

Creating a Northern Agriculture

V. AN AGROEUTHENICS APPROACH TO DEVELOPMENT IN ALASKA

Wayne E. Burton

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FOREWORD

This report, "An Agroethnics Approach to Development," is one of a series being published under the title, CREATING A NORTHERN AGRICULTURE, by the Agricultural Experiment Station. The authorship is strictly that of Dr. Wayne E. Burton. Technical consultation has been provided by Dr. Minnie E. Wells. The content and conclusions are those of the author and do not necessarily reflect the views and policies of the University of Alaska, the School of Agriculture and Land Resources Management, or other Experiment Station faculty.

The objective of these reports is to direct attention to opportunities for development of a northern agriculture, and to opportunities foregone if agriculture continues to be ignored in Alaska's land use and control planning process.

This series of reports rests squarely on the belief that sustained development of northern agriculture is in the national interest as well as for Alaska, and would contribute materially to the economic and social well-being of Alaska's peoples, particularly after the "boom" of the petroleum industry is gone. Moreover, development of agriculture could provide the largest source of employment for Alaskans of any resource based industry.

ACKNOWLEDGMENT

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V. AN AGROEUTHENICS APPROACH TO DEVELOPMENT

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"One of the most profound recent discoveries about the process of (rural) agricultural development is that the laissez faire approach will not do the job; that leaving agriculturists to their own initiative and resources is not enough, and, conversely, that external environmental intervention is necessary through the use of modern technical, physical, economic, social, education, and political inputs." (2)

Introduction

The growing national concern for a better environment and more rewarding life-style is being reflected in the many proposals regarding Alaska's future. Particular attention has been directed to preserving wilderness, wildlife, and scenic values. Increasing attention is being directed to energy resource development. Continuing attention is being directed to fishery, forestry, and recreation resources. All incorporate concern for certain attributes of a more rewarding life-style. However, little attention is being directed to development concepts, or infrastructures, suited to Alaska's latent agricultural regions, and even less has been directed to the inter-relationships of rural-agricultural and urban-industrial developments.

Alaska is not faced with the typical task of modernizing a large, traditional, agrarian society, but, is faced with problems of providing the desired attributes of a modernized northern life-style, for a population estimated to be over a million people by the end of the century. Traditionally, concern in (rural) agricultural development has been limited almost exclusively to its commercial aspects. The agroethenics approach, in dramatic divergence, is primarily concerned with the enhancement of the quality of life through the increased production and consumption possible in a modernized ecosystem. Such an approach would be beneficial world wide, but its application would be particularly salutary if applied to the development of Alaska's relatively unsettled regions.

The Concept

The agroethenics concept concerns the identification, development, and distribution of those products and related services which will most directly and significantly contribute to human well-being. One unique characteristic of the concept is the definitive separation between commercial agriculture as a competitive land resource development strictly for economic purposes, and "agroethenics" as a concept putting emphasis on development for human welfare. While the concept is particularly concerned with production and consumption of amenities which would off-set the diverse stresses of living in either rural or urban environments, it is also concerned with functional and economic resource development which minimizes environmental degradation and alleviates time delays.

The particular adaptation of the concept to northern environments hinges on the need for permanent settlement and socio-economic development in order to efficiently and economically develop the rich and diverse resources found in the northern latitudes. Since agriculture is not included in the cultural norms of either urban immigrants or indigenous peoples of the north, its future development will undoubtedly be of the corporate industry type, directly competing in national and world markets, and will contribute little to permanent settlement or socio-economic development needed for other resource utilization. In contrast, agroethnics development, concentrating on those products and services determined as a function of the culture in which they are used, will contribute significantly to the evolution of a modernized northern culture and accelerated permanent settlement, *with or without the development of either subsistence or commercial agriculture.*

The concept is an alternative perspective from which to view the role of food, fiber, ornamental, and/or environmental production and consumption in the new-lands rural-urban development *process*. It has been predicated on the following assumptions.

