

Staff Paper #334

**A Practitioner's Guide to Reforming
Agricultural Knowledge Systems in
Transition Economies**

*Robert W. Jolly
Professor of Economics
Iowa State University*

February 22, 2000

**A Practitioner's Guide to Reforming
Agricultural Knowledge Systems in
Transition Economies**

I want to acknowledge partial support provided by The World Bank
as well as helpful suggestions from colleagues. They bear no responsibility
for my errors or misconceptions.

Introduction

This guide is written for individuals involved in, or responsible for the transformation of the agricultural and food sectors in the transition economies of Eastern Europe and the countries of the former Soviet Union (EE-FSU). Our focus, however, centers on practical approaches for increasing the efficiency and effectiveness of the agricultural research and education systems within this region.

Agricultural research and education is, admittedly, long term business. The immediate problems of economic transition such as privatization, price liberalization, development of financial markets and institutions and the modernization of commercial and civil law have dominated the transformation agenda for EE-FSU throughout the past decade. However, the ability to sustain gains arising from these short term reforms will ultimately rest on the countries' capacity to solve agricultural, food and natural resource problems in the future in ways that are appropriate for a market economy. It is our view, that developing agricultural research and education capacity must be an integral component in the overall agricultural transition strategy. Further the reforms in agricultural research and education must proceed concurrently with other reforms.

Operating Assumptions

Our approach in developing this guide rests on the following assumptions:

- The guide is a working document to be augmented and revised as our understanding of agricultural research and education reform increases.
- There are no proven models for reforming agricultural research and education systems in transition economies. Consequently we have focused on developing a framework – a way to think and learn about the reform process, rather than attempt to offer a set of prescriptions.
- It is unlikely that funding for comprehensive agricultural research and education transformation programs will ever be available. Consequently the reform strategy must be entrepreneurial and opportunistic – taking positive steps when possible, often as part of another program or initiative.

What is an Agricultural Knowledge System?

Agricultural research and education are the products of an agricultural knowledge system (AKS). A country's AKS includes both private and public organizations as well as supporting institutions such as intellectual property laws or food safety regulations. Here are a few broad categories of institutions that might make up an AKS. Note that these organizations may be local, national or international in scope.

- Agricultural universities and technical schools
- Agricultural research institutes
- Public price reporting services
- Agribusinesses, in particular product development, marketing or customer support units

- Private farm consultants, advisory services
- Public extension services
- Public service agencies providing program administration or technical assistance
- Private media companies

An agricultural knowledge system creates value or contributes to economic development by:

- Increasing the competitiveness of the agricultural sector by reducing unit production costs or creating improved or unique product characteristics either through improved technology, management or institutions.
- Decreasing the adverse environmental impact of the agricultural sector.
- Developing the managerial and technical skill of the existing agricultural work force.
- Ensuring a reliable and high quality supply of future agricultural workers, managers, public officials and scientists.

Estimated rates of return to AKS investments are consistently high – in both developed and developing countries and for most major commodities. Table 1 provides a recent summary. One conclusion from this extensive research effort is that the consistently high rates of return imply systematic underinvestment in the AKS.

Table 1. Rate of Return to AKS Investments

| Country | Commodity | Rate of Return (%) |
|---|---------------------|-------------------------|
| <u>In OECD Countries</u> | | |
| <i>Agricultural Research</i> | | |
| Australia | Pasture Improvement | 58-68 |
| Canada | Dairy | 97 |
| Japan | Rice | 73-75 |
| United States | Crop and Livestock | 45 |
| <u>In Developing Countries</u> | | |
| <i>Agricultural Research</i> | | |
| Mexico | Maize | 78-91 |
| India | Rice | 60-65 |
| Brazil | Soybeans | 46-69 |
| <i>Public Sector Agricultural Extension</i> | | |
| In Developed Countries | 6 studies | 63% mean rate of return |
| In Developing Countries | 17 studies | 50% mean rate of return |

Source: Mudahar, et al (1998).

Critical Issues in AKS Reform in the EE-FSU Region

Agricultural research, extension and education were given a fairly high priority in centrally planned economies. However, the AKS developed under central planning cannot meet the requirements of a market economy.

Figure 1 presents a simple schematic of the AKS that existed under central planning (Panel A). For simplicity, we show farmers (or collective and state farms) as the end user of this system. However, the client base could be expanded to include food-processing firms or grain handling and input supply firms many of which were directly tied to collective or state farms.

The size of the ovals gives some indication of the relative size or importance of the education, research and extension functions. The research investment in centrally planned economies was significant – fully as large or larger than in the developed market economies. However, the research establishment tended to be guided more by the demands of the central planners than by the needs of clients. In most cases, individual research institutes were relatively small, highly specialized, isolated and not integrated with either higher education or system clients.

Extension as we would understand the term in a North American or European context did not really exist under central planning. There were institutes for retraining professionals that combined education with political indoctrination. An extensive network of administrative offices also existed that was responsible for ensuring plans and production orders were carried out.

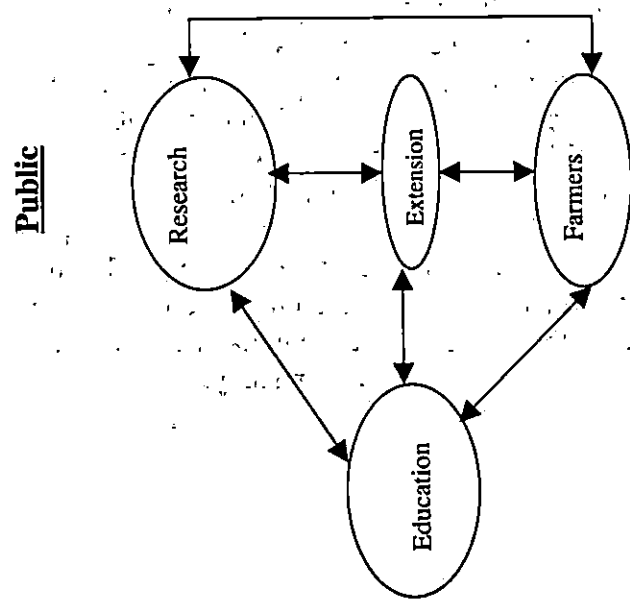
Higher education – universities and technical schools were also an important part of the former AKS. However, they were also very small and specialized both in terms of subject matter and function. The curriculum was designed to prepare individuals for specific jobs. Technical sciences were well developed. But modern social sciences and business curricula did not exist.

In Panel B of Figure 1 we sketch a schematic for an AKS more representative of a developed market-based economy. In this case, the private sector plays a significant role in research and extension. Private research is focused on product and process development. And private extension would be more closely tied to customer service and work force training and development. Note too, that the AKS in a market economy is much more complex and interdependent. We can visualize AKS transformation as a process that moves the system from the structure in Panel A closer to the one represented in Panel B.

