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THE VIEW TO THE FUTURE

PHILIP R. PRYDE

Preface to the following Executive Summary:

The research report which is summarized below is part of an NCSEER funded project entitled Environmental Resources and Constraints in the Former Soviet Republics. This research project in all consisted of 21 such reports, listed at the end of this Executive Summary, 18 of which (written by other authors) deal with the fifteen former republics, and three of which (written by Dr. Pryde) are summarizing reports. Collectively, they will become the 21 chapters of a book by the same name which will be published in 1994 by Westview Press. This Report is the final, concluding chapter.

Executive Summary

For each of the former Soviet republics, a new era began in 1991. Given the unexpected abruptness of the USSR’s demise, it is not surprising that few of them were ready to make a smooth transition to independence. This study has identified a number of recurring themes among the contemporary political, economic, and environmental problems facing these new nations. Among these are:

- Internal peace and stability are lacking in many republics, and this retards both economic and environmental improvement;

- In some republics, ethnic tensions are a primary reason that internal stability is difficult to achieve;

- The ongoing economic crisis is a major deterrent to funding-needed environmental improvements;

- Outmoded, inefficient, and polluting industrial enterprises exist almost everywhere; but shutting them down frequently exacerbates economic problems;

- The waste and inefficient use of both natural and human resources during the Soviet period was staggering, and unfortunately continues;

- For some republics, particularly those in Central Asia, excessive birth rates pose both a contemporary and future dilemma;

- Previously reliable supply channels and markets for energy and other natural resources and raw materials are no longer assured;
- The (over-)use of harmful chemicals and processes in industry and agriculture is causing human health problems as well as environmental disruption;

- Biotic resources are not being carefully managed; poaching and other causes of depletion are apparently on the increase.

In light of the above, what can we learn from the command economy, centralized planning, and free-resource practices of the former Soviet Union?

Lessons of the Soviet era for the economy and the environment:

This study of the post-Soviet republics suggests that certain lessons can be inferred from the economic and environmental decay within the former USSR. These include:

1. Maximizing production levels is a poor model for a national economic plan. This Soviet imperative resulted in quality becoming subservient to quantity, the natural environment being sacrificed to output maximization, and innovation being stifled.

2. A healthy economy cannot be built on top of an unhealthy natural environment. Not only does this lead to environmental and human health problems, but it forces a much higher economic hardship on future generations.

3. Out of sight is not out of mind. Ecologists understand that "everything has to go somewhere". Soviet planners, however, seemed to feel that "somewhere" could be adequately defined as lakes, rivers, oceans, the atmosphere, or anywhere else that was, in the short run, cheap and convenient.

4. Technical fixes and huge projects often don't work. The same "gigantomania" that characterized industrial and agricultural output also often could be seen in the Soviet approach to nature. Large-scale projects to "improve" marshes, deserts, and rivers, however, seldom showed net benefits.

5. A press release does not constitute an effective program. Rarely have Soviet laws and resolutions been effective in actually curing environmental problems.

The foregoing considerations strongly suggest that:

6. There are fundamental problems in the Marxist-Leninist system of economic/environmental management. Although Marx and Engels talked about protecting nature, Soviet Marxists were unable to achieve this goal. Part of the reason seems to be inherent problems in the economic model, such as a lack of value for in situ natural resources and a blind faith that a centrally planned economy would inherently be kinder to nature than a market economy. Unfortunately, these assumptions turned out to be wrong.
Based on the above discussions, several remedial courses of action seem to suggest themselves.

**What Needs to be Done?**

Some of the most important changes that are needed are:

1. The economy and the environment must be viewed as a single symbiotic organism. It is axiomatic that resolving environmental problems requires a stable and healthy economy; a weak economy provides little money for environmental improvement.

2. Foreign involvement will be needed in the short run. In addition to capital investment, the CIS nations also need state-of-the-art natural resource management techniques. But foreign investment must undergo effective environmental review and control by the host country.

3. Economic "new thinking" is needed. Many of the economic tenets of Marxism-Leninism have proven in practice to be counter-productive, and need to be replaced. Three examples are:

   a) It must be recognized that natural resources have value in situ.

   b) Economies must internalize environmental costs into the price of goods and services.

   c) If the United States is chosen as an economic model, much more must be understood about the vast array of control mechanisms, both public and private, that make our market economy work.