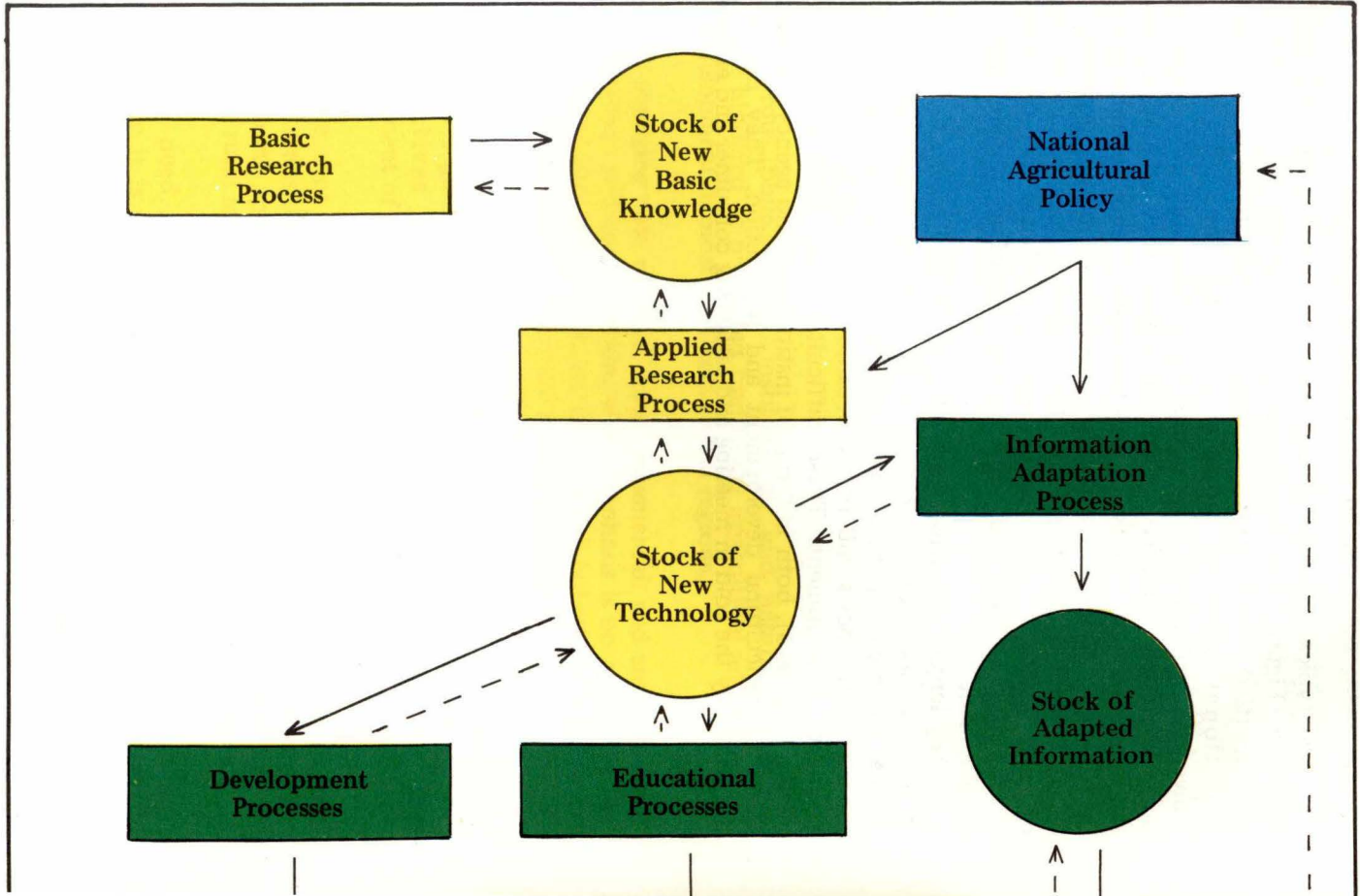
- (a) Numerous philosophical, institutional, and natural constraints have hindered or precluded traditional agricultural settlement and development in most of Alaska's rural regions.
- (b) The changing role of food, fiber, ornamental, and environmental production and consumption, when emphasis is on enhancing the quality of life rather than on commercial potential, is yet to be fully understood by intellectual and political leaders alike.
- (c) The paucity of proposals to attach core issues of development in northern regions points out clearly the need for exploring new perspectives and developing new concepts regarding the development of new lands.
- (d) Since the root cause of sustained rural-urban development and cultural transition is technological change, it is necessary to develop new approaches, institutions, and other infrastructure to facilitate rural modernization and socio-economic development.