Table 2 summarizes some of the changes that will be required as the AKS in the EE-FSU region is reoriented to serving a competitive market-based agriculture. Although these changes are, generally, common to all countries in the region there are a number of specific factors that must be taken into account in formulating a regional AKS reform study.

Figure 1. AKS Transformation in Transition Economy

Panel A: Former/Current System



Panel B: Emerging System

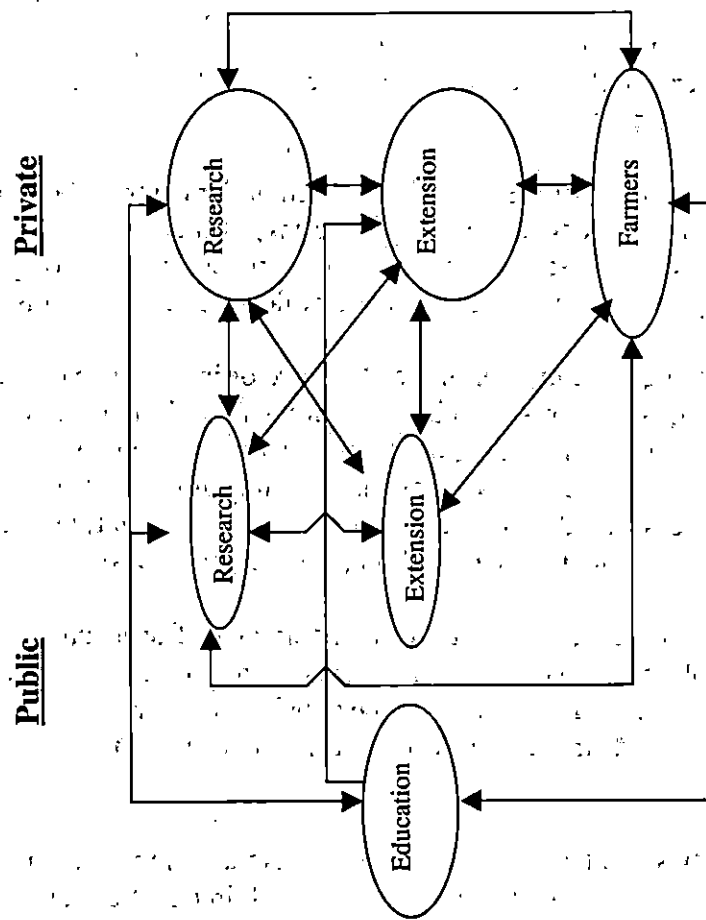


Table 2. AKS Reorientation in Transition Economics

| Function | Old | New |
|-----------|--|---|
| Education | Employment focus Process management Math and science Ideology Obedience and conformity | Employability focus Strategic and operations management Math and science Social science Critical reasoning and communication |
| Research | Basic research Public sector domination Limited accountability to clients Hierarchical system Commodity focus Large complex public system | Basic and applied research Private and public, shared responsibility Increased accountability to clients Competitive and entrepreneurial systems Value chain focus Smaller, targeted public system |
| Extension | Technical information Controlled access Ideological foundation Paternalistic orientation Entirely public institutions | Professional development Global access Market economics, business foundation Client-centered, participatory orientation Mostly private institutions |

1. Variability among countries in the EE-FSU region.

The EE-FSU countries share a common experience with central planning and, to some extent, geography, but little else. Some of the key differences are:

- absolute size of the agricultural sector (Russia vs. Georgia)
- agricultural resource endowment (Ukraine vs. Belarus)
- importance of agriculture in the economy (Slovakia vs. Albania)
- structure of production agriculture (Poland vs. Bulgaria)
- political stability (Czech Republic vs. Tajikistan)
- per capita income (Hungary vs. Turkmenistan)

Without belaboring the point, it is possible to develop a general approach to AKS reform in transition economies, but the specific steps must be tailor-made to the agricultural economic and social conditions in each country or subregion.

2. Uneven progress in AKS reform.

The paper by Csáki and Nash (1998) clearly demonstrates the uneven progress in agricultural reform in the EE-FSU region. Here are a few examples relevant to reform of the AKS:

- Slovenia ranks high in general institutional reform, but has made relatively little progress in reforming its AKS.
- In general, Russia's AKS reforms have moved at a glacial pace when viewed at the national level. But there are a number of institutions and regional governments that have been very reform-minded – consolidating and redirecting programs, changing funding sources and the legal status of AKS institutions.
- Latvia and Estonia have operated private farmer advisory services since 1992, yet research and higher education remain largely unreformed.
- Georgia and Kazakhstan have made modest progress in agricultural reforms, yet there appears to be a growing interest in reforming agricultural research and extension among leading government officials.

3. Reform leadership is generally lacking.

Reform of the AKS requires committed, visionary leaders who operate with the support of key stakeholders. This condition is met in only a handful of the EE-FSU countries. For the most part, the AKS managers have little understanding of organizational reform, market economics, human resource management or strategy. Further AKS professionals and managers are frequently disconnected from the political process and seem more committed to preserving the past than working for reform.

4. The legal status of public AKS institutions is frequently ambiguous or inappropriate.

A research institute operating in a Russian oblast will have difficulty becoming client-centered or demand-driven if it takes its marching orders from Moscow. Legal reform of the AKS is needed if the system is to become more decentralized and accountable. That said, however legal reform is time-consuming and should not be viewed as a necessary precondition for reform.

5. In almost all EE-FSU countries the AKS is in a state of financial collapse.

Research and higher education are among the first casualties in a financial crisis. Almost universally, AKS institutions in EE-FSU are under severe budget constraints – so severe in fact that the reform process itself is being hindered. Scientists and technicians are in a survival mode. The existing system consumes needed resources and is still unable to deliver needed services.

6. The future organization of agriculture in the ECA countries is largely unknown.

The Soviet-era AKS was designed to support Soviet-era agriculture. As price liberalization and other reforms continue, the resulting resource reallocation will change the face of EE-FSU region agriculture. The AKS must be reformed in anticipation of those changes. A few examples:

- Animal agriculture in the Baltics was pushed by Moscow well beyond the region's productive capacity. The changing role of the livestock sector, its scope and scale will alter the demand for research products in animal science, forages or meat processing in the Baltics.
- In Uzbekistan, massive irrigation investments in the 1950s and 1960s created a huge cotton industry literally out of the desert – with significant economic and environmental costs. As reforms impact the agricultural sector, Uzbekistan will likely need an AKS that can devise alternative cropping systems, develop water allocation policy and ameliorate environmental degradation. The current AKS is ill-suited to address these issues.
- In southeastern Russia research institutes were developed to serve dryland wheat production. This region may diversify somewhat and value-added industry may expand here, but southeastern Russia will likely remain a wheat-growing region even after the reforms are complete. The AKS in this region needs to be made more efficient – but its orientation and competencies are appropriate for market-based agriculture.

