facilitate the negotiation on climate change.

Notes

¹ Recall that the General Agreement on Tariffs and Trade (GATT) was transformed into the WTO in 1994 as a result of the Uruguay Round of multilateral trade talks (1986–1994).

² For strategies in asymmetric coalition building, see Crump, L. and Zartman, I.W., eds, 2003, *Multilateral Negotiation and Complexity*, special issue of *International Negotiation*, VIII(1). ■



New Security Challenges Require New Modes of Negotiation

Whereas in the recent past the global security debate was largely dominated by the threat of a military confrontation between the world's two largest military blocs—the North Atlantic Treaty Organization (NATO) and the Warsaw Pact countries—the dissolution of the Warsaw Pact and the collapse of the former Soviet Union fundamentally changed the parameters of international relations. At present, seven nations that had been part of or otherwise close to the Soviet Union (namely, the Baltic states, Slovenia, Bulgaria, Romania, and Slovakia) are about to join NATO, and the danger of a massive military strike from the East has receded. Although the threat of a major military confrontation in the East–West context has been removed, this favorable development has not led to a world in which, at last, peace and security can be taken for granted. New security risks have emerged or are now perceived as such. In particular, the following phenomena are regularly cited as the new threats of the 21st century:

- International terrorism
- International organized crime
- Trade in human beings
- Drug trafficking
- Proliferation of weapons of mass destruction (WMD)

The change of paradigm of the international security discourse has already permeated mainstream political and strategic thinking. However, general awareness of the new security risks did not go hand in hand with a corresponding analysis of how best to meet these threats. Nor has there been an examination of the question of whether the new security environment will call for adjustments of negotiation practices as well. With this in mind, let us take a brief look at the security threats mentioned above.

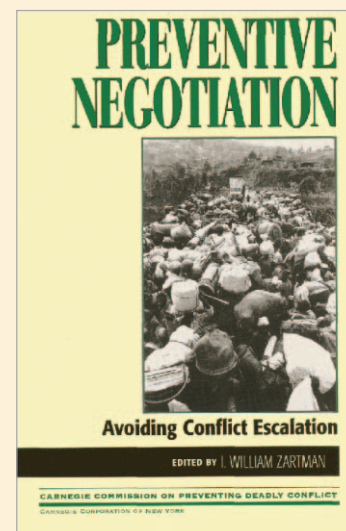
International terrorism

Even though the phenomenon of international terrorism is not new, the shock caused by the attacks in New York and Washington DC on 11 September 2001 has catapulted it to the position of “public enemy number 1” of the civilized world. In striking against the Taliban regime in Afghanistan, the response by the United States to the horrendous terrorist attacks on its soil was first and foremost military in nature. Dislodging the Taliban regime from Kabul turned out to be the easiest part of the fight against this particular agent of terrorism. Building a stable and peaceful Afghanistan appears to be much

more difficult, as it requires a complex mix of instruments. The military component of ensuring that Afghanistan becomes a better place to live in will certainly continue to be indispensable in the immediate future for the establishment of a secure environment. At the same time it is obvious that, in addition to the military operation, the whole array of techniques of social engineering and nation building needs to be employed in Afghanistan in order to bring peace consolidation forward. This process can be advanced only by using mechanisms of national and international interaction, which by its very nature presupposes some kind of negotiation. The United Nations (UN), the International Security Assistance Force (ISAF), the community of international nongovernmental organizations (NGOs), and the Afghan leadership must all engage in a long-term negotiating exercise to coordinate and implement the consolidation of peace. It goes without saying that this process is extremely demanding. It requires the cooperation of disparate actors such as Afghan leaders and tribesmen, often reminiscent of figures from medieval fairy tales, and the modern jet set of international civil servants and representatives of the US-led operation “Enduring Freedom.” It appears that this unique cross-cultural endeavour on the part of the international community in Afghanistan has yet to tackle the deeper roots of international terrorism in that country. When the military phase of the peacemaking operation is gradually phased out, the civilian component of the peacekeeping effort will become more important. In short, the reconstruction of the country involves a multilayered scheme of negotiations. Not only will the particular situation of Afghanistan serve as a subject matter for an interesting case study of military or political history, but it will also teach important lessons for negotiation research. It will tell its own kind of negotiation story, perhaps leading to new findings and conclusions on the resolution of conflicts involving international terrorism.

International organized crime, trade in human beings, drug trafficking

It has become a truism that the fight against transnational crime requires coordinated international action. Drug trafficking, the smuggling of illegal aliens, money laundering, and the trade in human beings are usually mentioned as criminal activities typically carried out across national borders. The international community's struggle against international



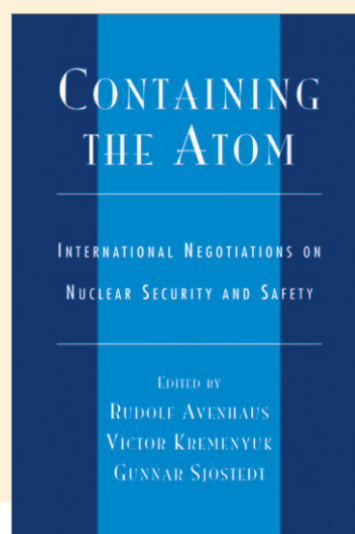
Preventive Negotiation:
Avoiding Conflict Escalation
 I.W. Zartman, editor
 Rowman & Littlefield Publishers, Inc., 2001
 ISBN 0-8476-9895-5

organized crime has engaged diplomats, legal experts, and law enforcement agencies in a worldwide alliance that undoubtedly has had some successes. New international conventions have established a global legal framework allowing for closer police cooperation and coordination of mutual legal assistance in criminal matters. In the field of crime prevention and repression, a whole new branch of multilateral diplomacy has evolved. The international action against transnational organized crime is characterized by close cooperation between prosecutors, judges, and criminal law experts. It requires global harmonization of national legislation in criminal matters as well as the concerted action of law enforcement agencies at the international level. The particular scope of international criminal law and the specific world of international police cooperation make the fight against international organized crime a fascinating negotiating arena. In addressing the roots of international organized crime, it does not suffice to apply repressive methods alone. There is growing awareness of the underlying socioeconomic causes of criminal activities across borders. Therefore, efforts are being undertaken to address these factors. Here, again, negotiation processes are set in motion involving economists, political leaders, the international NGO community, and other actors, all engaged in a global coalition against organized crime. Would it not be worth studying these new negotiation schemes more thoroughly?

Proliferation of weapons of mass destruction (WMD)

A similar question may be raised with regard to current attempts to block the spread of WMD. The development and distribution of WMD, in particular nuclear weapons, are rightly considered the greatest

Containing the Atom: International Negotiations on Nuclear Security and Safety
 R. Avenhaus, V.A. Kremenjuk, G. Sjöstedt, editors
 Lexington Books, 2002
 ISBN 0-7391-0387-3



security risk in the world today. The possibility that nuclear weapons might fall into the hands of terrorist groups is as frightening as the use of nuclear weapons by irresponsible regimes. To prevent "rogue states" from developing nuclear weapons programs, both diplomacy and preemptive military responses are employed.

A study of previous negotiation stories—for example, in the field of nuclear disarmament—shows that they are of little use in terms of providing lessons for dealing with the new dangers of the spread of WMD. The current efforts to come to grips with the North Korean nuclear weapons program are only one example of a new kind of "stick and carrot" diplomacy. The current talks on the North Korean nuclear scheme are interesting in many respects. Besides North Korea, they involve, *inter alia*, the United States, China, and Russia, giving these powers a decisive influence on the outcome of the talks. Obviously, negotiations on nuclear matters require a high level of technical expertise. Everything may depend on the provision of factual evidence. At the same time the role of intelligence comes into play. The use of information gathered by intelligence agencies may be very problematic, as the current discussion about the wiretapping of the UN Secretary-General's office shows. The interplay of diplomacy, technical expertise, and intelligence that has been at work all along in the Iraq conflict can be observed again in the context of the North Korean nuclear weapons program. It appears that negotiation theory has not yet adequately addressed these forms of interaction.

Clearly this brief contribution can only touch upon the issues. Its purpose is to draw attention to the new security threats of the 21st century that present a challenge to the negotiation research community, as well as to humankind as a whole. ■

Negotiating the Caspian

The situation in the Caspian Sea region is extremely complicated. The Caspian connects five states; it has valuable resources, making it a body of water of global interest; and its legal and therefore political and security status has remained undetermined since the Soviet Union dissolved in the early 1990s. In other words, the Caspian Sea is a source of enormous conflict potential in the Eurasian heartland bordering on the Middle East, a region that is not without strife.

Negotiation processes can be regarded as a cost-effective tool for preventing this conflict from exploding in the face of the world community. The Caspian Sea is therefore an obvious subject for negotiation research, and the PIN Network's focus on the issue—in a seminar on the topic organized with the School of International Relations in Tehran, and in a report edited by Victor Kremenjuk and Paul Meerts on negotiating a Caspian regime—should come as no surprise.

The Caspian Sea is the largest inland body of water in the world. There is no clear precedent that can be used to answer the question of its status. This is a serious problem, as all the other issues concerning the Caspian—for example, the question of how to handle its mineral and biological resources, and its function as a linchpin in security and transportation issues—depend on the outcome of a debate on whether the Caspian is a sea or a lake.

One possible way to answer the "sea or lake" question is to negotiate a new legal regime: that of a "sealake." As a sealake, its seabed would be partitioned according to the coastlines of the littoral states, and a collective regime under a joint authority would be responsible for exploiting its riches in an environmentally sustainable way. The Antarctic Treaty could serve as a model.

The first step could be a UN conference on inland waters to negotiate a "sealake" law. This international law could, for example, combine existing rules and regulations on sea and lake regimes into a new international legal agreement whereby partitioning of the Caspian would be combined with collective exploitation of its riches.

This could lead to the creation of a Caspian Cooperation Organization (CCO) to replace existing international Caspian institutions. This organization should be able to facilitate negotiations on an agreement concerning sustainable exploitation of the sealake. It should also oversee the exploitation itself, the fair distribution of resources, and the protection of the environment.

A system of Caspian negotiations would need to be created. The negotiations on the Caspian should at least be separated into backward- and forward-looking processes. The first would have to do with the existing treaties and other previous arrangements; the second should install a regime to facilitate the environmentally sustainable exploitation of the sea. Current bilateral negotiations will not solve the major issues: multilateral approaches are needed. The result can be successful only if the outcomes are equitable,



otherwise implementation will suffer. And a balanced outcome is only feasible if all the interests of all the actors involved—both those within the region and those outside it—are taken into account, and they must be facilitated within a wider institutional framework, as exemplified by the United Nations. Taking the case to the International Court of Justice in The Hague or to another international tribunal or court of arbitrators is not seen as a viable option under present political circumstances. It is not solely up to the littoral states to negotiate a new international regime. International lawmaking is a prerogative of the international community as a whole. Thus it is of great importance to address the question of how to organize the Caspian Sea negotiations in the most effective way.