The concept need not be restricted either to rural or northern environments, since it is equally applicable to large urban centers, towns, suburbs, rural areas, and underdeveloped regions in both mid-latitude and tropical climes. The primary thrust would still be directed to those products and related services, derived from plant and animal production, most needed for an enhanced human well-being.

Need for a Different Approach

The typical concept of the American rural-agricultural development approach (Figure 1) is not directed to rural or agricultural development in the unsettled, northern environment. It presupposes the presence of a traditional agrarian population, and the USDA-Land Grant University-Agribusiness type complex (3). This approach, when applied in underdeveloped countries, or isolated regions such as Alaska, pre-supposes the import of both "stocks of new technology" and "techniques for needed development, education, and information-dissemination processes" (Figure 2). It is seldom recognized that the approach does not incorporate basic cultural, political, and socio-economic attributes of the country, or indigenous desires and anticipations regarding human and resource development.

Any largely unsettled, undeveloped, isolated region such as Alaska has its own unique requirements for both rural and urban development. The typical American approach does not satisfy this need, partly because of inherent deficiencies and partly because of difficulties in its application to new-lands development. These difficulties have been well illustrated in Alaska (Figure 3), both in terms of institutional and agency programs and in terms of agricultural development and production. They can be further illustrated by the void in meeting and satisfying consumer and environmental needs.