7. Critical skills gap.

Most AKS scientists, educators and administrators have only a rudimentary understanding of market economics and management. This lack of economic literacy and intuition makes it difficult to create appropriate research products, training programs or educational material. It also limits the managerial effectiveness of AKS organizations. Similar limitations can be found in agroecology, biotechnology, farming systems research, modern teaching methods or communication and distance learning. These limitations directly impact research and teaching as well as extension.

8. Limited private sector development.

In North America and Western Europe the private sector is a significant component in the AKS, with the private sector providing most of the product development and customer support. AKS reforms in EE-FSU countries must encourage and accommodate this transition.

- It is not uncommon in ECA countries to find agricultural scientists conducting research on technologies already available commercially in the West.
- Seed improvement, animal genetics and biotics are still provided as a public sector product. With the proper economic incentives and institutions, most of these activities could be commercialized or privatized.

The foregoing list is not complete. However, it does give some of the major barriers to AKS reform that exist in the EE-FSU region.

Institutional and Organization Change: Concepts and Models

It is easy, deceptively so, to make lists or draw diagrams giving before and after descriptions of AKS's in EE-FSU. However the actual process by which reform and transformation occurs – or can be fostered by outside change agents is murky at best. As we said earlier, there are no proven models and few experts. In this section we assemble several concepts that may be useful in developing a practical, operational approach to AKS reform.

Foundations

There are, at least, three separate literatures that have some relevance to AKS transformation. We'll briefly describe these lines of inquiry and give a reference or two.

The organizational change and development (OCD) literature is directed primarily toward the business world. It is based largely on industrial and organizational psychology and sociology – including complex organization theory and ethnography. The focus of this literature is primarily on the process, through which, and, by which, corporations and other complex organizations can be changed and developed. Here development focuses on individual and organizational learning. This literature is extensive and runs the gamut from theory to self-help books. A textbook treatment is given by Cummings and Worley (1993). Other examples include Senge (1990), Russ-Eft, et al (1997), Kanter (1989), Conner (1992), Zell (1997), Keller (1983), and Kotter (1995). This list is not complete. It serves only to give an indication of the breadth of the OCD literature.

A second literature that runs somewhat parallel to the first is the economics of complex organizations. This is a relatively new area of inquiry that focuses on the role of incentives and coordination mechanisms in corporations and other complex organizations. Recent textbooks in this area would include Milgrom and Roberts (1992), Lazear (1998) and Besenko et al (2000).

A third area, quite distinct in many ways from the previous two, comes under the rubric of public choice, public economics or collective action. This area combines concepts in economics and political science to examine why, and to a more limited extent, how groups of individuals come together to address issues that effect a number of them. These issues might include resolving environmental problems, providing national security, redirecting government policy or investing public funds in agricultural research. This literature is extensive and more theoretical than operational. Recent references include Olson (1995), Sandler (1992), Weimer (1997), Schwartz (1997), Scrimgeour and Pasour (1996).

Defining Organizational and Institutional Change

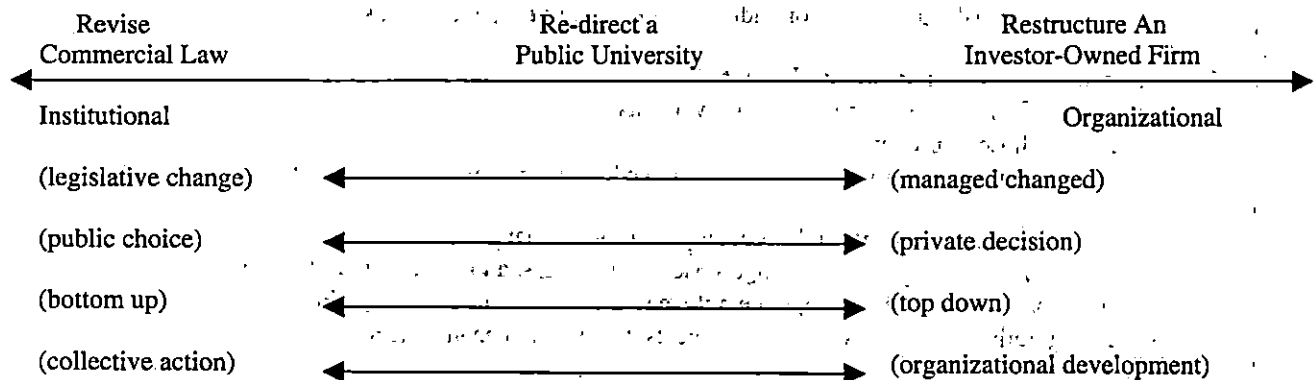
If push comes to shove, there probably isn't a real distinction between organizational and institutional change. Institutional change is often thought of as a process of replacing one set of rules with another – legislation, regulations and the like. An organization (or public agency) can, however, be viewed as a "nexus of contracts" (Alchian and Demetz (1972)) that govern behavior. Organizational change, then, involves rewriting implicit and explicit contracts within a legal entity that is created solely to make the contracting process more efficient. From this

perspective, changing institutions and organizations seem synonymous. However, in thinking about AKS reform, it is helpful to view institutional and organizational change as if they formed the extreme points on a continuum. Figure 2 attempts to illustrate these differences.

On one end, we have organizational change occurring within an investor-owned firm. At the other extreme is revision or change of commercial law that is the product of legislative action by elected officials. In theory, there may be no real difference between the two types of change. In practice however, there are significant differences between a private firm and a legislative assembly in terms of accountability, incentive mechanisms, information, and power.

In a market-oriented AKS, the private sector components are clearly clustered around the organizational end of Figure 2. However, the public components, universities or research or institutes lie somewhere in the middle. They possess some aspects of private organizations – a hierarchical structure for example. But they also require legislative action for funding and public support for their mission.

Figure 2. Institutional and Organizational Change



Essential Steps in AKS Transformation

Looking back at Figure 1, how does a transition economy move its AKS from one represented by Panel A to Panel B? How do the specific changes in mission, skill sets and output suggested in Table 2 come about?

John Kotter (1995) presents a simple eight-step prescription for organizational change that provides a reasonable point of departure for considering the practical steps needed to transform an AKS. His approach is based on generally accepted principles of OCD. Variations on the same theme can be found in Cummings and Worley (1993) for example. Table 3 presents Kotter's eight-step approach to transformation. Note that Kotter's description assumes that organizational change and development is lead-shaped and directed by the firm's leaders. As we have indicated, this assumption is not entirely appropriate for AKS reform because of its partial dependence on legislative support.