Although the bilateral agreements between the Soviet Union and Iran are still in force (despite the fact that the Soviet Union no longer exists as a single country), these agreements are not enough to clarify the Caspian's legal status. Moreover, the existing rules of international law are insufficient to decide the "sea or lake" issue. Partitioning of the Caspian is foreseen as a final settlement of the status question. Given the provisions of international law on lakes and inland seas, a number of different possibilities for



Potential Caspian Sea boundaries. *Top*: Based on a 45-mile territorial waters zone. *Bottom*: Based on a median line. Numbers indicate oil fields. *Source*: International Center for Caspian Studies.



drawing maritime boundaries exist. Two of these are illustrated in the accompanying maps (left), one using a median line as a basis for territorial divisions and the other using a common central area. These differences are also reflected in the table below.

Several major issues—territory, sovereignty, prosperity, and security—are at stake in the Caspian puzzle. Regime building can deliver the structure and the safety net that will facilitate a Caspian negotiation process. Rules, principles, and procedures will have to be developed in order to build the desired regime. The working methods of the Organisation for Economic Co-operation and Development (OECD) can serve as an example for a possible Caspian regime,

with a distinction being made between task-oriented and actor-oriented regime functions.

The equilibrium between the actors involved in the Caspian question is tipped by the power they possess. The greatest problem is deciding what should or will be the basis for the power distribution leading up to weighted power sharing in a Caspian Council to govern a legal regime. Coastal length is a likely starting point, as it is the source of the decisions to be taken under international law, and in both sea and lake law, coastal length is the point of departure for rules and regulations. The different positions of the five littoral states in regard to various elements of power in the negotiations are portrayed

Sources of negotiating power in the Caspian Sea region

	AZERBAIJAN*	IRAN
Parity share		
Pre-1990	—	50%
Post-1991	20%	20%
Oil reserves under parity	22.5%	18.3%
Shoreline		
Actual (km)	737	490
Smoothed length (km)	461	490
Control of seabed resources		
Under international law (Law of the Sea)	21%	13%
Oil reserves share (approximate)	33%	8%
Trade		
Net oil exports	175,200 bl/d	2.7 mbl/d
Major trading partners	Turkey, Russia, Georgia, Italy, Iran, Ukraine, United Arab Emirates	Japan, Italy, Germany, China, France, United Arab Emirates
Proven energy resources (oil & gas)		
Oil reserves	1.2 bbl	89.7 bbl
Oil production (2001 estimated)	311,200 bl/d	3.8 mbl/d
Natural gas	4.4 tcf	812 tcf
Natural gas production (2001 estimated)	200 bcf	2.13 tcf
Foreign direct investment		
2000	US\$119 million	US\$39,000
2001	US\$843 million	N/A
US FDI 2001	US\$1.2 million	N/A
Ecological vulnerability	Yes	Yes
International relations position		
Diplomatic relationships regarding Caspian Sea	Small power ■ Bilateral treaties with Kazakhstan, Russia: "modified median principle" (1997) ■ Communiqué with Russia, Kazakhstan: temporary median line division based on Soviet demarcations (2002)	Big power ■ Bilateral treaty with USSR (1921, 1941)
Blocking/veto power (others' ability to do without)	Weak	Weakest
International organization mediatory equalizer	CIS, OSCE, UNGA, CFC	UNGA
	AZERBAIJAN*	IRAN

* Post-1991.

Note: bbl = billion barrels; mbl = million barrels; bl/d = barrels per day; tcf = trillion cubic feet; bcf = billion cubic feet.

in the table below. The most notable fact is that a party's power varies depending on the element that is highlighted. Thus, not only the strategies within the negotiations but the type of leverage involved in the choice of different types of negotiations form the dynamics of negotiatory interaction.

Even once a satisfactory solution has been found, sustaining cooperation will require considerable effort. The Caspian region can only flourish if economic development is made possible. This means that the private sector has to be involved and the public sector must foster cooperation with multinational companies and other economic players. One way to do this is by creating joint ventures. Another door to mutual

understanding lies in the intercultural dimension: the Caspian is one of the world's most heterogeneous cultural regions, a fact that has been complicating communications there for millennia.

The Caspian question is moving toward a Caspian crisis, and such a crisis will be a major obstacle to prosperity in the region. All parties involved, both littoral and non-littoral states and public and private organizations, will suffer if no negotiated solution can be found. Unwillingness to negotiate a settlement will pose a serious threat, not only to the economic development of the region, but to its political stability and security as well. War cannot be excluded if serious encompassing

negotiations are put off. Procrastination is not in the interest of any of the parties, especially not those most directly involved. In other words, a hurting stalemate is developing, and time is running out. Negotiations are a viable way out of this impending stalemate, and many options for peaceful conflict resolution are at hand.

The Caspian is a significant global issue with major consequences for the region. Its negotiated destiny should therefore be framed at the global level first. The formula developed by the international community should be worked out in detail by the Caspian actors most concerned, both littoral and non-littoral, and public and private. ■

KAZAKHSTAN*	RUSSIA	TURKMENISTAN*	USA	
—	50%	—		
20%	20%	20%		
22.5%	18.6%	18.3%		
2,074	1,109	1,084		Source: Avenhaus, R.
922	548	461		
29%	19%	18%		Source: www.Eurasianet.org/Departments/Business/articles
16%	16%	27%		
631,000 bbl/d	4.91 mbl/d			Sources: US Energy Info Agency; US Census
Russia, USA, Uzbekistan, China, Turkey, UK, Germany, Ukraine, Korea	Germany, Ukraine, USA, Belarus, Italy, Netherlands, Kazakhstan		Canada, Mexico, Japan, China, Germany, UK, Korea, France	
5.4 bbl	48.6 bbl	546 mbl		Source: US Energy Info Agency
811,000 bbl/d	7.29 mbl/d	159,000 bbl/d		
65 tcf	1,700 tcf	101 tcf		
324 bcf	20.5 tcf	1.6 tcf		
US\$1.2 billion US\$1.7 billion US\$27 million	US\$0.5 billion US\$1.5 billion US\$55 million	US\$130 million N/A N/A	Began in 1999	
Yes	Yes	No		
Small power ■ Bilateral treaties with Azerbaijan, Russia: median principle (1997) ■ Communiqué with Azerbaijan, Russia: temporary median line division based on Soviet demarcations (1997)	Big power ■ Bilateral treaties with Azerbaijan, Kazakhstan: "modified median principle" (1997) ■ Bilateral treaty with Iran (1921, 1940)	Small power ■ Communiqué with Kazakhstan: temporary median line division based on Soviet demarcations (1997)	Superpower	
Weak	Medium	Weak		
CIS, OSCE, SCO, UNGA, CFC	CIS, OSCE, SCO, NATO, UNGA, UNSC, CFC	OSCE, UNGA, CFC	NATO, UNGA, UNSC, CFC	Sources: Caspian Finance Center; Shanghai Cooperation Organization
KAZAKHSTAN*	RUSSIA	TURKMENISTAN*	USA	

Negotiation Processes between Europe and Central America

The San José Dialogue, launched at a ministerial meeting in San José, Costa Rica, in 1984, is the cornerstone of the relations between the countries of Central America and the European Union (EU). Twenty-five countries are participating on the EU side; on the Central American side there are six participants: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama. The EU–Central America negotiation process focuses on political dialogue, (development) cooperation, and trade relations.

The most recent outcome of this negotiation process is the Brussels agreement of October 2003, formally called the Political Dialogue and Cooperation Agreement. Apart from economic issues such as installing a free trade zone, the relationship deals with matters like human rights and democracy, integrated rural development, and regional integration. Border issues, organized crime (especially concerning drug trafficking), corruption, and the fight against terrorism are becoming increasingly dominant on the agenda.

Process and policy

The negotiation process between the parties has been framed in an ongoing series of bilateral and multilateral talks in a continuously changing context. At the time the San José Dialogue was launched, Central America was caught in a severe political and security crisis. The objective of the EU–Central America negotiation process was to look for solutions to the armed conflicts and the problems they generated for the affected countries, belligerent as well as non-belligerent. In the beginning, the negotiation process merely reinforced regional initiatives, especially that of the Contadora Group consisting of Venezuela, Colombia, Mexico, and Panama, and supported by Brazil, Argentina, Peru, and Uruguay. This peace process was backed up by programs dealing with the underlying socioeconomic root causes of the conflicts in the region. The negotiations were backward looking in that they tried to end the warfare and to stop human rights violations, and they were forward looking in that they aimed at further economic growth and democracy. In the 1980s and 1990s, the economic situation deteriorated, partly because of natural disasters. Only recently have we seen a turn for the better. Current per capita gross domestic product (GDP) across the region is US\$1,645, but great disparities exist. Per capita GDP is US\$500 in Nicaragua and US\$2,500 in neighboring Costa Rica.

Under these circumstances the EU–Central America dialogue intensified at the turn of the century. The negotiations, which can be regarded as an attempt to support and build peace, have been extended into many areas of mutual concern. The present Political Dialogue and Cooperation Agreement is the result of a process of renewal that started at the EU–Latin America and Caribbean Summit in Madrid in May 2002. One of the main objectives of the Agreement is to serve as the framework for an association agreement including a free trade area, to be negotiated in the coming years. However, this agreement will be dependent on successful negotiations in the context of the World Trade Organization, as well as on further integration within Central America itself. It is evident that this multilateral side of the EU–Central America negotiations complicates matters and delays progress. In December 2002 the European Commission adopted a recommendation to the European Council concerning a mandate for negotiation. After a concluding round in Brussels, from September to October 2003, the new Political Dialogue and Cooperation Agreement was endorsed.

Issues and intentions

The number of issues under negotiation is quite extensive, and they are not at all of the same nature and level. On the one hand, this can be seen as a

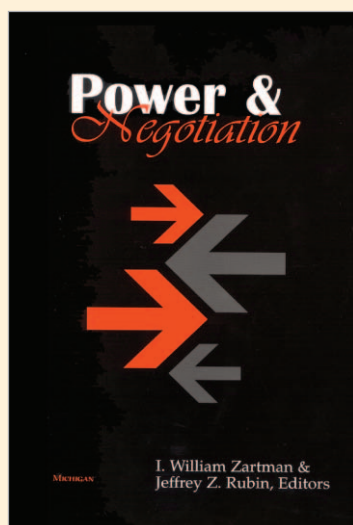
positive element. After all, both sides clearly are connected by a multitude of mutual needs: this is not a single-issue question, and there is broad cooperation encompassing many fields of interest. The other side of the coin is that dealing with so many issues in such a loose framework might mean dealing with none. If there are priorities, they are not clearly stated. The text of the Political Dialogue and Cooperation Agreement reads like a basket full of wishes and good intentions, but with no clear-cut implementation mechanisms. There is a working program, and many (often non-EU) institutions are mentioned as frameworks for actions to be taken. But this is not the same as a clear-cut outcome from an EU–Central America negotiation process. If anything, the outcome is uncertain and the agreement seems to be just another step in an ongoing negotiation process, as suggested by the word “dialogue.”