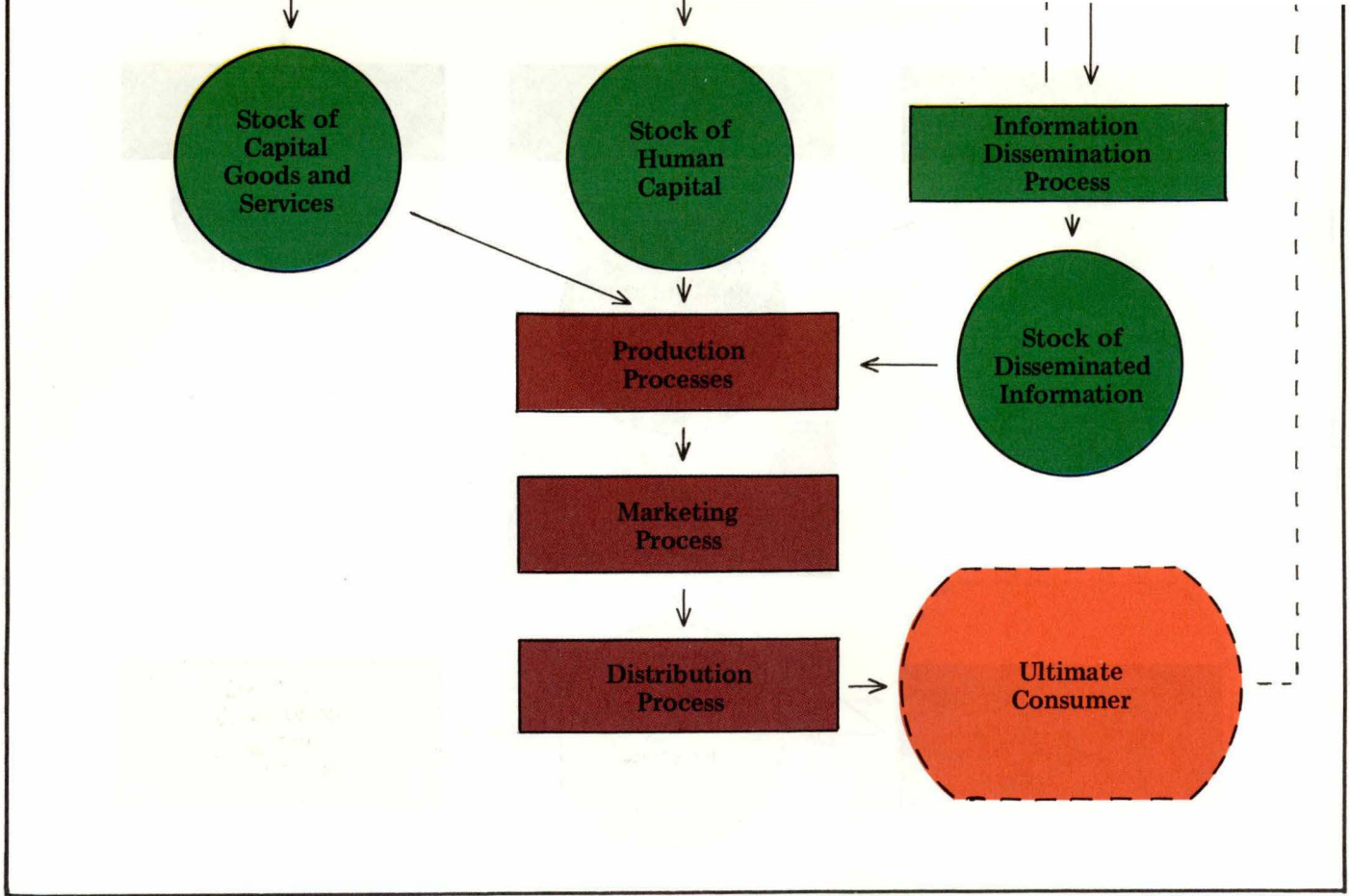
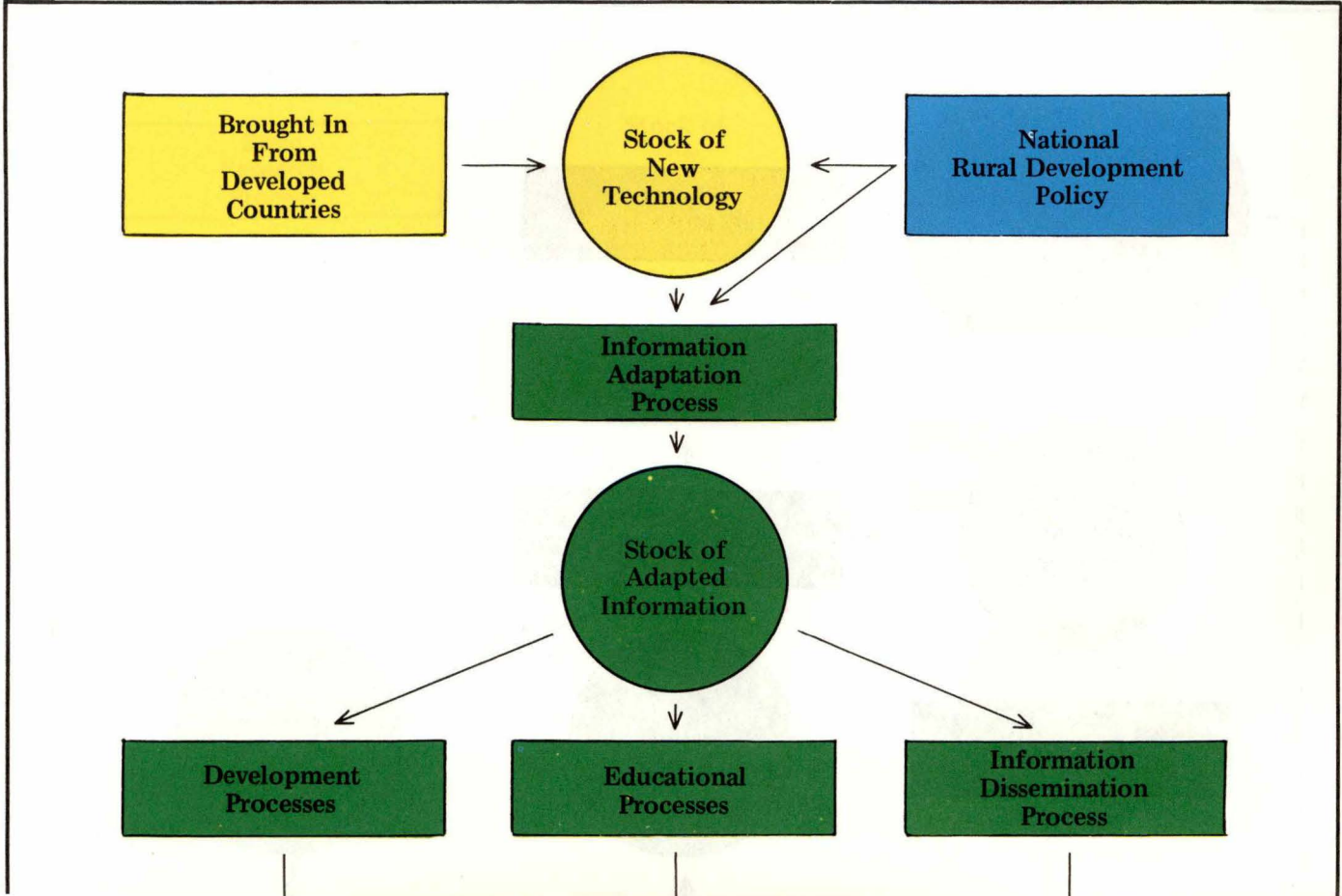