Table 3. Eight Steps to Organizational Transformation

1. Establishing a Sense of Urgency
 - Examining market and competitive realities
 - Identifying and discussing crises, potential crises, or major opportunities
2. Forming a Powerful Guiding Coalition
 - Assembling a group with enough power to lead the change effort
 - Encouraging the group to work together as a team
3. Creating a Vision
 - Creating a vision to help direct the change effort
 - Developing strategies for achieving that vision
4. Communicating the Vision
 - Using every vehicle possible to communicate the new vision and strategies
 - Teaching new behaviors by the example of the guiding coalition
5. Empowering Others to Act on the Vision
 - Getting rid of obstacles to change
 - Changing systems or structures that seriously undermine the vision
 - Encouraging risk taking and nontraditional ideas, activities, and actions
6. Planning for and Creating Short-Term Wins
 - Planning for visible performance improvements
 - Creating those improvements
 - Recognizing and rewarding employees involved in the improvements
7. Consolidating Improvements and Producing Still More Change
 - Using increased credibility to change systems, structures, and policies that don't fit the vision
 - Hiring, promoting, and developing employees who can implement the vision
 - Reinvigorating the process with new projects, themes, and change agents
8. Institutionalizing New Approaches
 - Articulating the connections between the new behaviors and corporate success
 - Developing the means to ensure leadership development and success

Source: Adapted from Kotter (1995).

In the next few paragraphs we'll elaborate on these eight steps and try to make appropriate linkages back to AKS reform. Where appropriate, we'll bring in a few insights from the organizational economics and public choice literature.

1. Establishing a Sense of Urgency.

Organizations and individuals, in many cases, avoid making changes until they have arrived at a crisis point – until the entire organization is at risk. Extension workers and corporate trainers often talk about “teachable moments” when disaster looms so large that individuals finally are motivated to acquire new skills or change their beliefs. In a more positive sense, significant

opportunities can also provide motivation for organizations to change or learn. But so often, response to opportunities comes late – when the opportunity is nearly lost.

Failure, poor performance or significant opportunities are important sources of motivation for organizational change. This notion goes back, at least, to March and Simon (1958). Recent work in organizational economics shows that risk of business failure can serve to overcome employees' resistance to change and their influence activities (Schaefer, (1998)). Kotter argues that this crisis point or a sense of urgency can and must be created by executives seeking to transform their organizations.

The AKS in EE-FSU, and in particular the former Soviet Union are in crisis and have been for some time. Massive reductions in budgets, decaying facilities and flight of scientific personnel would certainly contribute to a sense of urgency. There are numerous examples across this region of positive responses to these losses (Boxes 1 and 2). However there remains a widespread resistance to change. It is common to find research managers, administrators and staff paralyzed by the changes occurring in the EE-FSU countries. For many, the sense of urgency has created resentment, and a strong desire to hold on to the way things were (Box 3). Clearly crisis and a sense of urgency is necessary for transformation but not sufficient.

Box 1: Institutional Reform of the Agricultural Knowledge System in Omsk Oblast

Omsk oblast is located in western Siberia. This is a transition area from boreal forests in the North to dry steppe in the South. Agriculture was expanded in Omsk during the new land programs of the 1950s and 1960s. Agriculture is an important industry and has always been given emphasis by the oblast administration. The agricultural knowledge system in Omsk was typical for many oblasts – a research institute, two agricultural academies of higher education reporting to MOAF and a retraining institute.

In April, 1994 three of the educational institutes took an unusual step – they merged. Omsk State Agrarian University was formed by combining the Omsk Agricultural Institute of Higher Education, the Omsk Institute of Veterinary Medicine and Omsk Institute for Retraining Agriculture Specialists. The merger was undertaken, in part, to address the financial problems experienced by all three institutions. But it was not a new idea. Institute administrators and oblast officials had been discussing a merger for the past 10 years. The merger has led to efficiencies in teaching common subjects. And they have been able to introduce new subjects such as market economics.

The merger has not been effortless. In fact, the three institutions still tend to refer to themselves as separate entities – much like colleges within a university. But the merger was facilitated because all three institutions had, historically, reported to the same agency, the Ministry of Agriculture and Food. This has been a step in the right direction since it has reduced overlap of functions, led to better utilization of resources and improved cost consciousness.

The Siberian Research Institute for Agriculture (SRIA) is the major research institution in Omsk Oblast. It, too, reports to the Ministry of Agriculture and Food. It has not yet formally merged with the higher educational institution. However, well over 50 percent of SRIA's researchers now teach at Omsk State Agrarian University. In fact it is becoming difficult to tell who works for whom. SRIA is also having to face fundamental choices about its research program. In the past, some research focused on designing irrigation systems for Kazakhstan. This need no longer exists. The institute is attempting to turn its attention to issues of more local interest – horticulture, for example. Omsk State Agrarian University appears to be well on its way to combining the research, teaching and extension functions found at land grant universities in the United States.

Box 2: Shifting Funding, Shifting Priorities

The Scientific Research Institute of Agriculture for Southeast Region (SRIASE) is the Volga region's premier wheat breeding institute. Established in 1909, SRIASE has a well-established reputation for developing high quality cultivars of durum, hard spring and hard winter wheats. These cultivators are seeded on millions of hectares throughout this region.

In 1989, 81 percent of SRIASE's budget came from the Federal government through VASKhNIL. The remaining 19 percent came from its own funds earned through seed sales and farm production. In 1993, SRIASE began receiving support from the oblast government – about 16 percent of its budget. A year later, the oblast was providing nearly 40 percent of the budget, almost equal to the federal component. By 1995, the oblast contribution was approximately 50 percent of the total budget. As a consequence of the oblast's commitment to research, SRIASE has been spared some of the severe financial difficulties experienced by other agricultural research institutes.

How did this change occur? Fundamentally, it was the result of an effective working relationship between SRIASE's administration and the oblast government. However, SRIASE has also redirected its research program to focus more on the needs of Saratov Oblast. It has become more applied and problem oriented. Research on tillage systems and erosion control has increased. And linkages with extension and higher education institutions have been significantly strengthened. In addition, SRIASE has divested itself of experimental farms located in neighboring oblasts. The changes initiated by SRIASE are very consistent with changes occurring in NARS throughout the world – increasing local funding and accountability and solving real problems faced by commercial agriculture.