The Political Dialogue and Cooperation Agreement is divided into two main chapters. The chapter on political dialogue is addressed to heads of state, ministers, and civil servants, but there is no substance to it. More can be said about the cooperation chapter. As subjects of cooperation, every conceivable issue is listed. No logical order is evident, and for good reason: the Agreement does not have a list of priorities. It is therefore difficult to base an adequate policy on this range of issues, which might well be intentional. Obviously, the countries could not decide on priorities; in other words, real consensus was lacking. It is like the "baskets" of the Helsinki Accords, where the unstructured approach reflected the fact that the Final Act was, and still is, a political document. It does not bind countries legally. Looking at the vague wording in the EU–Central America Agreement, there might be a parallel to be drawn.



Positions and perceptions

The overall position of the Central American countries is that negotiations and negotiated outcomes with the EU are useful for further stabilization of the region through economic growth, supported by European money. The EU also has an interest in a peaceful Central American region. First of all there are economic interests. After the United States, the EU is the main economic player in the area, although the Central American market represents only 0.04 percent of the EU's external trade.



Power and Negotiation
I.W. Zartman, J.Z. Rubin, editors
The University of Michigan Press, 2000
ISBN 0-472-11079-9

For the Central Americans, the US market is good for more than 40 percent of their exports, the European market for 20 percent. Apart from economic interests, the Europeans have their geopolitical needs. Many European overseas dependencies are in the vicinity of Central America. Drug trafficking, money laundering and other organized criminal activities are of growing concern to Europeans, affecting both their overseas territories and their fight against crime in Europe itself. Needless to say, renewed instability in Central America would be a headache in view of the less stable European territories in the neighborhood. One potential threat to stability and territorial integrity is the many boundary disputes in the region, foremost—but not limited to—those on the Caribbean side. Many of these boundary problems have been taken to the International Court of Justice in The Hague, which recently settled a long-standing dispute between Honduras and El Salvador on the Gulf of Fonseca.

However, there is another, major element, providing both the Central Americans and the Europeans

with good reasons for negotiating closer cooperation, even if this is more show than reality. The dominant US position in the region is overwhelming. Both sides see a need for counterbalancing this influence, which is deeply rooted in history. Thus there are major geopolitical concerns that might overshadow the economic and social issues. The Americans perceive the Central American and Caribbean region as being vital for their security. The Europeans acknowledge this, but still feel a need to keep a finger in the pie, especially as Europe extends into the area. It should be noted, however, that despite this competition, Americans and Europeans cooperate closely in the Caribbean, for example, conducting police work together.

Institutions and integration

If countries want negotiation processes to be meaningful, then one of the main tools at their disposal is the creation of institutions. These regimes will enhance stability and trust in the bargaining process. More important, they will help to create assured outcomes. What is the situation in the case of the EU–Central America negotiations? The Political Dialogue and Cooperation Agreement provides for an institutional framework. It confirms the existence of a Joint Committee (Article 52), installed in 1983 pursuant to the Andean Community Cooperation Agreement and retained by the 1993 Framework Cooperation Agreement. The Committee has responsibility for the general implementation of the Agreement, and it discusses any question affecting economic relations between the parties, including individual member countries of the Central American Party. It also has a Joint Consultative Committee involved in wider dialogues (with social organizations of civil society). The Joint Committee has no special powers and limits itself to the economic questions involved.

The usefulness of a negotiation process is also determined in part by how institutionalized the contracting parties are—in other words, how integrated are they? The more homogeneous they are, the more decisive they can be, and the more progress we can expect in their mutual negotiation process. On the EU side we have a rather integrated body, at least as far as economic policy is concerned, with a relatively strong central institution: the Commission. On the Central American side the situation is more complex, notwithstanding the smaller number of states involved. The six Central American countries have problems integrating, which should not surprise us, as the complementarity is less than in the EU. Nevertheless, interregional trade grew from a total of US\$650 million in 1999 to US\$2.7 billion in the year 2000. But the six are competing in the same main export areas (coffee, bananas), and they struggle with unresolved border and other issues. That does not mean that there is no institutional framework. The integration effort started as early as 1951 with the

Organisation of Central American States (ODECA), followed by the Central American Common Market (MCCA), the Central American Bank of Economic Integration (BCIE), the Secretariat for Central American Economic Integration (SIECA), and in 1993 a new framework, the Central American Integration System (SICA). SICA is the EU's partner and consists of three Community bodies: the Central American Court of Justice (CCJ), the Central American Parliament (PARLACEN), and the Secretariat General of the Central American Integration System (SG-SICA). In March 2002 the member state presidents approved a plan of action for further integration in order to achieve a customs union by January 2004. We leave aside here the many, many other regimes that have been created, like the Tegucigalpa Protocol that set up a Civil Society Consultative Committee in Central America (1991), the Alliance for Sustainable Development (ALIDES, 1994), the Central American Commission for Environment and Development (CCAD), the Social Integration Council (CIS, 1995), and the Framework Treaty on Democratic Security (1995).

The value of EU–SICA negotiations

How valuable are the negotiations between Central America and the EU? There is a substantial power difference between the two contracting parties arising from the EU's much higher level of social and economic development, but also from the more integrated state of the Union. Nonetheless, the power difference between the Central American Integration System (SICA) and the EU is much smaller than the one between SICA and the United States. In a way the Central American states could create more room to manoeuvre by balancing the EU against the United States and vice versa. The EU is in a way their best alternative to a negotiated agreement with the United States. What is worrying though is that the United States has a far greater number of interests in Central America and is therefore willing to invest much more energy in their dealings with the region. The problem is not so much the US–SICA and EU–SICA power differences, but the US–EU imbalance—at least the difference in stakes, and therefore in priorities. We cannot expect the Union to place Central America high on its agenda. The fact that the European stakes in Central America are only of relative importance might explain the present setup of EU–SICA negotiations. Both sides have an interest in an ongoing dialogue, but the EU is not willing to spend much energy or money on this. The total indicative budget envisaged in the Regional Memorandum of Understanding 2000–2006 for Central America is €74.5 million. For 2005 an amount of €10 million has been pledged for the reduction of vulnerability and environmental improvement. For the support of the integration process in Central America,

€7 million has been reserved for the year 2006. As the Political Dialogue and Cooperation Agreement reflects, there are many words, not many deeds. Actually, the broader the program, the better it looks and the more voluntary it is, as is demonstrated foremost by the absence of a strong institution to guide the negotiation process. Still, the EU–SICA negotiation process should continue, as it is a useful tool in avoiding a return to the complete dependence on the United States in the region, as was the case before World War II. It is the process itself that is of value, even if the outcome will be poor for the foreseeable future.

SICA's further integration into its Latin American environment is of great importance from a negotiation point of view as well. If possible, this dimension should be developed further as a third alternative to the United States and the EU. In closing, SICA would be wise to ally itself both with the North (Mexico) and with the South (Colombia and Venezuela), however difficult it is to do so because of existing border and other problems. It should act as a unified actor in inter-American regimes like the Organization of American States or the forthcoming Free Trade Area of the Americas. Yet another option is to connect with integrationist efforts like the North American Free Trade Agreement (NAFTA) and Mercosur in South America. Here again, the old dictum of international negotiations counts: more alternatives mean more power, therefore more favorable outcomes can be expected. The EU–SICA negotiation process is valuable but should not be overestimated. There is a lot of creative ambiguity in it. Still, this is one tool among many. And as was said before, the process as such is of political value already. ■

Negotiation Analysis and the Concept of Dialogue

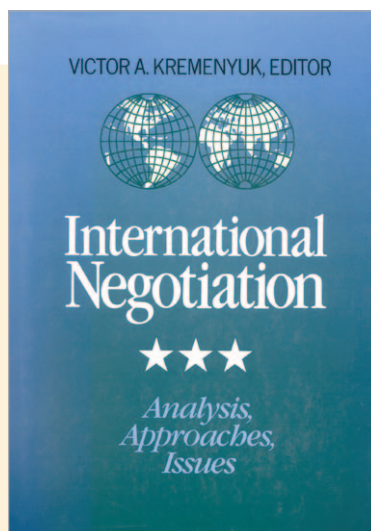
The concept of dialogue has recently become a widely discussed topic among researchers of international relations. The fixed connotation is still not completely clear, but at least two points may be mentioned in connection with it: first, that it continues the earlier notion of an "interdisciplinary approach," raising it to a new level of understanding, and second, that the subjects of international relations act not so much in a Hobbesian world of "war of all against all," but in one of dialogue and searches for mutual understanding and consensus. Much research has been done recently in the area of international cooperation. The Cold War is over, and given the realities of today's unipolar world, another is unlikely. Globalization is intensifying, which, first of all, means rapid growth of the global community and global culture and an advanced stage of economic interdependence. A global society is emerging in which negotiation not only holds a legitimate position as the only possible means of communication but also plays a role in the rationale behind the formation of multiple international regimes: in security, trade and development, governance, finances, environment, etc.

Thus, the concept of dialogue, which perfectly describes the state of affairs within the global community (such episodes as Iraq in this regard are treated as exceptions), to a large extent describes the state of the international system of negotiations that penetrates into the tissue of global development. In this development, the traditional role of negotiation undergoes a bifurcation. On the one hand, it continues to serve as a decision-making tool (and at a new, much more sophisticated level due to the growing role of computer-aided communication and information systems). On the other hand, it serves as the primary means of global interaction.

The other connotation of "dialogue" is the performance of negotiation research and analysis, which has always been a strong element of the PIN group, as evidenced by the backgrounds of the PIN Steering Committee members (in game theory, law and diplomacy, sociology, history, diplomatic training, political economy, and political science). Under these new conditions the performance of negotiation acquires new elements and new tasks.

This era of globalization calls for the amalgamation of findings of other IIASA projects working on such important issues as the distribution of food and natural resources, population growth, environmental challenges, and land use, among other topics. Recognition of the role these issues will play in the creation of a new international structure in a broad sense makes it clear that without an attempt to integrate the findings of researchers in different areas of expertise, it will be difficult to reach an understanding on all disputable problems. And without progress in this area, the international system will inevitably fall back into the age of rivalry and hostility.