4) The nuclear energy dilemma must be addressed in a more comprehensive manner. Russia's nuclear expansion plan at this point is merely the short-run lesser of two evils, assuming the alternative is to build more polluting fossil fuel power plants. A long-range, environmentally sensitive energy plan is needed now, as well as much greater energy efficiency.

5) Environmental education must be improved. A considerable amount exists at present, but there is rarely adequate public explanation as to why it is imperative to protect nature, or what the average citizen should do.

6) Public and non-governmental organization involvement is important. This is critical to implementing point 5, above. It is clear that government agencies cannot be relied upon in any country to always implement environmentally sound management practices. Citizen review and empowerment is essential.

7) An emphasis on efficiency of resource use is essential, especially in the areas of water resources, agriculture, and energy use. An increase in the efficiency of water and energy utilization could preclude additional expensive development of these resources, with huge environmental benefits.
8) A high level of inter-republic cooperation will be essential if environmental concerns are to be adequately addressed in the post-Soviet period. Many new bilateral and multilateral agreements will be needed.

Today, the fifteen former Soviet republics are at their most critical juncture since the 1917 Revolution. In most, the final form of their future economic system is not yet certain, the extent to which they will embrace democracy is unclear, and the role of citizen organizations, as opposed to state control, is still to be determined. The close relationship between sound economic development, environmental vitality, and human health and well-being is clear. The extent to which the new republics can optimize these three considerations will go far towards determining the future stability and prosperity of these regions, and of the former Soviet Union as a whole.
Chapter 21 SUMMARY: THE VIEW TO THE FUTURE

Philip R. Pryde

The familiar saying that "today is the first day of the rest of your life" is very apt for the fifteen former Soviet republics. For them, that first day was December 6, 1991, the day that the USSR was first declared to be abolished. For each of the republics, a new era began, one ushered in with both great hope and even more abundant problems. Given the unexpected abruptness of the transformation, it is not surprising that few, if any, of the republics were ready to make a smooth transition to independence.

The preceding chapters have identified a number of recurring themes among the array of contemporary political, economic, and environmental problems that these new nations must address. Among the most common of these recurring themes are the following:

- Internal peace and stability are lacking in many republics, and this situation is retarding both economic and environmental improvement.
- In some republics, ethnic tensions are a primary reason that internal stability is difficult to achieve, and Stalinist political boundaries are a key part of this problem.
- The ongoing economic crisis is a major deterrent to the funding needed for environmental improvements.
- Outmoded, inefficient, and polluting industrial enterprises exist almost everywhere; but shutting them down frequently exacerbates economic problems.
- The waste and inefficient use of both natural and human resources during the Soviet period were staggering.
- For some republics, particularly those in Central Asia, excessive birthrates pose both a contemporary and future dilemma.
- Supply channels and markets for energy and other natural resources that previously existed in many of the republics are no longer assured.
- The (over)use of harmful chemicals and processes in industry and agriculture is causing human health problems as well as environmental disruption.
- Biotic resources are not being carefully managed; poaching and other forms of illegal entry are apparently on the increase.
- Both public and administrative understanding of, and support for, environmental enhancement is generally low, especially in times of economic hardship.

Specific examples of these various categories of problems have been given throughout the previous twenty chapters and do not need to be repeated here. The more important question is,
What can we learn from the seventy year experience of the command economy, centralized planning, and free-resource practices of the Soviet Union?

**Lessons of the Soviet Era for the Economy and the Environment**

The examination in earlier chapters of the Soviet-era experience, and of the current situation in the post-Soviet republics, seems to suggest that certain lessons can be inferred from the economic and environmental deterioration that characterized the USSR on the eve of its demise. Among the clearest of these lessons are the following:

**Maximizing production levels is a poor model for a national economic plan.** In the Soviet Union, meeting ever-higher output quotas was virtually the only yardstick of managerial success. As a result, not only did quality tend to become subservient to quantity, not only was the natural environment sacrificed in the interests of output maximization, not only does such a system stifle innovation and the introduction of improved technologies and products, but in the long run this type of system is also inherently doomed to failure. Putting additional fertilizer or pesticides on cropland to increase yields, for example, will only work up to a certain point; then it becomes counterproductive. Building huge hydroelectric dams in every feasible location eventually encourages energy waste and irreparably damages biotic resource stocks. Increasing oil production every year encourages its faster consumption, and hastens the inevitable onset of field depletion. But in all these cases, advocating conservation and annual decreases in levels of production would have been heretical to orthodox Soviet planners. As a result, waste and environmental pollution became institutionalized. This leads immediately to lesson number two,