Box 3: Life After the Fall

For Russian agricultural scientists, the collapse of communism and the dissolution of the former USSR has resulted in precipitous losses – in resources, productivity, prestige, standard of living and optimism for the future. Following are a few statements by researchers in one agricultural research institute; once considered a world-class organization:

... "everything has changed. We still talk about our research as if it mattered. Some of us still work and work hard. But it is for nothing. No one cares."

... "everything is based on profit or self-sufficiency. If you work on basic science, you might as well leave and give up."

... "We can only remember the good old days when VASKhNIL fed everyone – scientific exchanges, graduate students, good salary and support."

... "everyone must have a second or third job just to survive. We spend much of our time just growing our own food. Even the experimental plots at the Institute have been converted to gardens – for potatoes."

... "in April they didn't have enough money to pay us. So they divided the staff into groups. Some got paid for April in May, others in June, others had to wait until July."

... "My pay is comparably high because I am a senior researcher – nearly \$100 a month – when and if I get paid. But my technicians only earn \$8-10 a month. They can't survive on that."

... "we have no journals or scientific materials, nothing for over 3 years."

... "our building has been rented out to business interests. These are strange people who have no respect for us. Our building is nothing more than a warehouse for goods!"

... "our institute had 500 researchers, now less than half remain. Only 15-20 actually come to work. Why should they? No one cares and you don't get paid anyway."

... "there are no young people here any more. Only the old ones who have no options."

2. Forming a Powerful Guiding Coalition.

Organizational change must be lead and supported by a relatively small group of influential or powerful individuals. Kotter states that this coalition may initially be small – but in many organizations needs to grow overtime. Although firms are lead and managed through a hierarchy, there remain important collective action aspects to any transformation effort. The coalition needs to be representative of important functional and interest groups within the organization. This is necessary to foster collective action. However, the coalition also needs to manage coordination failures – mismatches between organizational units or functions. The collective action literature clearly points out the possibility of sub-optimal behavior within coalitions (Sandler, 1992). Consequently coalition size, composition and incentives need to be carefully monitored.

Guiding coalitions for AES reform in EE-FSU are either non-existent or poorly constituted. In many cases the guiding coalition is made up of the members of the communist-era agricultural research academy, ministries of science, agriculture and education. Most of these organizations are disconnected from both stakeholders and rank and file agricultural researchers and educators. More importantly, the leadership is often not available to form a guiding coalition (Box 4).

Box 4: Creating a Czech Extension Service

In the early 1990's, there was a great deal of interest, within the Ministry of Agriculture in Czechoslovakia to develop an "extension service". To some extent this was motivated by a need to find jobs for local Ministry employees no longer needed to monitor collective and state farms' adherence to production orders. However, there was also a belief that nascent family farmers needed to be supported by extension programs. A small coalition formed within the Ministry to establish an extension service. At the request of this coalition, the USAID and Iowa State University provided financial aid and technical assistance to train Ministry officials and agriculturists on extension methods, subject matter and organizational design.

After three years of technical assistance the entire effort was abandoned. One of the primary reasons for failure was that the guiding coalition within the Ministry was never able to bridge the gap between political factions in the legislative assembly. The ruling party had no interest in expending public funds to educate "dumb people". In their view, good managers would learn what they needed from private sector firms. Poor managers – the perceived beneficiaries of an extension service, would simply fail. The opposing party saw an extension service in a populist light – aiding small-scale family farmers with limited managerial skills. In their view, the successful emergence of a group of family farmers was seen as a way to correct for the wrongs of collectivization and develop a more "European" agricultural sector.

In retrospect, had more technical assistance gone into "creating a powerful guiding coalition" than in training mid-level bureaucrats in farm management or extension methods, this effort might have proved successful.

3. Creating a Vision.

Much is made out of the need for collective vision in motivating and guiding the transformation process. In a nutshell, a vision is simply a description of the desired characteristics of an organization at some future time. Lipton (1996) suggests that organizational vision represents

the succinct aggregation of mission, strategy and corporate culture (Table 4). The fundamental purpose of vision is to help individuals understand where the organization is headed and where they fit in. This understanding, Lipton points out, can have a pervasive effect on performance, decision-making, staffing and strategy development. Further, the process of developing organizational vision may be as important as the vision itself. Vision creation needs to be a broad participatory effort. Guiding corporate visions cannot be hatched by a few executives and foisted upon the workforce.

Table 4. Focusing on the Three Themes of Vision

Mission

- What business(es) are we in?
- What is our fundamental purpose or reason for being?
- What types of products or services do we make or provide? How do we define the customers we serve?
- For whose benefit are all our efforts?
- What unique value do we bring to our customers?
- Are we confident that this mission is distinct and unique from any other organization that may provide a similar product or service?
- Are we describing what we do or why we do it?

Strategy

- What is the basic approach to achieving the mission?
- What is the distinct competence or competitive advantage that will characterize our organizational or departmental success?

Culture

- What are (or should be) the hallmarks of our culture and leadership style?
- How do (or should) we treat each other and how should we work together?
- What do we believe about ourselves?
- What do we stand for?
- What values do we hold dear?
- What characterizes an effective employee?
- In what ways is our organization a great place to work?

Source: Lipton (1996).

Forming a vision for an AKS in EE-FSU is a daunting task. The process alone – sharing ideas, creatively describing future states or options would be a disquieting experience for anyone brought up under a communist regime. Vision development, Kotter suggests, is a task of the guiding coalition, but one that must reach into the organization for both ideas and support. It might be possible for the coalition to form a vision for the entire AKS – admittedly very broad. This vision would then be available to guide vision development within specific organizations that make up the AKS. In all likelihood this latter visioning process is the more important of the two.

Vision creation in the EE-FSU is also complicated because the future organization of the agricultural sectors in these countries is difficult to predict. Price liberalization, privatization, increased resource mobility and entrepreneurial behavior will likely change the face of agriculture in EE-FSU. These changes will require a significant re-orientation of the existing AKS. A guiding vision for the AKS depends on a realistic vision of a transformed agricultural and food sector.

4. Communicating the Vision.

Kotter suggests an organization's vision must be continuously communicated by the guiding coalition to employees and stakeholders. One of the legacies of communism is a widespread reluctance to communicate. In the old days, people spoke freely within families – but otherwise keep their heads down and their mouths shut. This pervasive attitude does not foster free communication of vision. In addition, leaders in centrally planned economies led by fiat. There is little precedent in this tradition for openly sharing the mission, strategy and values of an organization with relevant stakeholders. As important as developing and communicating a vision is in organizational change and development, it will likely be one of the more difficult tasks undertaken by individuals seeking to transform the AKS's in this region.