The concept of "governance," which comes to international relations from the managerial sciences, sees solving such basic issues as the provision of adequate food and housing, transportation, communication, and the development of human potential (education, health protection, culture, sports, etc.) as a *conditio sine qua non* for the creation of a stable and dynamically developing world order. These tasks are widely recognized by the international community, as was demonstrated at the United Nations World Summit on Sustainable Development held in Johannesburg, South Africa, in August 2002. The concept of "dialogue" is crucial for turning that objective need into an agenda for global negotiation, playing a role at every step: from concentrating the existing methods of research and prescription, to preparing the list of issues to be discussed and parallel to that a list of desirable solutions, to continuously creating regimes and other mechanisms to help create a decision-making system that will incorporate national systems and international mechanisms in one global network. ■



**International Negotiation:
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V.A. Kremenjuk, editor
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The Hague, Netherlands



San José, Costa Rica



Beijing, China



Casablanca, Morocco



Malibu, USA

PIN's Road Shows

One objective of the Processes of International Negotiation (PIN) Network is to disseminate new knowledge about negotiation as widely as possible. Therefore the PIN Steering Committee welcomes invitations from academic, research, or public affairs institutions to conduct "Road Shows," or mini-conferences on international negotiations. No payment is received for holding these conferences, but the host institution provides housing and meals for the Committee during its stay.

Most Road Shows are daylong conferences in which local scholars and practitioners also participate; some are restricted to a select group of experts, while others are held before larger audiences of the interested public. Individual topics vary with the Committee members' current research interests. Past Road Shows have addressed such subjects as culture and negotiation, multilateral negotiations, the search for ripeness in negotiations, nuclear negotiations, environmental negotiations, negotiations in China, and game theory and negotiation. PIN has held mini-conferences at the Argentine Council for International Relations in Buenos Aires; the University Hassan II in Casablanca, Morocco; the Center for the Study of Contemporary Japanese Culture in Kyoto, Japan; the Netherlands Institute of International Relations—Clingendael; and the Diplomatic Academy of Iran in Tehran, among other places.

A brief look at the Road Shows held or scheduled to be held during the 12-month period from October 2003 and October 2004 gives an idea of both the diversity of the host institutions and the breadth of the negotiation topics discussed during these mini-conferences.

In late October 2003, PIN Steering Committee members Victor Kremenjuk, Paul Meerts, and I. William Zartman accepted an invitation from Rudolf Schüssler of the University of Bayreuth in northern Bavaria to hold a half-day Road Show for students and lecturers of the Faculty for Cultural Sciences. The Committee members gave an overview of PIN and talked about regimes and European Union (EU) negotiation processes; the latter were the subject of a past PIN conference whose results will be published soon. A special session was devoted to the present state of affairs in the Middle East: options and obstacles for negotiations between Israel and Palestine were debated in depth. As a consequence of this visit, Schüssler was invited to actively contribute to the ongoing PIN project on formal models of international negotiations.

In January 2004, PIN Steering Committee members presented a Road Show to students and lecturers at the University for Peace in Costa Rica at the invitation of its rector, Martin Lees. The University was established in December 1980 by a Resolution of the United Nations General Assembly; its mission is "to provide humanity with an institution of higher education, training and research for peace." The beautiful campus outside San José is small—not more than 150 students working at the master's level and mid-career professionals attending short courses—because the main purpose is to support universities in all regions of the world so that they can teach peace and conflict studies.

The full-day meeting was opened by Martin Lees. I. William Zartman then introduced the audience to the objectives and achievements of the PIN Network. The remainder of the morning session was devoted to presentations by the Steering Committee members.



San José, Costa Rica

In his presentation on the "Legal Aspects of International Negotiations," Ambassador Franz Cede focused on the relevance of the law in any negotiation process. The legal parameters of international negotiations are determined by the rules of public international law, customs, and the decisions of international courts. Negotiations between non-state actors (e.g., business corporations) are usually governed by private law. Cede outlined the specifics of multilateral and bilateral negotiating processes. The role of the legal advisor was also examined at some length.

Paul Meerts spoke on the "Negotiations between the European Union and the Sistema de la Integración Centro Americana (SICA)." He concluded that both sides had an interest in an ongoing negotiation process, but this did not result in substantial outcomes due to a lack of integration on the Central American side and a shortage of real interest on the side of the EU. These obstacles in inter-bloc negotiations were also discussed in the afternoon workshop dealing with cooperation and competition in negotiations of this kind. (For more on this topic, see the article on pages 12–14 in this issue of *Options*.)

Rudolf Avenhaus illustrated the usefulness of formal models for international negotiations with the help of three different examples. In the first, a typical proto-game model dealt with joint ventures in China. Here, ideas were formalized that are more easily explained using a simple extensive form game

than using words. A second model described the negotiations between Greece and Turkey on the extension of the six-mile limit in the Aegean Sea. Although this model was still relatively simple, it provided some insight that could not have been obtained by a description alone. The third and most ambitious model was used to explain an important aspect of the Kosovo negotiations that took place in Rambouillet in February 1999.

Gunnar Sjöstedt discussed "How to Negotiate Small Stakes in the World Trade Organization." Conventional wisdom holds that small states should prefer multilateral talks when they are dealing with a great power. In such a setting the great power is constrained by norms and institutions. However, in another sense multilateral talks are more demanding than a dialogue with a great power. Important issues for the small states become small stakes in a multilateral negotiation, if they are considered at all. A major challenge for the small state is to attain sufficient capacity to participate in the strategic game of constructing the issues to be negotiated. (For more on this topic, see the article on pages 6–7 in this issue of *Options*.)

Finally, I. William Zartman spoke on "Negotiating the Rapids: The Dynamics of Regime Formation." International regimes are continuous two-dimensional (vertical, horizontal, and sometimes diagonal) negotiations for the purpose of resolving a problem of coordination under uncertainty among sovereign states. The main thrust of the presentation was to correct the "one-time" image of a regime as something that is decided through a process but that then remains relatively fixed, inviting analysis of ratification, compliance, and effectiveness. It is a profound misunderstanding of the regime-building process to believe that it is merely a matter of legislation and compliance. Regime building is ongoing negotiation.

In the afternoon, working groups on selected subjects of the different morning presentations were organized for the students of the university, who took an active role in both structuring the discussions

and presenting their results to the plenary afterward; in one case a small project was formulated that is expected to be completed in the next months. The memorable enterprise concluded with an informal gathering of all Road Show participants in the evening, which gave an additional opportunity to exchange views and business cards.

In early October 2004, the PIN Steering Committee members will visit Cairo University in Egypt. Major new topics, in addition to those discussed in past Road Shows, include negotiation and conflict resolution, and overcoming deadlocks in negotiation.

Three Road Shows within one year in three places that could not be more different: the academic atmosphere of a German university where students want to understand "was die Welt im Innersten zusammenhält"; the University for Peace in Central America, whose idealistic students want to contribute to the promotion of peace in the world; and a university in the Middle East where everybody discusses possible solutions to the region's political problems. With its limited resources, PIN tries to be active in the areas characterizing these places.

In addition to the Road Shows, PIN occasionally holds one-day seminars on negotiation topics of particular interest. In the context of a major international conference of five academic institutes in The Hague, the Dutch PIN group organized a one-day seminar at the Netherlands Institute of International Relations—Clingendael on "Negotiating Peace and Justice." The program dealt with the basic question of "Peace before Justice or Justice before Peace?" Some 50 participants listened to 10 short talks by, inter alia, I. William Zartman and Victor Kremenjuk. Other presentations were made by professors of international relations from around the Netherlands, as well as by Ambassador Niek Biegan, the North Atlantic Treaty Organization's representative to Kosovo. A lively discussion ensued, which

was continued in the afternoon in two workshops under the chairmanship of Kremenjuk and Zartman.

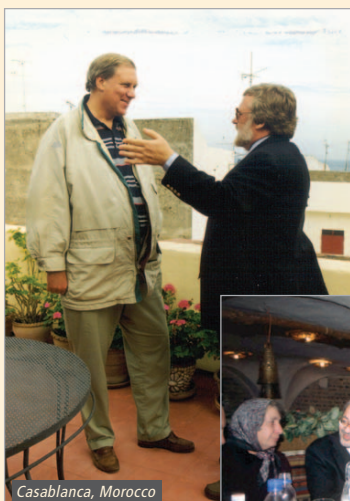
Since its creation in the early 1990s, the Dutch PIN group has organized five meetings to bring together the many people in the Netherlands working in the field of negotiation practice, research, and training. On the second day of the meeting, at the Peace Palace, Zartman and Kremenjuk addressed the audience at the closing session of the overall conference on the theme "From Peace to Justice."

Members of the PIN Network were also active at an international conference on negotiation held on 11 and 12 December 2003 in Paris. The conference was co-organized by the French PIN group and NEGOCIA, a French business school belonging to the Paris Chamber of Commerce. Its purpose was to create a synergy between different fields of negotiation (i.e., business, international, social, environmental, etc.) by examining a number of interrelated themes such as conflicts and cooperation; cultures and identities; ethics; and teaching, training, and apprenticeship. The conference provided an opportunity to seek out a common basis and cross-references between various fields of negotiation. ■

The PIN Steering Committee

The activities of IIASA's PIN Network are administered by the PIN Steering Committee, whose members serve on a volunteer basis. The Committee is currently made up of seven individuals:

- Rudolf Avenhaus** The German Armed Forces University, Munich
- Franz Cede** Austrian Ambassador to Belgium and NATO
- Guy Olivier Faure** University of Paris V–Sorbonne
- Victor Kremenjuk** The Russian Academy of Sciences
- Paul Meerts** The Netherlands Institute of International Relations—Clingendael
- Gunnar Sjöstedt** The Swedish Institute of International Affairs
- I. William Zartman** The Johns Hopkins University



Casablanca, Morocco

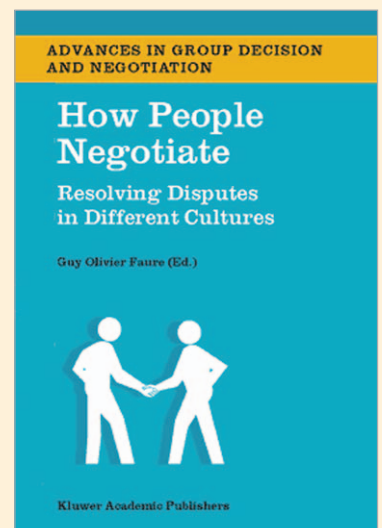


Malibu, USA



Tehran, Iran

**How People Negotiate:
Resolving Disputes in Different Cultures**
G.O. Faure, editor
Kluwer Academic Publishers, 2003
ISBN 1-4020-1831-2



Research Updates, Publications Highlights, News & Events

RAPS-China: A Regional Analysis and Planning System for China

The main idea behind the Regional Analysis and Planning System for China (RAPS-China) was to create a toolbox that can be used by researchers, political decision makers, and planners to analyze the staggering regional divergences in China's development and to visualize the results in maps and charts. The system is based on a theoretical concept that understands regional development as a multidimensional process involving many different sectors, political objectives, and options. Regional development, especially the discrepancies between highly developed coastal provinces and lagging rural areas in the interior, is of the highest political relevance. In March 2004, China's Premier Wen Jiabao declared rural development a key priority, and the government has decided on various measures to promote development in lagging regions. The RAPS-China tool can be used for monitoring these developments in China's interior provinces and evaluating the impact of the various political initiatives.