**A healthy economy cannot be built on top of an unhealthy natural environment.** Another way to phrase this might be that environmental expenditures deferred are environmental expenditures increased. Postponing (or simply ignoring) environmental safeguards is economically foolhardy. Not only does this practice lead to environmental and human health problems; but also it forces a much higher economic hardship on future generations which must pay the costs of cleaning up the mess, paying increased health care costs, and installing the preferred infrastructure that should have been built in the first place. Today, every one of the newly independent states faces costs in billions of dollars in environmental cleanup, and this cannot help but have a depressing effect on other components of the economy. Two specific large-scale examples of this are the losses produced by diverting water from the Aral Sea and the cleaning up of the mess from the poorly designed Chernobyl reactor. In the long run, the costs associated with environmental cleanup become far higher than if the economic project had been done correctly to begin with.
Out of sight is not out of mind. All ecologists (and probably all economic planners) understand the old adage that "everything has to go somewhere." Soviet planners, however, for seventy years seemed to feel that "somewhere" could be adequately defined as lakes, rivers, oceans, the atmosphere, or anywhere else that was, in the short run, cheap and convenient. Eventually, the foolishness of this approach became clear, first to the intelligentsia and only much later to political leaders, and then not to the latter until public health indices showed that a human crisis had been created by their shortsightedness (Feshbach and Friendly, 1992). Today, the environment of the former Soviet Union is so polluted that no one believes it can be ignored any longer.

Technical fixes and huge projects often don't work. The same "gigantomania" that characterized industrial and agricultural output also often could be seen in the Soviet approach to nature. Nature was typically viewed by Stalinist planners as a harmful force that needed to be subdued, and therefore large-scale projects to "transform nature" and to improve marshes, deserts, and rivers were seen as the way to accomplish this. The Leningrad dike idea (see Chapter 3) is a good example of the giant project approach to handling an environmental problem that in reality required a much more sophisticated and multi-faceted solution. The long-standing dream of some planners to build huge reservoirs and divert vast quantities of water from western Siberia to Central Asia is now widely viewed as a questionable idea. And, of course, the mass production of large nuclear power plant assemblies, rather than greater efficiency in energy use and the development of renewable sources, was seen as the answer to energy needs.

A press release does not constitute an effective program. Russians and the other former Soviet peoples must learn the difference between adopting a program and actually having an effective program. They have frequently passed environmental laws, resolutions, even specific directives, all of which sound excellent -- on paper. Rarely, though, have these laws and resolutions been carried out in practice so as to actually cure (or even improve) an environmental problem; in a word, they have rarely been effective. Perhaps the best example of this is Lake Baikal, which was the subject of anti-pollution resolutions in 1969, 1971, 1977, and 1987. As noted in Chapter 4, however, none of these has yet effectively stopped the pollution of this most unique lake.

A more recent example is the program in several republics to test automobiles for excessive exhaust emissions. If the car fails the test, however, the punishment is merely a fine (in July of 1992 in Minsk it was only 35 rubles, at that time the equivalent of about twenty-five U.S. cents). Assuming one is not stopped and tested too often, it is clearly more
economical to pay the fine than to have the car repaired, with the result that there is no significant improvement in the quality of urban air. Again, a program exists, but not an efficacious one. A better strategy might be one similar to that used in California, where a car failing an emissions test cannot be legally registered until the problem has been corrected and the car has subsequently passed the test.

The standard Soviet practice of setting very strict (but unachievable) pollution standards was probably also counterproductive. No one bothered trying to comply and "fines" for non-compliance were usually absurdly low. A new, more realistic system is needed.

The foregoing discussions, taken together, strongly suggest the following conclusion.