5. Empowering Others to Act on the Vision.

In complex organizations, individuals must be encouraged to take steps that support change consistent with its vision. Kotter states that the guiding coalition must work to remove obstacles that block transformation efforts. The list of potential obstacles is long – individual attitudes, skill sets, work rules, and procedures, compensation policy, regulations and funding. Further, few obstacles are likely to be identified at the beginning of the transformation process. They are, unfortunately, discovered when transformation efforts start to fail. The guiding coalition must, therefore remain informed, diligent and proactive as barriers to change are encountered.

For AKS transformation, a similar list of barriers can be developed. The legal status of a research institute may require that it follow the dictates of a national scientific academy. This may prevent the organization from responding to local needs and stakeholders. Scientists and educators may lack skills and knowledge relevant to market-based agriculture. Funding may be in such short supply, that concerns about personal welfare swamp any efforts to transform an organization. The key insight is that monitoring and reduction of barriers or resistance to change is a critical responsibility of the guiding coalition. The coalition must have the resources and authority to perform this task.

6. Planning for and Creating Short-Term Wins.

Kotter points out that organizational transformation takes time – years in many cases. Unless stakeholders and employees see some evidence of positive change fairly quickly, it will be difficult to maintain commitment, momentum or a willingness to make sacrifices on behalf of the organization. To offset these impediments, Kotter suggests that the guiding coalition deliberately create transformation projects that can quickly demonstrate positive benefits.

This step is critically important in AKS transformation. Fortunately there are many opportunities for demonstrating these short-term gains. For example, many researchers in the EE-FSU region understand the need to be more “applied”, to work on local, practical problems. They see this reorientation, in part, as a requirement of a market economy. But they also understand the need to demonstrate the value of agricultural research to key stakeholders – public officials and farmers. Small problem-focused research projects can be developed by the guiding coalition to produce short-term successes.

Short-term wins must be accompanied by persistence and tenacity if more difficult transformation efforts are to be successful. Many AKS transformation efforts in the EE-FSU region have been aided and encouraged by outside donors. These assistance projects have generally been short term – 2 or 3 years at most. Further they have tended to focus on “extension” activities particularly those related to privatization. It is clear that this approach may catalyze change – but it will not sustain it.

7. Consolidating Improvements and Producing Still More Change.

Organizational change is a long-term continuous process. Consequently sustaining momentum in organizational change is critical and difficult. There are no simple techniques for maintaining momentum. Cummings and Worley (1993) identify four activities that can be helpful.

- Ensuring adequate resources required to foster change are provided.
- Continuing to support the guiding coalition for the long haul.
- Investing in human capital – skills and competencies needed for the transformed organization.
- Re-enforcing new behaviors – rewarding employees for changing skill sets and work habits in ways that support transformation.

8. Institutionalizing New Approaches.

New ways of working, new directions, strategies eventually must become part of the organization’s culture. In part, this means that the products or outcomes of organizational change and development become “standard operating procedures”. However, Kotter argues that cultural changes and leadership succession plans are the most important aspects to ensure that gains of transformation are sustained and that the process of organizational change and development continues.

Leading Change

One of the critical assumptions underlying models of organizational change and development is that these processes are lead – they are planned and deliberate. It is clear from Kotter’s eight-step prescription that without leadership – without the guiding coalition, not much is going to

happen. Transforming an AKS requires exceptional leadership since the change agents must address both organizations as well as the institutions that support and guide them. Individuals selected to lead AKS reform in EE-FSU must possess leadership skills – but they must also have the capacity to serve as advocates for the system and the transformation process. Figure 3 illustrates some aspects in identifying change agents to direct AKS reform.

Figure 3. Identifying Change Agents

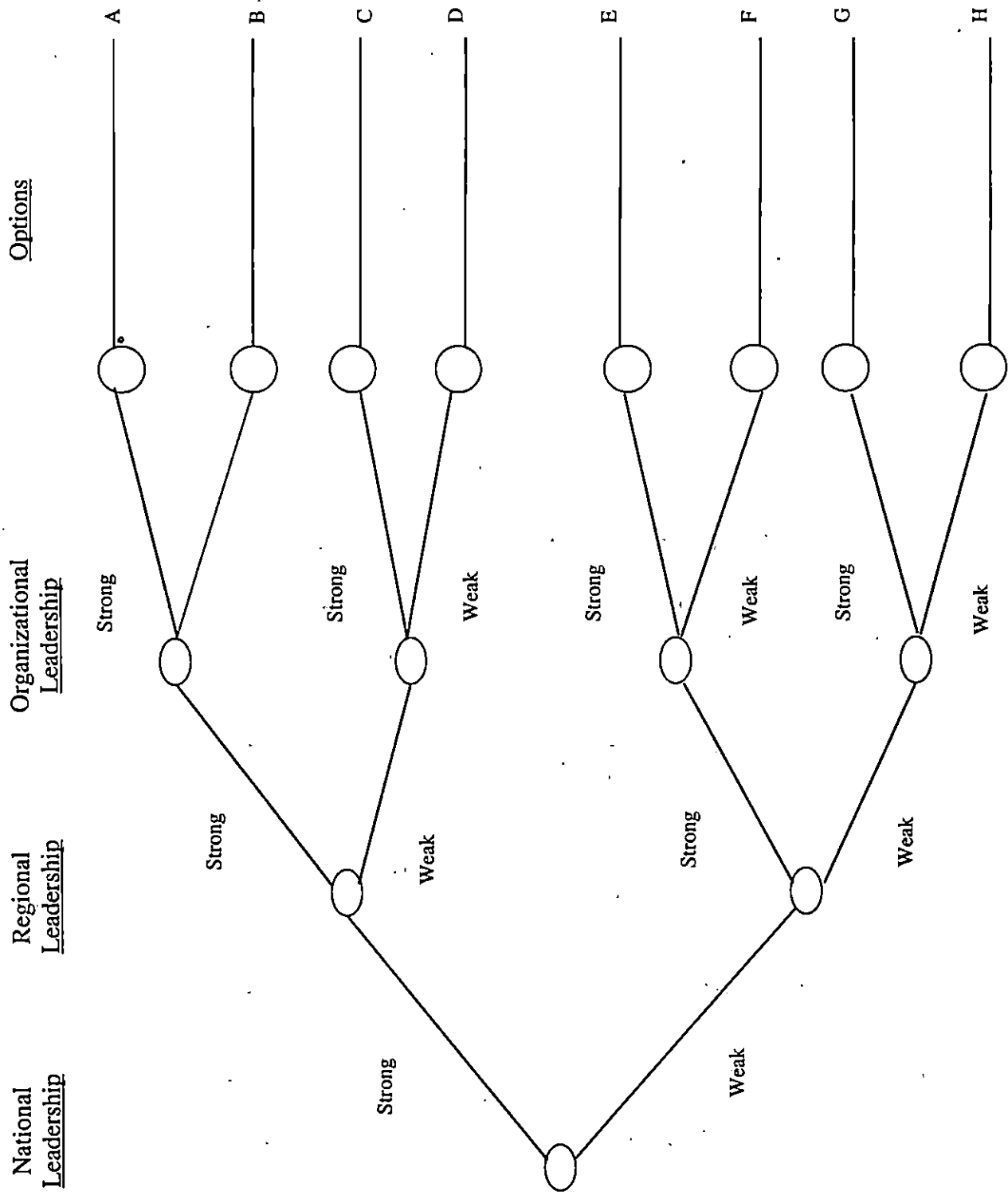
| | | | |
|--------------------|------|--|--|
| Advocacy Potential | High | Public officials, many directors in scientific academies | |
| | Low | Most AKS scientists, educators | Selected research managers, administrators scientists, educators |
| | | Low | High |
| | | Leadership Potential | |