The RAPS Components

The RAPS-China tool consists of five components:

- *A specialized database* of development indicators for all 31 mainland provinces of China. These indicators were carefully selected to measure six fundamental development dimensions: human development, natural resources, economic development, infrastructure, science and technology, and political representation and administration. The data are from various official statistics; where necessary and appropriate, they have been converted into per capita, per area, or per gross domestic product rates and normalized (with a mean of 0 and a standard deviation of 1) to compensate for different units of measurement.

- *Tools for searching, retrieving, filtering, and sorting* the data. With more than 1,000 indicators, it is essential to have tools available for quickly finding and retrieving specific data records.

- *Tools for constructing custom indices.* With these tools the user can select and combine specific variables into a customized development index, such as a human development index or an economic development index. The user can assign individual weights to each variable in an index. Moreover, the user can combine up to six component indices to calculate a composite index. Individual weights can be assigned to each component index. Of course, it is also possible to retrieve just the individual indicators for visualization (maps, charts) or specialized statistical analyses.

- *Advanced tools for visualizing and presenting results.* RAPS-China includes various tools for producing thematic maps, tables, bar charts, and radar charts specifically tailored for the presentation of variables and indices that represent China's regional development. All maps can be produced without prior knowledge of GIS software.

- *Six pre-designed development indices* on China's regional development. These include a regional human development index, a natural resources index, an economic development index, an infrastructure index, an index of scientific and technological development, and an index of political participation and administrative efficiency. These indices are based on a systems theory of regional development.

The current, fully functional prototype (Version 0.9) includes 280 indicators; the first official release of RAPS (Version 1.0), which is planned for mid-2004, will have more than 1,000 indicators.

Objectives

An important objective of RAPS is to *bridge the gap between regional development research and policy*. More specifically, it serves three purposes:

RAPS facilitates the *transfer of research results* to politicians, planners, media representatives, and the interested public. Regional researchers can use the RAPS tool to demonstrate their key findings for policy makers. For instance, they may use the included default data to develop specialized regional development indices and present the results in policy seminars. Researchers can also include their own numerical results from other investigations, such as advanced statistical analyses or modeling output. Unlike with simple PowerPoint presentations, these results can be compared *immediately* with the hundreds of key variables of regional development in China that are included in RAPS.

RAPS can also serve as an *on-line reference tool* for quantitative information on regional development in China. Policy discussions are frequently rather general because participants may not have access to specific quantitative information during meetings. The RAPS-China tool gives immediate access to a large number of key variables of regional development. In policy meetings, RAPS can provide detailed (numerical) background information within seconds on many different dimensions and aspects of regional development.

Finally, RAPS can be used as an *educational tool* at the college or university level. With RAPS, students not only have easy access to a large multidimensional database, but they can also use the included default indices, such as the human development index or the natural resources index, to gain a better understanding of the enormous regional diversity in China.

The main intention of RAPS-China is to provide the users with tools, not solutions. The beauty of the system is that a user can implement his or her own ideas and concepts. However, the user is also free to use our default solutions in the form of six specialized development indicators (plus one composite index) that come with the RAPS application. We believe that these default indicators are not just arbitrary collections of indices, but actually represent the *key factors* of regional development in China. We have developed them to measure the *underlying* driving forces responsible for the great regional divergences in China.

Scientific Applications

While the RAPS-China tool can be used for data retrieval and visualization, its main purpose is to serve as a platform for more advanced statistical analyses and modeling. In particular, we want to use the RAPS tool to address three research questions:

The first question concerns the balance between *efficiency* and *equity* in regional development. Economists have often argued that the concentration of infrastructure, human capital, and industry in special

zones can generate synergies that increase economic efficiency. In China, the establishment of “special development zones” followed this concept. However, this can lead to growing discrepancies between the flourishing development zones and the lagging hinterland. A wave of migration from lagging to prosperous regions might arise and overwhelm the economic and social absorption capacity of the prosperous areas. This could lead to social tension and conflict. Social scientists and politicians have therefore often favored concepts of regionally balanced development. Balancing of regional disparities is the explicit policy of the European Union, and billions of euros are invested in “structural funds” that aim at more equal living conditions. Many countries have also implemented sophisticated financial schemes to promote development in lagging sub-national regions.

interested in promoting a type of regional development that minimizes risks, while at the same time maximizes the economic advantages of concentration. With the extensive spatial database of RAPS, which describes not only the distribution of bio-geophysical but also human, social, and economic values, these questions can be analyzed *empirically*. This research relates to IIASA's other risk-related research activities.

Finally, the RAPS-China tool will be used as the basis for the development of advanced spatial models. The challenge is to develop models that can simultaneously represent rather different aspects of development. Traditional spatial modeling techniques, such as cellular automata, spatial diffusion models, gravity models, or Markov chain models, have not been able to represent the complexity of regional development processes. We will, therefore, investigate whether more

Disaster Risk Management

IIASA's Risk, Modeling and Society (RMS) Project has, in collaboration with the Inter-American Development Bank, contributed to the development of a proactive, integrated disaster risk management strategy, with a special emphasis on tools for the financial management of these risks. This research has shown that poor governments could potentially benefit from insurance-related financial instruments, like catastrophe bonds, that are put into place before natural disasters occur. Since the countries that would benefit most from these novel instruments can least afford them, RMS is asking whether disaster hedges could become a new form of assistance from the North to the South.

As a result of RMS research, this question is now on the post-Kyoto climate change agenda. In recognition of its work on risk financing in developing countries, RMS was invited to co-author the single background paper for two United Nations Framework Convention on Climate Change (UNFCCC) workshops (Linnerooth-Bayer, J., Mace, M.J., Verheyen, R., 2003, Insurance-Related Actions and Risk Assessment in the Context of the UNFCCC, Background Paper for the UNFCCC workshop on Insurance-Related Actions and Risk Assessment in the Framework of the UNFCCC, 11–15 May, Bonn, Germany).

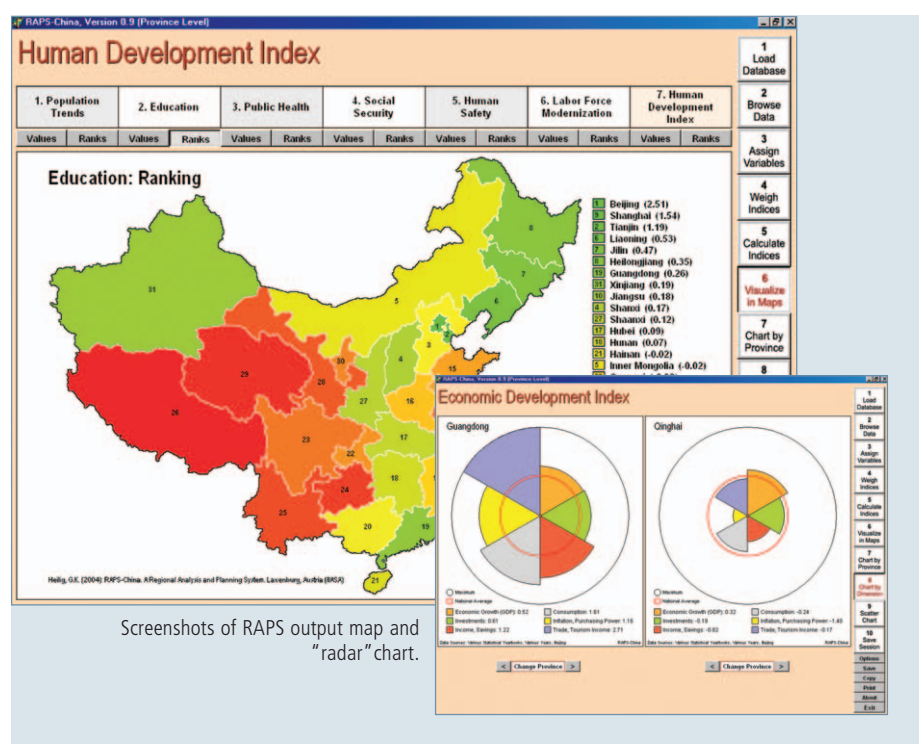
IIASA's model-based research has also placed this issue on the agendas of the World Bank and the Inter-American Development Bank. The RMS Project's interactive computer modeling tool (CATSIM), for evaluating pre-disaster options for financing public sector risks, is now used to take account of catastrophic events in the country development plans of the World Bank.

In April 2004, the first of a series of World Bank-sponsored workshops to train high-level policy makers to use the models was held at IIASA, with participants from the Philippines, India, Turkey, Mexico, and Colombia attending.

Financial Options to Reduce Disaster Risk—Honduras Case Study

A two-stage decision model has been designed at IIASA to analyze the efficiency of taking pre-disaster measures for filling financing gaps in countries at risk. The model is designed to illustrate the choices and trade-offs a developing country must make to manage the economic risks of natural disasters. Pre-disaster measures might include budgetary allocations to loss mitigation measures, a catastrophe reserve fund, and insurance and contingent credit arrangements for public assets.

In the second, post-disaster stage, the model looks at repair and reconstruction costs, budget reallocation,



Screenshots of RAPS output map and “radar” chart.

The second research question deals with the spatial distribution of “values” in hazard-prone areas. The concentration of values (people, infrastructure, cropland, fresh water, capital) in certain areas of a country has received widespread attention in recent years due to the increased possibility of large-scale catastrophic events. These may include natural hazards (such as earthquakes, floods, or impacts of climate change) but also other threats (such as terrorist attacks or large-scale epidemics). The geographical distribution of values in potentially hazard-prone areas is a key factor of a country's vulnerability. China's top research facilities, for instance, are mostly concentrated in Beijing. Imagine what a deadly epidemic could do to the country's research capacity! Geographical diversification of strategically important assets—not only military but also economic assets—is a factor in regional development policy. Governments are highly

recent techniques, such as actor-based models (for instance, for simulating suburbanization or the formation of regional industrial clusters) or rule-based expert systems, are scientifically more productive and more applicable for political decision makers.

In this research we will cooperate with Professor Fan Jie, head of the Department of Regional Development at the Institute of Geographical Sciences and Natural Resources Research of the Chinese Academy of Sciences. Currently, we are investigating various possibilities for using the RAPS tool in the preparation of the 2004 China Regional Development Report. If resources are available, a Chinese-language version of RAPS might be developed.