There are fundamental problems in the Marxist-Leninist-Stalinist system of economic/environmental management. Although Marx and Engels talked about the need to protect nature, those who described themselves as implementing Marxism were unable to achieve this goal. Part of the reason might be inherent problems in the economic model. These include a lack of value for in situ natural resources, an erroneous assumption that governmental economic planners would necessarily be more conservationist than private ones, and a kind of blind faith that a centrally planned economy would inherently be kinder to nature than one based on private enterprise. Unfortunately, all these assumptions turned out to be wrong. Part of the flaw in the latter assumption is that those who suffer most from environmental deterioration, the general public and especially workers, were cut off in the Soviet system from any effective way to foster changes in the system. It seems clear today that of all the possible checks and balances on both private and governmental abuse of the environment, citizen activism may be the most important.

It is to be hoped that the foregoing lessons are being taken to heart in all of the former Soviet republics, for in their future planning efforts they are now on their own. Based on the genesis and nature of the problems that have been discussed in this volume, several remedial courses of action suggest themselves.

What Needs to Be Done?

Some of the actions that need to be taken are programmatic in nature, whereas others involve changes in the basic philosophical approaches used. Some of the most important changes of both types that are needed are as follows.

The economy and the environment must be viewed as a single symbiotic organism. A healthy economy is critical for funding environmental improvements, but the economy cannot be allowed to run rampant over the environment, for, as noted, a healthy economy has never
been built on top of a polluted and degraded environment. It is axiomatic that optimal conditions for resolving environmental problems include a stable and healthy economic situation; a weak economy generally means that little money will be available for environmental improvement.

A detailed assessment of the economic needs of the former Soviet republics is beyond the scope of this volume, but it is clear that one essential component of achieving both economic and environmental improvement is the establishment of a viable inter-republic planning mechanism within the Commonwealth of Independent States. Industrial, agricultural, and environmental concerns in all of the former Soviet republics have historically relied on the existence of coordinated programs and material trade among all of the republics. Barriers to inter-republic cooperation, trade, and environmental planning among the CIS states must be eliminated.

**Foreign involvement will be needed in the short run.** At present, the CIS nations can't accomplish their most pressing economic and environmental goals by themselves; the necessary capital simply is not available from internal sources. Foreign aid and investment will be essential. Capital investment and construction, however, are not the only form of foreign assistance that is needed. The CIS nations are also in need of appropriate state-of-the-art natural resource management techniques from any foreign countries having effective programs in this area. But foreign concerns can't be allowed to run rampant; foreign investment and development must have a high level of effective environmental review and control by the host country.

**Economic "new thinking" must be adopted quickly.** Many of the economic tenets of Marxism-Leninism have proven in practice to be counter-productive and need to be replaced. Three instructive examples follow.

1. **it must be recognized that natural resources have value in situ.** The Marxist labor theory of value held that only human labor imparted value to goods; hence raw materials, water, etc., were deemed to have no economic value until exploited. Indeed, water use was rarely even metered. The inevitable result was the waste of a huge portion of all raw materials, which was equally detrimental to both environmental values and economic efficiency. The in-place value of free-flowing streams, forests, marshes, wildlife, and whole ecosystems must be appreciated and their loss calculated as a negative economic factor when evaluating the net benefits of any proposed new project.

2. **Methods need to be developed to internalize the cost of environmental controls into the price of goods and services, preferably at the level of the direct consumer.** Deferring
environmental costs has proven disastrous in the past, and there is no reason to believe it would be any different in the future.

3. To the extent that Russia or other republics may choose to use the United States as an economic model, they need to understand much more than they do at present about the vast array of control mechanisms, both public and private, that exist in the United States to make private enterprise and a market economy work. What exists in Russia in 1993 is much too reminiscent of laissez-faire capitalism, discredited in the U.S. since at least the 1930s. Federal regulatory agencies, better business bureaus, strictly enforced anti-trust and anti-price fixing laws, and watchdog consumer organizations and consumer boycotts are all essential components of making the American system work. Few, if any, of these exist in Russia or other republics at present.

The nuclear energy dilemma must be addressed in a more comprehensive manner. Russia’s plans to expand its nuclear output (see Chapter 2) should be viewed at this point as merely the short-run expedient selection of the lesser to two evils, assuming the alternative is to build more polluting fossil fuel power plants. A case can be made to support the decision to go ahead with a revised nuclear program, with the major caveat that there must be better control and safety programs. But a long-range energy plan needs to be decided upon now, because many early nuclear facilities are near the end of their useful life. Their output will therefore need to be replaced (or made unnecessary) in some manner. This long-range plan, however, ought to embrace a more environmentally sensitive energy strategy than either nuclear or fossil fuel power plants. The comprehensive plan must also address the huge problem of cleaning up areas that are now radioactively contaminated, as reviewed in Chapters 4, 9, and 16.