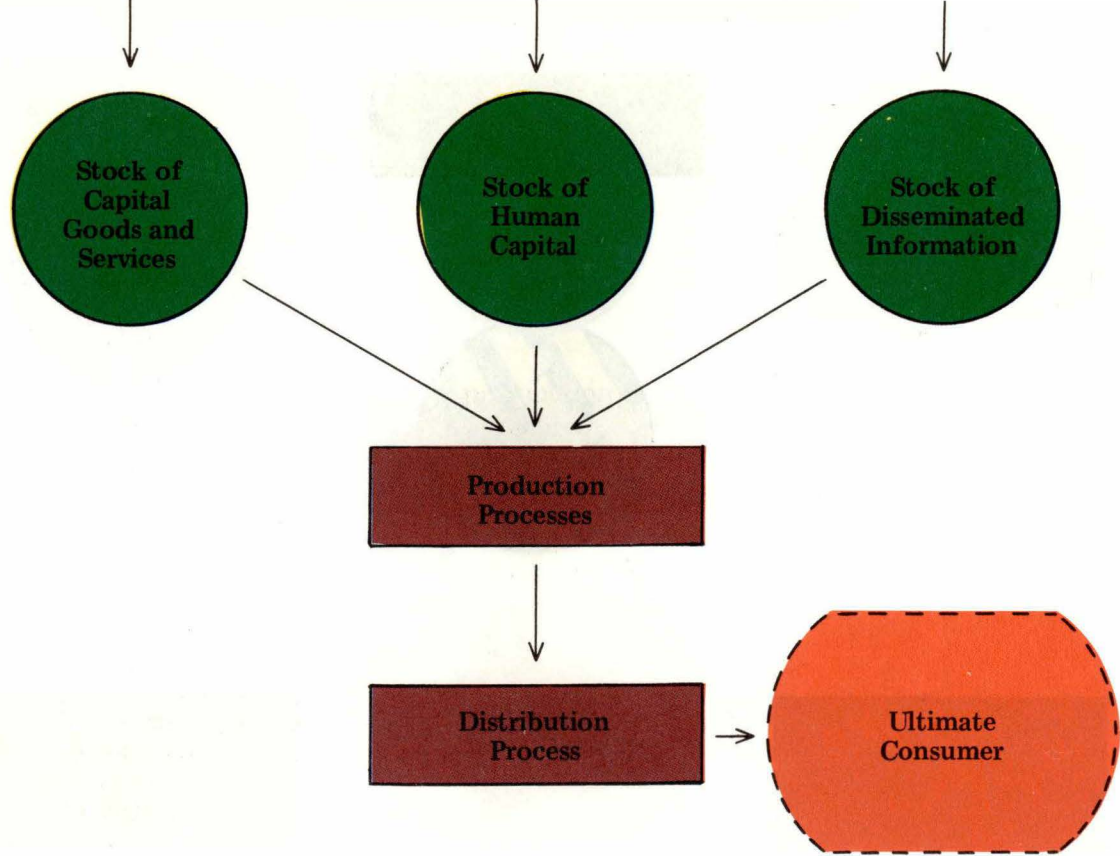