For more information please contact Gerhard Heilig (heilig@iiasa.ac.at) or visit the SRD Web site at www.iiasa.ac.at/Research/SRD.

The Challenges of Europe's New Demography

There is renewed interest in demography in Europe, mainly concerning the possible negative consequences of population aging. The planning horizon for social security issues is typically no longer than 25–30 years. Only recently did the impending retirement of the baby-boom generation appear on the radar screen of social security planners. There is now a sense of urgency about the need to reform the system after decades of complacency, and demography is cited as the reason why pension promises made in the past may have to be broken in the future.

In order to strengthen the transnational dimension of Europe-wide demographic research, IIASA, together with four other population research institutes, has initiated the European Demographic Research Ensemble. This effort will help to establish a European demographic research environment to study the various challenges associated with Europe's new demography.

Europe is entering unknown demographic territory, a phase full of uncertainty, with no one able to say exactly how low fertility is likely to fall and how high life expectancy may still go. Previously unquestioned upper limits to life expectancy and lower limits to fertility now appear

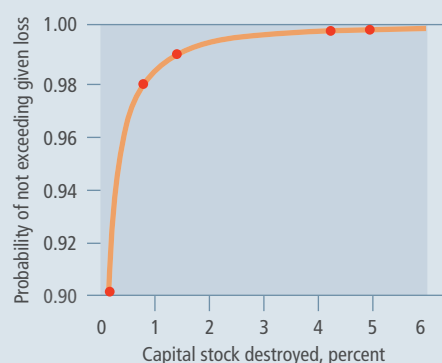
to be convenient assumptions without a solid scientific basis.

An important feature of Europe's current demographic landscape is its great regional differences, with parts of Northern Italy, Spain, and France already showing proportions of 24 percent and more above age 65, while parts of Central and Eastern Europe are generally below 14 percent. These huge differences are the consequence of age-specific regional migration patterns as well as different life expectancies and past fertility levels. Given the low spatial mobility of the European population, these regional age structures will be highly relevant for future labor markets and future regional needs for schools or old-age care.

Another question demographers ask is whether immigrants from outside Europe can replace Europe's "missing babies." The figure below shows the old-age dependency ratio in 2050 under seven different (constant) fertility and four different (constant) migration levels. The figure shows that even the unlikely combination of the highest migration with the highest fertility rate will result in a very significant increase in old-age dependency. The figure also shows that there clearly is some compensation between fertility and migration. There is thus a further need for rigorous demographic analysis as Europe ages rapidly. ■



Earthquake hazard map for Central America.
Source: Swiss Re, 2000.

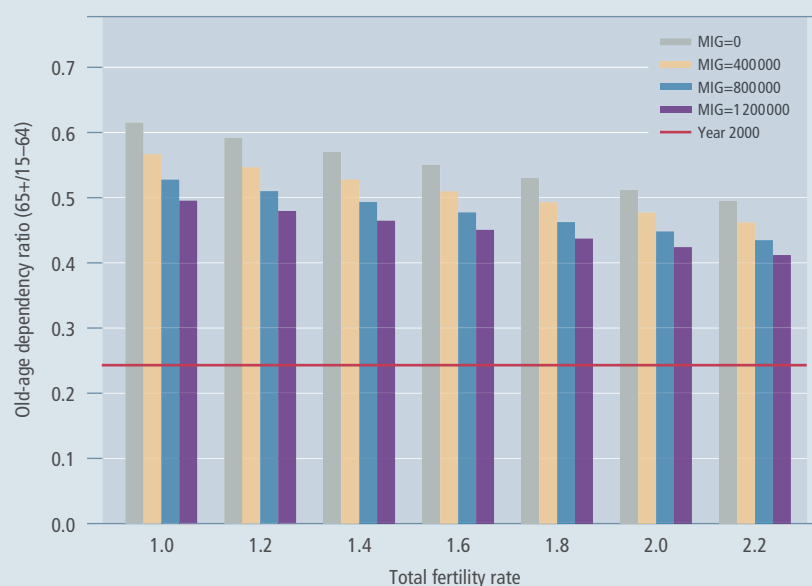


Loss-frequency curve for earthquake risk in Honduras.

possible tax increases, and loans and other financial decisions. The scope of possible actions at stage two influences the decision at stage one.

Monte Carlo simulations are used to generate scenarios for a given time horizon. The model is equipped with a graphic interface that allows the user to change default parameters defining hazards and vulnerability. The first of the two modules allows for risk assessment; the second is for the assessment of the costs and benefits of different risk management strategies. Since the user can interactively change important parameters and assumptions, the consequences can be examined in a transparent manner.

The model was presented in March at an Inter-American Development Bank meeting in Honduras, a country particularly affected by natural disasters. The model will be adapted to other vulnerable countries in Central America and Asia. ■



Old-age dependency ratio for the EU-15 in 2050 according to alternative projections assuming a wide range of fertility and annual net migration (MIG) levels. The level for 2000 is marked as a red line.

IIASA's Greenhouse Gas Initiative

IIASA was founded to bring together scientists from different fields to study global problems. Such interdisciplinary work remains one of the Institute's greatest strengths. In 2004 IIASA instituted its Greenhouse Gas Initiative (GGI), an interproject collaborative research effort that draws on the combined skills of modelers, policy analysts, energy technologists, environmental engineers, foresters, agricultural specialists, demographers, and economists to bridge crucial gaps in our knowledge of how the world can best address the challenge of climate change.

The fundamental problem is that if no action is taken, substantial climate change impacts are anticipated over the coming decades and centuries, while effective response strategies must begin now and then evolve with time. Furthermore, no one country or group of countries acting alone can solve the problem; ultimately, a global solution is necessary. Policy makers facing this climate change conundrum need the best possible scientific information.

Thus the GGI aims to combine the expertise of IIASA's long-term analyses of population, technology, energy systems, and agriculture with its more site-specific, short- to medium-term assessments of land use, forestry, and air pollution, for both industrialized and developing countries. Large models that operate at different spatial and temporal scales have to be combined in order to accomplish this task. GGI will take a three-level systems approach, using (i) scenario development, (ii) national assessment, and (iii) policy assessment, to distil policy-relevant, model-based knowledge.

The scenarios will explore different approaches to achieving long-term climate change goals of the kind included in the international climate treaty, the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC specifies that greenhouse gas concentrations in the atmosphere should be stabilized at a level that avoids "dangerous interference" with the climate system. GGI will assess response strategies that will reduce greenhouse gas emissions and lead to atmospheric stabilization. Substantial attention will be focused on how uncertainties in the climate system and in socioeconomic systems affect such assessments. To take just one example, a wide range of social, economic, and technological development trajectories

could unfold over the next century and may have very different implications for appropriate climate response strategies.

National assessments will be designed to analyze country-specific issues within the context of global scenarios. GGI will explore the development of methods of linking national models to the IIASA global framework, which would provide benefits to countries carrying out national studies while at the same time enriching the IIASA modeling framework.

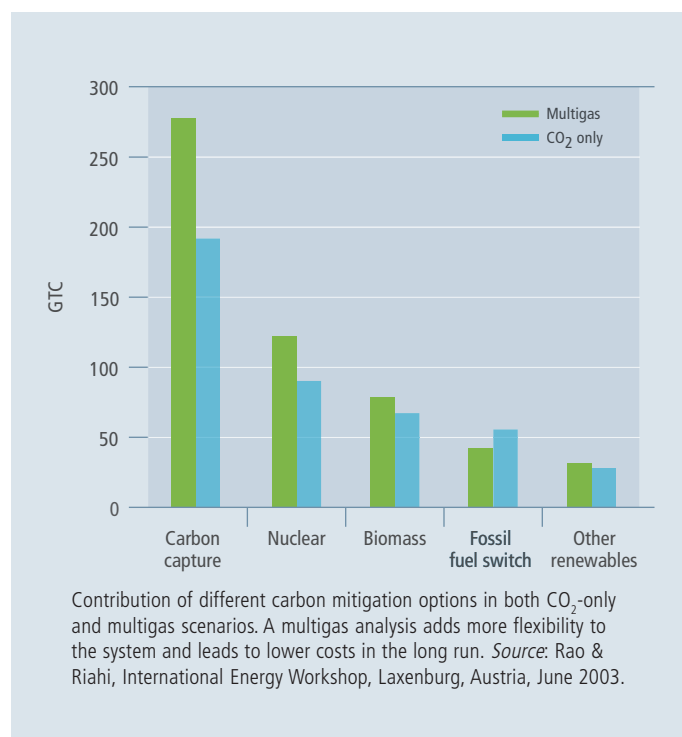
Policy assessment will aim to analyze alternative international climate policy regimes that might be put in place over the next few decades within the context of longer-term climate goals and development pathways. Such analyses can link long-term trends to shorter-term and more local policy decisions such as those faced by the international climate policy community.

GGI's integrated climate change assessment framework will be developed in collaboration with other research institutes and public and private organizations. Collaborators will include the Parties to the UNFCCC and other stakeholders, who will help tailor the assessment tools to practical policy questions and the needs of potential users. The GGI assessments will highlight the driving forces of climate change and the ancillary benefits of mitigation and adaptation measures for both industrialized and developing countries.

GGI has four principal goals for 2004:

- A multigas scenario analysis of stabilization at a particular level of radiative forcing. The analysis could contribute to the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report.
- A methodological concept for national assessment tools capable of interacting with the global integrated assessment framework.
- Initiation of national case studies (potentially in China and India) carried out in the context of global scenarios.
- A prototype version of a policy assessment tool that will demonstrate the feasibility of the approach and illustrate its capabilities.

GGI will cover driving forces and benefits other than climate change, and thus allow for analyses of development strategies that have positive ancillary benefits on greenhouse gas emissions for both industrialized and developing countries. ■





IIASA Meets the Public

On 12 May, IIASA scientists made a series of one-hour presentations on their work as part of the fifth annual "Science Week Austria," a nationwide initiative to inform a wider public of topical scientific research. This year's event was held in Vienna's Museum Quarter, a recently built complex of exhibition spaces, conference rooms, and museums that attracts several thousand visitors a day in the summer months.

The eight IIASA presentations outlined aspects of the Institute's research on demography, air-quality models, technological innovation, forestry, energy systems, land-use change and agriculture, climate change and risk management, and mechanisms to finance recovery after natural disasters.