Environmental education must be improved. A considerable amount of environmental education exists at present, but it seems to be of low efficacy. Why? A possible explanation is that this education often consists only of exhortations to "cherish nature"; there is rarely an adequate explanation to the general public of why it is imperative to protect nature or what the average citizen should be doing.

To the average ex-Soviet citizen, "I love nature" means "I love to go into the woods and fish, hunt, or pick mushrooms and flowers." But this, in essence, is a smaller-scale manifestation of the same nature-exploiting philosophy as is held by the managers of logging, mining, agricultural, and hydrotechnical enterprises. Changing the economic system from state exploitation to private exploitation won't necessarily solve this near-sightedness unless there is
a high level of environmental understanding by enterprise managers and government administrators. At present this is a very distant goal.

A more sophisticated approach to environmental education, including such concepts as genetic preservation, sustained yield, in situ value of resources, the health of home and workplace environments, intergenerational responsibilities, and the "spaceship earth" concept, must be adopted. More important, such education must be targeted not only at the general public but also with even more resolve at the re-education of all government regulators and administrators.

Public and non-governmental organization (NGO) involvement is important. This is a critical component of implementing the education goal outlined in the previous paragraphs. Here, foreign assistance is already very strong, with numerous Western environmental NGOs actively involved with their fledgling Russian (and other national) counterparts. It has become clear that government agencies by themselves cannot be relied upon in any country to automatically implement environmentally sound management practices. Citizen review and empowerment are essential. Yet creating broad-based NGOs is particularly difficult in the former Soviet Union, where people have been told for generations that the government will resolve all their problems in the best possible way and where individual initiative has long been strongly discouraged. Even the clear bankruptcy of this philosophy at the present time is inadequate to motivate many older Soviet citizens who remember full well the penalties for "volunteerism" under the old system. In the former USSR, even more than elsewhere, the younger generation is the key to environmental reform.

Non-governmental organizations as of 1993 have a good record of inter-republic coordination. The most impressive organization at present is the Socio-Ecological Union, headquartered in Moscow. It was founded prior to the breakup of the Soviet Union, and retains good ties to environmental groups in almost all of the former USSR republics, and is one of the most reliable sources of environmental information about them. In the spring of 1991 the SEU and the Institute for Soviet-American Relations (ISAR) hosted the first USSR-U.S. conference of non-governmental environmental organizations in Moscow, at which dozens of such groups from both countries were represented by delegates (Klose et al., 1991). Other similar organizations exist, such as Ekologiya i Mir, but none appears to be as extensive in its operations as the SEU. An interesting development in 1993 was a report that former USSR president Mikhail Gorbachev was the founding head of a new environmental NGO called the International Green Cross (Los Angeles Times, April 27, 1993, p. H2).
An emphasis on efficiency of resource use is essential. The poor efficiency of natural resource use in the Soviet Union has been stressed in every work put out on this subject in the past several years. This is especially true in the areas of water resources development, agriculture, and energy use. One Soviet observer was quoted to the effect that "we don't need any additional energy production, since we spend 1.5 times more energy per unit of GNP than is spent in most western countries" (Wolfson, 1988, pg. 21). Many feel the correct number is closer to two times. The same 1.5 ratio probably applies to the efficiency of irrigation water use as well. It is, one hopes, obvious to planners in all the former Soviet republics that an increase in the efficiency of water and energy utilization could preclude the need for additional expensive development of these types of resources, with huge environmental benefits. But efficiency improvements also cost money, presently in short supply. This is another area where foreign assistance might be very beneficial.

Being independent countries, but still being reliant on the old economic system that was put in place under the aegis of the USSR, the former republics will need to sit down with one another and craft new agreements that will allow them to specialize, coordinate, trade, and prosper. This a broad topic, and merits an entire separate heading.

The New Post-USSR Order: Inter-Republic Coordination

A high level of inter-republic cooperation will be essential if environmental concerns are to be adequately addressed in the post-Soviet period. This cooperation should ideally occur at both the official governmental level and at the citizen (non-governmental environmental organization) level.