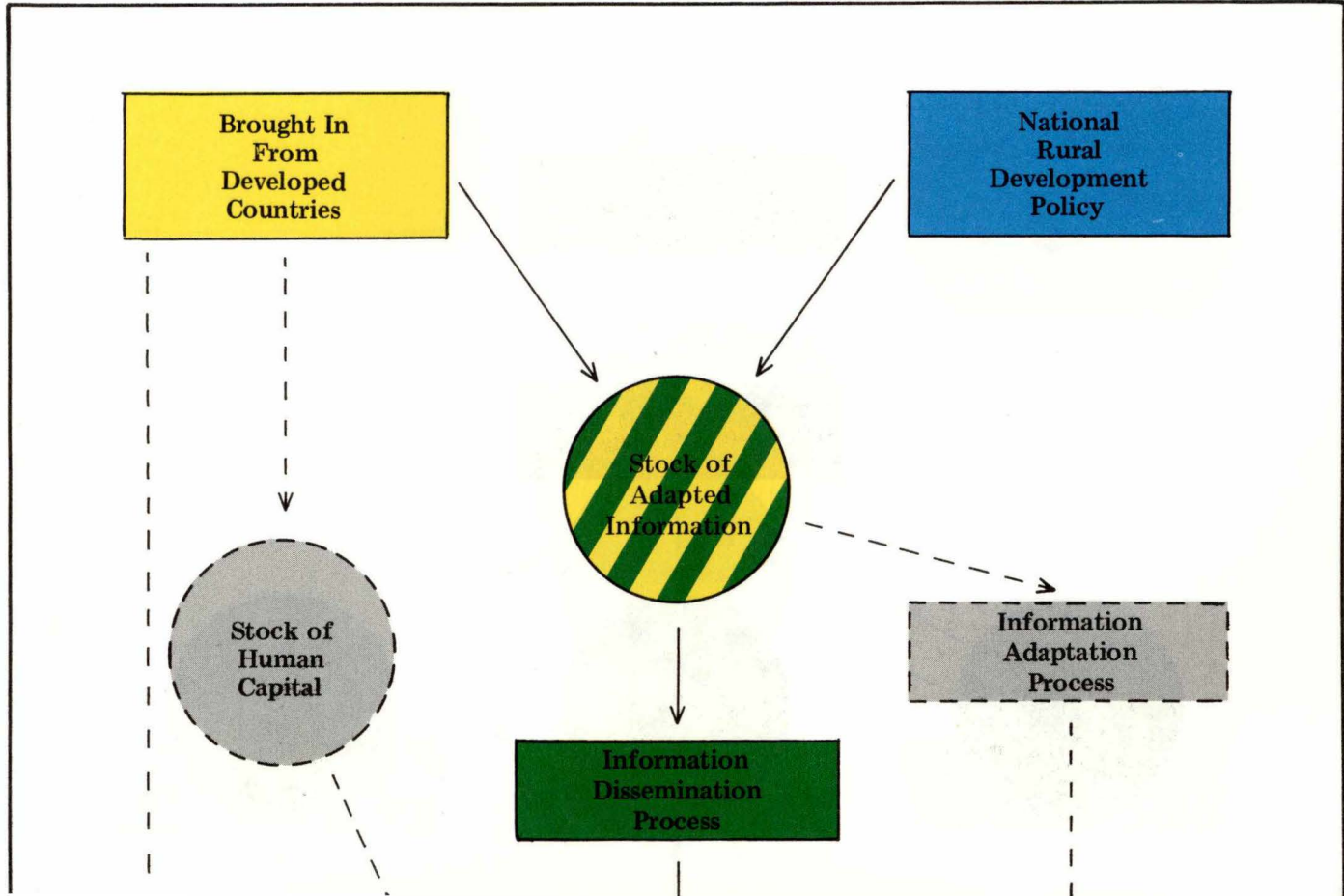
Figure 1. Typical Concept of American Rural-Agricultural Development Approach (3).