Photos courtesy of Linda Kneucker

Professor Jan P. Pronk to Speak as Part of the 2004 Tjalling Koopmans Lecture Series

Professor Jan P. Pronk of the Institute of Social Studies in The Hague will present a talk entitled "The Global Challenge of Sustainable Development and Human Security. An Imperative from Rhetoric to Actions" on 7 July 2004 as part of IIASA's Tjalling Koopmans Lecture Series. Pronk, chairman of the Water Supply and Sanitation Collaborative Council and special envoy for the secretary-general of the United Nations, will discuss the challenges the scientific community faces in contributing knowledge to national and international negotiations and to policy and decision makers. He will also explore the steps an institute such as IIASA should take to "connect" with the international negotiations forum.

Professor Pronk joins a long list of renowned scientists who have participated in the series since its inauguration in 1994 by Nobel Laureate Kenneth Arrow of Stanford University. As part of the 2003 Tjalling Koopmans Lecture Series, IIASA hosted two prominent guests. In March, Professor Oded Stark from the University of Bonn spoke on migration policy and the "brain drain," presenting his finding that, under a well-controlled restrictive migration policy, the welfare of all workers is higher than in the absence of such a policy. In July, Nobel Laureate Paul J. Crutzen, from the Max-Planck-Institute, spoke on the Antarctic ozone hole and the lessons we should learn from its unexpected discovery, especially the need to be aware of potential instabilities in other parts of the Earth system, with its complex physical-chemical-biological-human feedbacks. ■

IIASA Hosts 2004 START Program

The System for Analysis, Research and Training (START) program is co-sponsored by the International Geosphere-Biosphere Program, the International Human Dimensions Programme on Global Environmental Change, and the World Climate Research Programme. It seeks to establish and foster regional networks of collaborating scientists and institutions in developing countries. These networks conduct research on regional aspects of environmental change, assess the impacts of and vulnerabilities to such changes, and provide information to policy makers.



IIASA's long involvement with questions of environmental change makes it an obvious choice to host and serve as a training partner for the START program's Advanced Institute on Assessing Vulnerability to Global Change and Environmental Risks. The first meeting was held at IIASA from 3 to 21 May this year, funded by The David and Lucile Packard Foundation. Co-directors were Neil Leary (START), Joanne Linnerooth-Bayer and Mahendra Shah (IIASA), and Jill Jäger.

Twenty young scholars from developing countries were selected, in part on the basis of their proposals for research on some aspect of vulnerability assessment. During their three weeks at IIASA, the participants took part in a combination of lectures, "hands-on" exercises, and meetings with supervisors and fellow participants. Based on knowledge gained during these meetings, they presented revised versions of the initial proposals submitted along with their applications. All of the participants who met the expectations of their supervisors, mentors, and co-directors were awarded 12-month grants to carry out the research at their home institutions. ■

Publications Highlights

Martin A. Nowak, Karl Sigmund
Evolutionary dynamics of biological games
Science **303**(6 February 2004):793–799

Karl Sigmund of IIASA's Adaptive Dynamics Network is co-author, together with Martin Nowak of Harvard University, of a major article entitled "Evolutionary Dynamics of Biological Games" that appears in the February 2004 issue of *Science*. The article provides a state-of-the-art review of evolutionary game theoretical research, which is an essential component of a mathematical and computational approach to biology. Game theory originated more than 50 years ago to tackle economic and social problems involving interdependencies among several agents. Evolutionary biologists soon understood its potential and started applying it to problems in biology in, for example, the evolution of virulence of infectious agents. Here, the classical understanding, based on constant selection, is that parasites evolve to maximize their basic reproductive ratio. Lack of cooperation among parasites can lead to shortsighted, maladapted levels of excessive virulence harming both host and parasite.

Evolutionary biology is well grounded in mathematical theory. The way populations change under the influence of mutation and selection can be described by a rich array of mathematical equations that enable consistent analysis and meaningful investigations.

The article goes on to show how strategic interactions might affect population structures; explores the use of replicator dynamics to explain short-term evolution; and describes developments in adaptive dynamics research for understanding long-term evolution.

Looking ahead, evolutionary game theory finds a rich field of application in all areas of biology that are amenable to empirical and theoretical investigation. Game theory is the appropriate tool whenever the success of an individual depends on others.

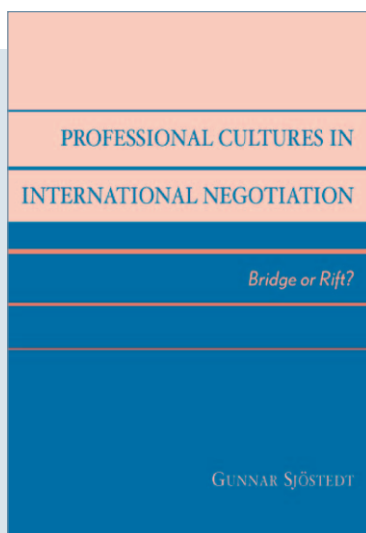
Esben M. Olsen, Mikko Heino, George R. Lilly, M. Joanne Morgan, John Bratley, Bruno Ernande, Ulf Dieckmann
Maturation trends indicative of rapid evolution preceded the collapse of northern cod
Nature **428**(29 April 2004):932–935

The Grand Banks is a region of the Atlantic Ocean that covers approximately 180,000 square kilometers off the coast of southern Labrador and eastern Newfoundland. For centuries, this has been the greatest cod-fishing region in the world, frequented

by international fishing fleets. But in the late 1980s and early 1990s, northern cod (*Gadus morhua*) underwent one of the worst collapses in the history of fisheries. Even after a decade-long moratorium, population sizes remain at historic lows. Research by members of IIASA's Adaptive Dynamics Network and their collaborators shows that up until the moratorium, the life history of northern cod continually shifted toward maturation at earlier ages and smaller sizes.

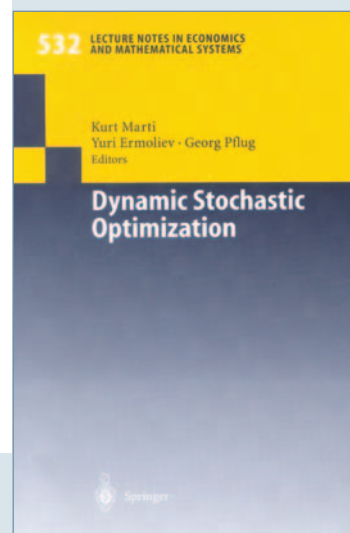
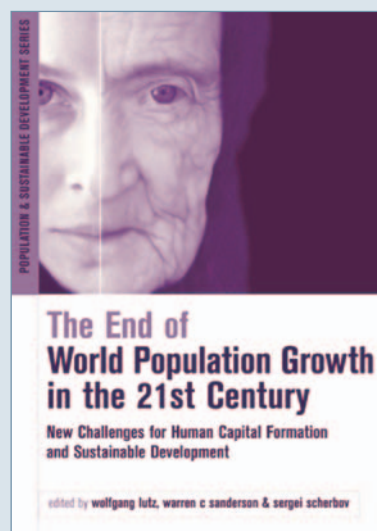
The study presented in the *Nature* article "Maturation Trends Indicative of Rapid Evolution Preceded the Collapse of Northern Cod" used data on approximately 11,000 female Atlantic cod between the ages of 3 and 6 years for its statistical analyses, which revealed that commercially exploited fish stocks often show trends toward earlier maturation. That this trend could involve fisheries-induced evolution is supported by empirical evidence gathered from other species, such as the grayling (*Thymallus thymallus*) in Norwegian mountain lakes, and in field experiments with a small freshwater fish, the guppy (*Poecilia reticulata*).

The research suggests that the reaction-norm approach used in the study might help fisheries managers by providing a reliable warning of impending collapse of stocks under heavy exploitation, long before other signals are apparent.

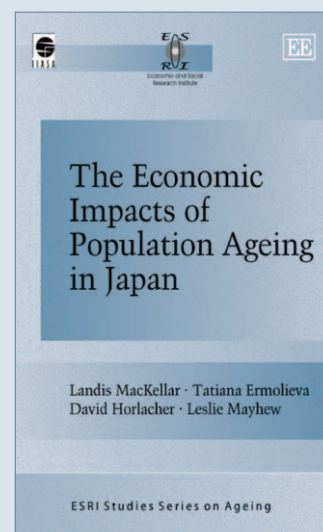


Professional Cultures in International Negotiation: Bridge or Rift?
Gunnar Sjöstedt, editor
Lexington Books, 2003
ISBN 0-7391-0638-4 ■ US\$25

The Economic Impacts of Population Ageing in Japan
Landis MacKellar, Tatiana Ermolieva, David Horlacher, Leslie Mayhew
Edward Elgar Publishing, 2003
ISBN 1-84376-360-5 ■ £55

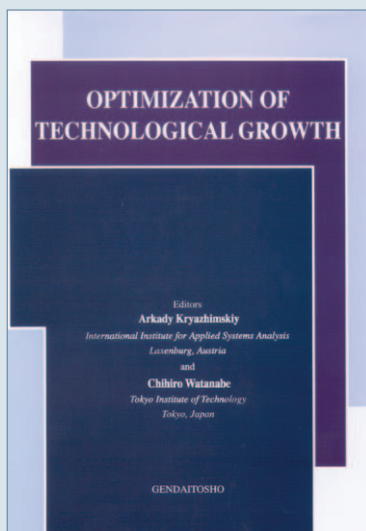


Dynamic Stochastic Optimization
Kurt Marti, Yuri Ermoliev, Georg Pflug, editors
Springer Verlag, 2003
ISBN 3-540-40506-2 ■ €53.45



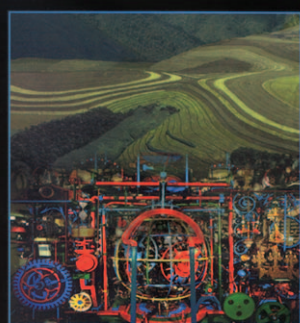
The End of World Population Growth in the 21st Century: New Challenges for Human Capital Formation and Sustainable Development

Wolfgang Lutz, Warren C. Sanderson, Sergei Scherbov, editors
Earthscan / James & James, 2003
ISBN 1-84407-099-9 (paperback) ■ £29.95



Optimization of Technological Growth
Arkady Kryazhimskiy, Chihito Watanabe, editors
Gendaitosho, 2003
ISBN 4-906666-30-2 ■ ¥10,500

Technology and Global Change
Arnulf Grübler
Cambridge University Press, 2003
ISBN 0-521-54332-0 ■ £33



TECHNOLOGY AND GLOBAL CHANGE

Arnulf Grübler

技术与全球性变化

TECHNOLOGY
AND GLOBAL CHANGE

Arnulf Grübler 著
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清华大学出版社

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This volume considers optimal stochastic decision processes from the viewpoint of stochastic programming. It focuses on theoretical properties and on approximate or numerical solution techniques for time-dependent optimization problems with random parameters. Methods for finding approximate solutions of probabilistic and expected cost-based deterministic substitute problems are presented. In addition to theoretical and numerical considerations, the volume contains selected refereed papers on many practical applications to economics and engineering: risk, risk management, portfolio management, finance, insurance matters, and control of robots.