Leadership potential hinges on an individual's ability to motive and inspire others – to help them create a realistic and challenging vision for the future. Leadership is not the same as management – running the organization on a day-to-day basis. Advocacy potential means the individual has the inherent ability – communication and interpersonal skills to advocate the AKS to stakeholders and public officials. However, the individual must also be connected with the external power structure so that they can serve as an advocate.

Figure 3 lists, for illustrative purposes, groups of individuals, from which, change agents might be selected – scientists, administrators, public officials. Clearly the ideal change agent has both high leadership and advocacy potential. We show the upper right quadrant in Figure 3 empty. We are not suggesting that effective change agents don't exist in the EE-FSU. Rather there is no systematic way to identify individuals who might possess these necessary traits. Probably the most interesting question is one of developing change agents – moving individuals toward the upper right quadrant.

A second aspect of leadership has to do with the relationship between leadership quality and organizational change strategies. Figure 4 presents a simple decision tree that links leadership quality within an AKS – at the national, regional (oblast, state, province) or organizational level to specific transformation actions that might be undertaken. For example the decision tree suggests that a strategy of organizational change with strong national and organizational leadership (Branch C) might be very different were leadership quality reversed (Branch F).

Figure 4. Leadership – Dependent Reform Strategy Options



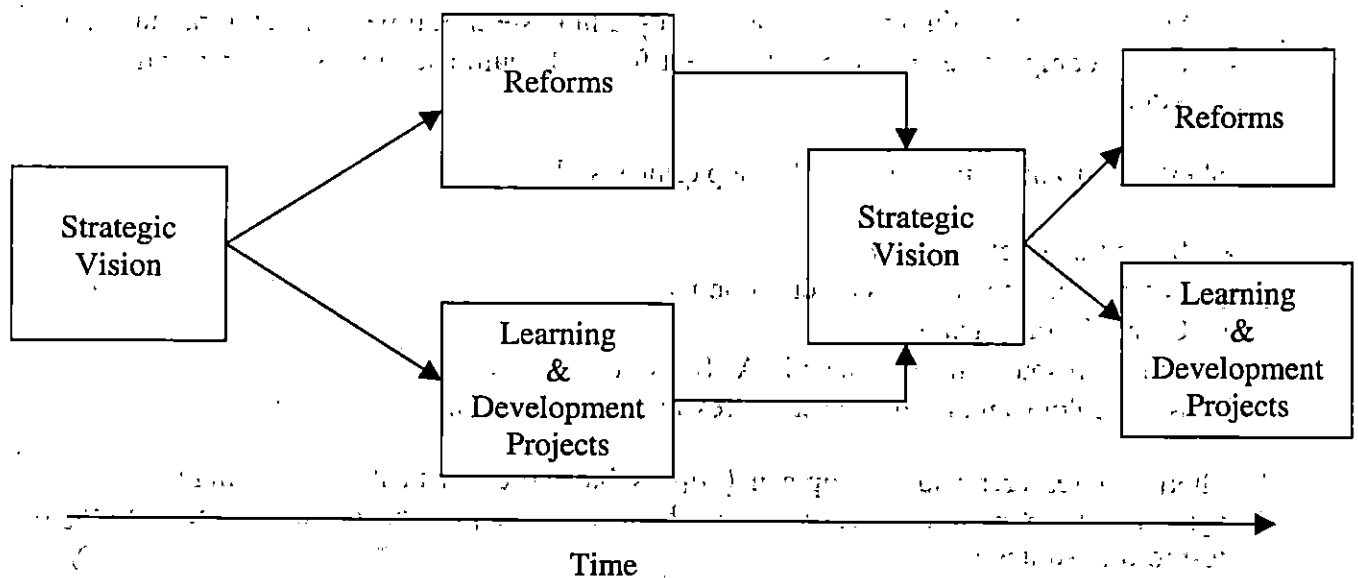
A Bootstrap Approach to AKS Reform

Transformation of an AKS takes time, a great deal of information, money, skilled managers and informed and empowered stakeholders. Few of the EE-FSU countries meet these preconditions. Consequently the entire reform strategy must be bootstrapped – the needed resources, leaders, managers, stakeholders and knowledge must be created as part of the reform process. This will require a reform strategy that is:

- Explicitly designed to foster organizational learning, critical skill development and the creation of progressive stakeholder groups
- Flexible and adaptable to changing conditions and organizational learning
- Opportunistic and entrepreneurial capitalizing on existing projects to accelerate reforms and unanticipated opportunities
- Capable of demonstrating some short-term benefits that clearly display the value of AKS products and reforms

Figure 5 shows the key elements in our proposed strategy in a hypothetical reform cycle. In this model, the reform process begins with the creation of a strategic vision for the AKS. In many cases this vision will be created by the existing AKS managers and selected staff members. Consequently, this vision will be rudimentary and probably not well representative of stakeholders' interests. Information and skills necessary to complete the task will likely be in short supply. With support from experienced outside AKS managers, however, a workable first cut should be achievable. As the reform strategy progresses, the visioning process will serve to orient AKS administrators, scientists and educators so they will gain a better understanding of the role and structure of the AKS in a market setting. In addition, however, creating a strategic vision will require the development and empowerment of AKS stakeholders. In our model both tasks are included as part of the development of a strategic vision.

Figure 5. Bootstrapping AKS Reform



Based on this initial vision, some reforms may be evident. For example research or education facilities that are clearly not consistent with the country's long term interests might be closed or consolidated. Some care must be taken that these first reforms are not simply responses to short term budget problems or political expediency.

The second element in the reform process involves taking on specific projects that would quickly:

- Fill in gaps in information
- Develop needed skills
- Build stakeholder competence, within the AKS or with clients
- Foster needed working relationships
- Test or pilot reform actions
- Sustain or rescue essential AKS assets or programs at risk because of funding limitations or neglect
- Quickly produce positive results that would create stakeholder commitment for AKS reform and ongoing support as well as sustain momentum for the reform process

These learning and development projects (LDPs) are intentionally designed to build the country's capacity to reform the AKS and successfully manage it thereafter.