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Figure 2. Typical American Concept as Applied to Underdeveloped Country (3).



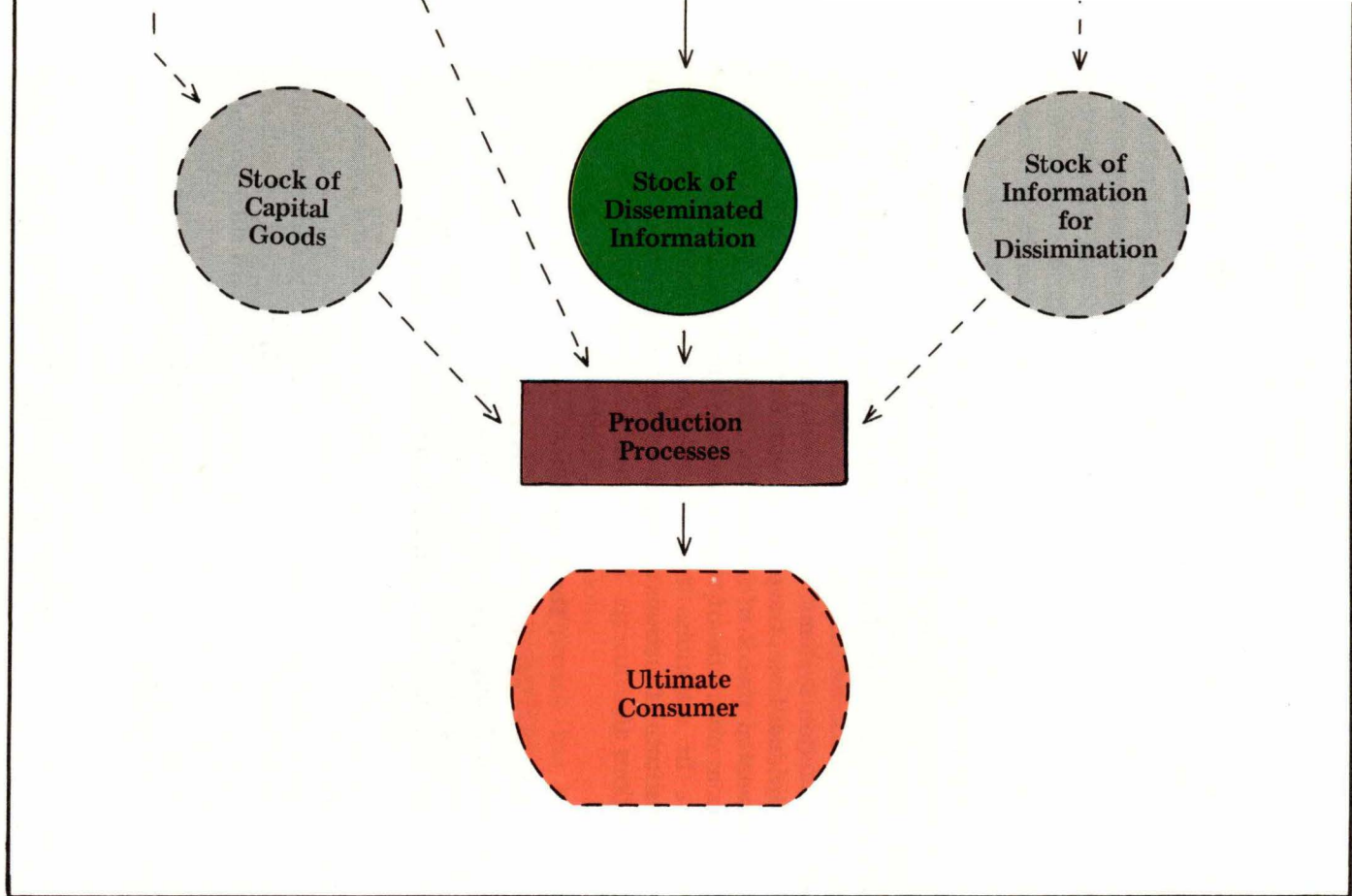


Figure 3. American Rural-Agricultural Development Approach as Applied in the Relatively Unsettled, Undeveloped Alaska Situation.