At the governmental level, coordination could be effected by umbrella organizations established under the Commonwealth of Independent States. However, as of 1993 the CIS (which includes all former Soviet republics except the three Baltic states) had not yet demonstrated itself to be a strong coordinating body. It had put together in 1992 an agreement on Cooperation in the Field of Ecology and Environmental Protection among its member states, but this document is more in the nature of a goals statement than a list of specific actions to be undertaken. It did, however, create a coordinating council of the republics' environmental ministers to help bring about effective multi-state policies and programs. The CIS is still young, and it might yet be able to be the agent by which strong bilateral and multi-lateral agreements can be forged.

The most obviously needed multi-lateral compact, noted in previous chapters, would be one to manage the water resources of Central Asia. The Colorado River Compact among the
southwestern states of the United States could in some ways serve as a model (although admittedly a less than perfect one). The most preferable form of such a compact would be a five-republic accord encompassing the entire Aral Sea basin, which ideally might be expanded to also include Afghanistan and its portion of the upper Amu Darya (Pyandzh) basin. Less ideal would be separate compacts for the Amu Darya and Syr Darya basins. The latter approach might prove faster to achieve but would respond poorly to the problem of resolving the Aral Sea desiccation crisis. A start in this direction occurred when the five Aral basin republics signed an initial agreement on the joint management and protection of the basin’s water supplies in February of 1992. It creates a joint commission to regulate and conserve inter-republic rivers and lakes and is made up of the head of the water resources agency in each republic (P. Micklin, personal communication).

A number of other bilateral or multi-lateral river basin compacts might be useful. Among them would be agreements among Russia, Belarus and Ukraine concerning the Dnepr River and its tributaries; between Ukraine and Moldova concerning the Dnestr; among Russia, Belarus, and Latvia concerning the Western Dvina (Daugava); between Russia and Ukraine concerning the Donets; between Russia and Kazakhstan concerning the Irtysk (and Tobol and Ishim); between Georgia and Azerbaijan concerning the Kura; and between Russia and Estonia concerning Lake Peipsi (Peipus) and related drainages. In a more peaceful world, an agreement concerning the Araks River among Armenia, Azerbaijan, Turkey and Iran might even be envisioned, as well as one between Russia and China concerning the Amur.

Unfortunately, several early attempts at multi-lateral cooperation between and among the republics were not successful. A proposal for an agreement among the republics bordering the Caspian Sea to protect that water body was unsuccessful, and the Baltic republics are reluctant to enter into any unnecessary agreements with the Russian Federation or any that suggest that the old Moscow-dominated Soviet Union structure still exists. Significantly, the local Krasnoyarsk government has indicated a reluctance to accept more radioactive wastes from Ukrainian nuclear power stations. The maintenance of long-distance gas and oil pipelines, many of which are known to be in poor condition, will likewise require inter-republic accords in many instances. Early experience in this area indicates that the Russian Federation, as the main provider of oil and natural gas, is adept at extracting favorable quid pro quos in the course of constructing these inter-republic accords.

There is a huge array of economic and environmental coordination that was formerly accomplished relatively easily (though not always wisely) at the Council of Ministers level within the USSR government. Now, all of this coordination requires formal diplomatic
agreements. These will be slow and complicated to hammer out but under current circumstances are absolutely essential.

Today, Russia and the other fourteen former Soviet republics are at the most critical point in their history since the 1917 October Revolution. In most of them, the final form of their future economic system is not yet certain, the extent to which they will embrace Western-style democracy is unclear, and the role of the individual citizen and of private organizations, as opposed to continued state control, is still to be determined. Also unclear is the future role of the Russian Federation, as the successor state to the USSR, in providing leadership (or perhaps hegemony) in the new Commonwealth of Independent States. What is clear is that the environment in all of the former Soviet republics is seriously degraded, and that the interests of both the biosphere and human health demand immediate remediation. Unfortunately, the depressed economy in most of the former republics will constrain environmental improvements for some time to come, and the short-term environmental prognosis in all the republics, like the economic one, is not encouraging.

The foregoing chapters have indicated the close relationship among economic development, environmental vitality, and human health and well-being in these newly independent republics. The extent to which the new governments of these republics are able to put in place mechanisms to optimize the state of all three of these considerations will go far toward determining the future stability and prosperity of each of these new nations, and of the former Soviet Union as a whole.
Bibliography