There are three basic types of LDPs that might be used. We'll list these along with a few examples:

1. Study tours to increase stakeholder or AKS professionals' awareness of:
 - Alternative approaches to AKS organization and management
 - New agricultural technologies in similar agroclimatic regions
 - Professional development and training programs used by agribusinesses in North America
 - Successful curriculum reform strategies used in Eastern European agricultural universities
 - Use of competitive grants to foster client-focused, multidisciplinary research and extension
2. Short term training programs to develop critical skills in:
 - Institutional reform methods
 - Farm management and market economics
 - Case method teaching
 - Human resource management in AKS institutions
 - Agroecology and farming systems research and extension
3. Short term research and development projects that address critical issues facing the agricultural sector but also serve to create human capital, promote organizational learning or test reform strategies:

- Work with selected farm businesses to increase milk production through improved nutrition and management
- Develop a set of case studies to use in an agribusiness management course
- Identify and resolve barriers to introducing a completing crop into a monoculture
- Develop and deliver a workshop on farm business planning for small farms
- Conduct a brief SWOT analysis (strengths, weaknesses, opportunities and threats) for the AKS
- Conduct an in-depth review of a major research and extension program such as wheat production in Kazakhstan

We expect that the LDPs could be integrated with other ongoing projects. For example an existing project in Uzbekistan to create a farmer advisory and information service (FIAS) could be designed to include a competitive grants program, managed by the FIAS, to develop cropping systems to replace or compete with cotton. In this way, the establishment of the FIAS also creates incentives to support reform in existing AKS institutions, fosters new working relationships, reorients the researchers to client needs, requires inputs in farm management and marketing economics and would likely have ecological dimensions as well. In addition, however, this LDP creates the needed linkages between research and extension. And, if all works well, the project should demonstrate the value of research and extension to stakeholders and elected officials.

Returning to Figure 5 we see that the outputs from the LDPs and the earlier reforms are used to refine or refocus the strategic vision guiding the process. In addition the guiding coalition might be modified or augmented as effective leaders are identified or developed. This, then leads to another round of LDPs and reforms. In our model, AKS reform is not a grand planning exercise. Deliberation and debate are held to a minimum. Rather it is an active and results-oriented process with a high degree of accountability.

Final Comments

This paper has attempted to develop a framework for a process that might be followed to foster change in agricultural knowledge systems in transition economies. This process is not proven. It, by no means, can be viewed as a best practice. Our hope is that the paper will lead to a renewed interest in AKS transformation strategies appropriate for the EE-FSU region. Further we hope the paper will encourage a broader exchange of information within the World Bank, the bilateral community and agricultural leaders in this region on best practices – practical, proven approaches to transforming and modernizing agricultural knowledge systems.

References

- Alchian, A. and H. Demsetz. 1972. Production, Information Costs and Economic Organization. *American Economic Review*, 62: 777-795.
- Basenko, David, David Dranove and Mark Shanley. 2000. *The Economics of Strategy*. 2nd ed. John Wiley and Sons. New York, NY.
- Blum, Abraham. 1991. What Can Be Learned From A Comparison of Two Agricultural Knowledge Systems? The Case of The Netherlands and Israel. *Agriculture, Ecosystem and Environment* 33: 325-339.
- Conner, Daryl R. 1992. *Managing at the Speed of Change; How Resilient Managers Succeed and Prosper Where Others Fail*. Random House, New York, NY.
- Csaki, Csaba and John Nash. 1998. *The Agrarian Economies of Central-Eastern Europe and the Commonwealth of Independent States*. World Bank Discussion Paper. World Bank, Washington, D.C. (forthcoming).
- Cummings, Thomas G. and Christopher G. Worley. 1993. *Organizational Development and Change*, 5th ed. West Publishing, St. Paul, MN.
- Kantor, Rosabeth Moss. 1989. *When Giants Learn to Dance: The Post-Entrepreneurial Revolution in Strategy, Management and Careers*. Simon and Schuster. New York, NY.
- Keller, George. 1983. *Academic Strategy*. Johns Hopkins University Press, Baltimore, MD.
- Kotter, John. 1995. Leading Change: Why Transformation Efforts Fail. *Harvard Business Review*. March-April: 59-67.
- Lazear, Edward P. 1998. *Personnel Economics for Managers*. John Wiley and Sons, New York, NY.
- Lipton, Mark. 1996. Demystifying the Development of an Organizational Mission. *Sloan Management Review*, Summer 83-92.
- March, James G. and Herbert A. Simon. 1958. *Organizations*. John Wiley and Sons, New York, NY.
- Milgrom, Paul and John Roberts. 1992. *Economics, Organization and Management*. Prentice Hall, Englewood Cliff, NJ.
- Mudahar, Mohinder S., Robert Jolly and Jitendra Srivastava. 1998. *Transforming Agricultural Research Systems in Transition Economies: The Case of Russia*. World Bank Discussion Paper No. 396. The World Bank. Washington, D.C.

- Olson, Mancur, Jr. 1995. Why Transition From Communism Is So Difficult. *Eastern Economics Journal* 21 (4): 437-461.
- Russ-Eft, Darlene, Hallie Prepskill and Catherine Sleezer (eds). 1997. *Human Resource Development Review*. Sage Publications, Thousand Oaks, CA.
- Sandler, Todd. 1992. *Collective Action: Theory and Application*. University of Michigan Press. Ann Arbor, MI.
- Schaefer, Scott. 1998. Influence Costs, Structural Inertia and Organizational Change. *Journal of Economics and Management Strategy*. Summer: 237-263.
- Schwartz, Herman M. 1997. Reinvention and Retrenchment: Lessons Learned from the Application of the New Zealand Model to Alberta, Canada. *Journal of Policy Analysis and Management* 16(3): 405-422.
- Scrimgeour, F. G. and E. C. Pasour, Jr. 1996. A Public Choice Perspective on Agricultural Policy Reform. *American Journal of Agricultural Economics* 78 (May): 257-267.
- Senge, Peter M. 1990. *The Fifth Discipline: The Art and Practice of the Learning Organization*. Currency Doubleday. New York, NY
- Weimer, David L. (ed.) 1997. *The Political Economy of Property Rights: Institutional Change and Credibility in the Reform of Centrally Planned Economies*. Cambridge University Press. Cambridge, UK.
- Zell, Deone. 1997. *Changing by Design: Organizational Innovation at Hewlett-Packard*. Cornell University Press, Ithaca, NY.