For ordering information, contact Springer Verlag (www.springeronline.com).

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In today's information- and knowledge-driven world, science and technology play a critical role in long-term sustainable development. Technological innovation, which was a leading concern of the late 20th century, remains a burning issue in the new millennium.

This collective IIASA monograph summarizes results on modeling processes of technological growth obtained within the framework of the research program on Comparative Analysis of the Endogenous Techno-economic Process: Technology Spillovers in Japan, the US, Europe, and APEC Countries conducted by IIASA's Dynamic Systems Project and the Tokyo Institute of Technology from 1999 to 2002.

For ordering information, contact Gendaitosho, Amenity-Amenity 5F, 11240 Tana, Sagami-hara City, Kanagawa 229-1124, Japan, Telephone: +81 (0)42-763-6445, Fax: +81 (0)42-763-6486.
ISBN 4-906666-30-2 ■ ¥10,500

The Economic Impacts of Population Ageing in Japan

While all of the major industrialized countries are currently experiencing population ageing, Japan is at the forefront of this demographic trend. This important new book explores the serious economic and social challenges that a rapidly ageing Japanese economy will have to overcome in the first half of the 21st century.

The book is arguably the best available English-language survey on the economic implications of population trends in Japan. It will be widely read by academics of economics, demography, public policy, and public finance, and will also provide useful supplemental reading for graduate or upper undergraduate courses in economics, social policy, and Asian studies.

For ordering information, contact Edward Elgar Publishing (www.e-elgar.co.uk).

ISBN 1-84376-360-5 ■ £55

Technology and Global Change

This book, first published in 1998 by Cambridge University Press and now available in paperback, discusses how technology has shaped society and the environment over the past 200 years.

For copies of the paperback version, contact Cambridge University Press (uk.cambridge.org).

ISBN 0-521-54332-0 ■ £33

The book has also recently been translated into Chinese and is available from Tsinghua University Press (www.tup.tsinghua.edu.cn).

IIASA Scientists to Participate in the 2004 EuroScience Open Forum

The EuroScience Open Forum (ESOF 2004), to be held in Stockholm from 25 to 28 August 2004, will be the largest science meeting in Europe. Two proposals by IIASA scientists have been selected for this first Europe-wide meeting on science, which has been modeled on the Annual AAAS Meetings in the United States.

Ulf Dieckmann and Mikko Heino of IIASA's Adaptive Dynamics Network will organize a symposium on "The Overlooked Evolutionary Dimension of Modern Fisheries." The symposium will highlight how evolutionary responses to the commercial exploitation of living marine resources are threatening both the ecology and the economy of fishing.

Michael Obersteiner of the Forestry Project will point to negative emission technologies as a means of reducing carbon dioxide emissions. His presentation is part of a symposium entitled "Climate Risk Management—Are We Ignoring the Obvious?"

More information on the forum is available on the ESOF 2004 Web site (www.esof2004.org). ■

IIASA Welcomes Three Institute Scholars

This summer, IIASA welcomes three new Institute Scholars. **Brian Arthur** of the Santa Fe Institute has returned to IIASA, where he was a staff member from 1977 to 1982. He will be collaborating with members of the Transitions to New Technologies Project and continuing his research on how technologies originate and evolve.

Robert Ayres, who led IIASA's Computer Integrated Manufacturing Project in the late 1980s and is currently affiliated with INSEAD and the Chalmers University of Technology, will be at the Institute until March 2005. During his stay, he will continue his work in the field of industrial ecology.

Nobel Laureate **Paul Crutzen** of the Max-Planck-Institute of Chemistry in Mainz, Germany, will be at the Institute during the summer of 2004. Crutzen will be working on emission estimates related to the Atmospheric Brown Cloud. ■

Awards and Recognition

IIASA Director **Leen Hordijk** represented the Institute at the annual IIASA–Shiba Awards in Budapest on 6 November 2003. The awards are given for excellence in total quality management (TQM) in Hungary. The awards program was initiated in 1987 by IIASA researcher Shoji Shiba of Japan together with Tom Lee, the director of IIASA at that time, and the Hungarian minister of industry. Through the years, this award has become the most important public distinction in TQM in Hungary, with competitors from a wide range of categories, including educational institutions, industry, private companies, and local communities.

Edgar Hertwich of IIASA's research activity on Sustainable Consumption is the first winner of the International Society for Industrial Ecology's Laudise Prize for outstanding research in the field by a young scientist.

A second young IIASA prizewinner is **Jürgen Weichselgartner** of IIASA's Risk, Modeling and Society (RMS) Project. The Franke'sche Foundation (Berlin) found that his PhD thesis "Natural Hazards as a Social Construction" excels in what the organization was looking for—a pairing of social scientific aspects with technological and natural scientific ones when approaching a global problem.

The Royal Netherlands Academy of Arts and Sciences has awarded the 2004 Dr A.H. Heineken Prize for Environmental Sciences to **Simon A. Levin** of the Department of Ecology and Evolutionary Biology, Princeton University, for "his insights into the effects of scale on ecosystems." Simon Levin is chairman of the IIASA Council.

The "Golden Fortune" is the highest Ukrainian accolade for professionals in the fields of science, law, and education, and many other professionals in culture, sport, and journalism. Based on this rating, the prestigious "Order of St. George the Victorious" has been awarded to IIASA research scientist **Yuri Ermoliev**. Prime Minister Viktor Yanukovich commended the recipients for "their outstanding service to the Ukrainian state and distinguished contributions to science and culture, and for augmenting the material and spiritual values of humanity."

United Nations Secretary-General Kofi Annan has appointed **Gui-Ying Cao** of IIASA's Population Project to the UN Committee for Development Policy (CDP) for the term 2004–2006. The committee is a subsidiary body of the Economic and Social Council (ECOSOC), which is responsible for formulating policy recommendations to UN member states and to the UN system on matters pertaining to development.

YSSP Scholarship Recipients for 2003

The 2003 Peccei Scholarships were awarded to **Christian Jørgensen** of Norway and **Peter van Grinsven** from the Netherlands. Jørgensen, who comes from the Department of Fisheries and Marine Biology, University of Bergen, was chosen for his research in the Adaptive Dynamics Network (ADN) Project. His report entitled "How Common is Skipped Spawning in Northeast Arctic Cod?" provides, in the words of one reviewer, "a first and important step towards understanding evolutionary ecology of the paradoxical albeit common phenomenon of skipped spawning."

Peter van Grinsven, from the Netherlands Institute of International Relations–Clingendael in The Hague, was awarded the scholarship for his work undertaken in the Processes of International Negotiations (PIN) Network. His paper "Top Level Negotiations in the European Union: The European Council" received high ratings from external reviewers who credited it as "a coherent, well-structured paper that unfolds lucidly the big dilemmas for Europe in the very near future."

The recipient of the Mikhalevich Scholarship for 2003 was **Tomasz Dysarz** of the Gdansk University of Technology, who was recognized for his work in the Risk, Modeling and Society (RMS) Project. The findings of his research were published in a report entitled "Control of Flood Defense Reservoirs System Under Uncertain Inflows: NYSA Reservoirs System Case Study."

In Memoriam



Harvey Brooks

IIASA announces with deep regret the passing of **Harvey Brooks** on 28 May 2004. Many people around the world recognize Harvey as a preeminent scholar and a pioneer in the incorporation of science into policy debates. For us, he will also be remembered for his many contributions to IIASA—most especially for his tireless support of the Institute in the 1980s, when he was critical to maintaining US participation in IIASA after the federal government withdrew its support. Harvey was crucial in convincing the American Academy of Arts and Sciences that it should assume the responsibility in 1982 as the US National Member Organization for IIASA. He served as chairman of the US Committee for IIASA from 1982 through 1990, providing both intellectual leadership and fundraising acumen. He never ceased in his campaign to convince the US government to resume support for IIASA. Those efforts were ultimately successful in 1990, when Allen Bromley, the science advisor to President George H.W. Bush, reestablished the policy of US support for IIASA. Harvey remained on the US Committee for IIASA into the 21st century, and his interest in and support for IIASA never wavered.

Harvey Brooks was Benjamin Pierce Professor of Technology and Public Policy, Emeritus, in Harvard's Kennedy School of Government. In 1976, he founded and became the first director of the Science, Technology, and Public Policy Program of the Kennedy School's Belfer Center for Science and International Affairs. He remained in that position until his retirement in 1986. He was a member of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, and president of the American Academy of Arts and Sciences from 1971 to 1976.



Elfriede Congiu-Kranner

IIASA lost a beloved colleague with the death of **Elfriede Congiu** in a traffic accident in July 2003. Elfi joined IIASA in July 1995 and worked in a variety of positions that made use of her wealth of experience and language skills.

At the time of her death, she was a member of the Finance Department, but because of her years of airline experience, she also doubled as the Institute's travel agent, organizing around 400 business-related trips annually for the Institute's staff. Elfi was also an active member of the Staff Association Committee and served as its treasurer for several years. She always performed her duties cheerfully and competently; her services were deeply appreciated by colleagues and her presence is sorely missed by her many friends at the Institute.



Amrik Singh Mehta

Ambassador Amrik Singh Mehta passed away in April 2004 at the age of 84.

Amrik Mehta joined IIASA's Processes of International Negotiation Project in September 1988 as a guest scholar in an advisory capacity. He was a special adviser to a succession of IIASA directors, beginning in 1996.

Before coming to IIASA, Ambassador Mehta had a distinguished career in the Indian Foreign Service and the United Nations system. As a diplomat, Amrik Mehta represented India at the UN in New York and subsequently in Geneva. His important international posts included that of assistant secretary-general of the UN in New York and deputy director-general of the International Atomic Energy Agency in Vienna. He retired from UN service in 1988.

At the time of his death, Ambassador Mehta was engaged in an effort to secure Indian membership in IIASA. We believe that his efforts will come to fruition in the near- to medium-term future.

IIASA National Member Organizations

Austria The Austrian Academy of Sciences
China The National Natural Science Foundation of China
Czech Republic The Academy of Sciences of the Czech Republic
Egypt The Academy of Scientific Research and Technology (ASRT)
Estonia The Estonian Association for Systems Analysis
Finland The Finnish Committee for IIASA
Germany The Association for the Advancement of IIASA
Hungary The Hungarian Committee for Applied Systems Analysis
Japan The Japan Committee for IIASA
Netherlands The Netherlands Organization for Scientific Research (NWO)
Norway The Research Council of Norway
Poland The Polish Academy of Sciences
Russian Federation The Russian Academy of Sciences
Sweden The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS)
Ukraine The Ukrainian Academy of Sciences
United States of America The National Academy of Sciences



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