Purpose of a New Approach

The thrust of needed concepts and approaches must be directed to socio-economic development in rural regions, and to amenity products for urban centers, both of which will enhance probabilities for permanent settlement and development. New and innovative institutions and programs are needed to provide opportunities, inputs and services for those enterprises which will enhance the state of human well-being by generating more income and/or greater availability and consumption of amenity products and services in this northern environment. Uniquely suited foods, fibers, ornamentals, and environmentals, along with public access to natural environmental quality factors, will substantially contribute to the quality of life of northern residents, and may also contribute significantly to real income.

New approaches must incorporate programs for socio-economic development rather than limiting their scope simply to agricultural product development. Attention must be directed to needs and desires of ultimate rural and urban consumers for identified products and related services. Attention must also be directed to institutions which can provide "packaged" production systems for these. Such institutions could alleviate the need for individual time, travel, costs, and frustrations of gathering and combining fragmented pieces of information, technology, germ-plasm, and experience from a multitude of widely dispersed institutional, agency, and private sources. In addition, they should provide demonstration and "peer-group substitute" functions during the development stage in new-lands development regions a/.

The Approach

The agroethenics approach is a process for accommodating major technical innovation through application of research at the interface between development planning and action. It has been directed to alleviating gaps and voids in scientific information, technical knowledge, technology, and public services essential to the desired end.

The approach consists of three phases: (1) identification and assessment of potential agroethenic (amenity) products and services which could be provided in a region, and those values associated with increased availability and consumption of such products and services, (2) appraisal of cultural, legal, and institutional factors which may promote or retard such potential development, and (3) conceptualization, appraisal, development, testing, and demonstration of modern production and distribution *systems* which could be packaged to meet uniquely different situations.

a/ One of the most limiting constraints to enterprise development in the isolated new-lands development situation is not being able to go see ongoing modern production systems, and interact with experienced producers and technocrats.

Developing the Approach

The initial thrust in developing the agroethenics approach was directed to an analysis of the relevance and effectiveness of traditional information processes and flows in rural-agricultural development (Figure 1). Public research and service institutions and agencies (particularly the USDA-Land Grant University complex) have been particularly effective in serving industry, but research information and technology from these sources has generally been made available to individual producers only in a fragmented and cafeteria-like manner. The primary flows, in developed areas, have come to the producer from industry, the popular news media, and interaction among the "modern" producer peer-groups. Traditional processes and flows of information and technology have not been either relevant or effective in undeveloped northern regions.

Analysis of the Alaska situation identified numerous factors which mitigated against success of the traditional American system of rural development. Some of them were (1) a tacit definition of agriculture which included only a selected group of agricultural products, (2) dependence on outside expertise, and (3) the direct transferral, to Alaska, of information, technology, and experience without adaptation. Others are (1) absence of both an agrarian culture and peer groups with whom to communicate the needs of agricultural enterprise development and modernization, (2) isolation of scientists, administrators, and technicians, (3) a void of program coordination among federal, state, and university institutions and agencies, (4) negative credibility for commercial agricultural production, and (5) inadequacies of agricultural credit institutions.

A second thrust in developing the approach has been directed to identification of purposes for settlement-development, and then to identification of both rural and urban peoples' needs when settling and developing the isolated rural regions of modern Alaska. Critical factors were identified as being (1) rural modernization and resource development anticipations generated by the Alaska Native Claims Settlement Act, (2) food, amenity, and environmental needs engendered by rapidly accelerating population growth, (3) changes in national perspectives regarding population, environmental degradation, resource wastage, and quality of life issues, (4) amenities, both rural and urban, which would off-set psychological stresses of cultural transition, and (5) environmental and ornamental needs generated by petroleum and other construction developments.

Products identified which fall within the particular needs of Alaska's socio-economic and rural resource development are as follows: (a) a wide variety of indigenous and exotic grasses, flowers, shrubs, and trees that can be used for revegetation and environmental purposes, (b) indoor plants which would prosper in low-level winter light, (c) selected and adapted indigenous flowers, grasses, shrubs, and trees for landscaping purposes, (d)

reindeer meat and skins, (e) musk ox meat and qiviut, (f) wild-gather products such as berries, fish and game, and (g) premium quality fresh vegetables, both controlled environment and field grown.

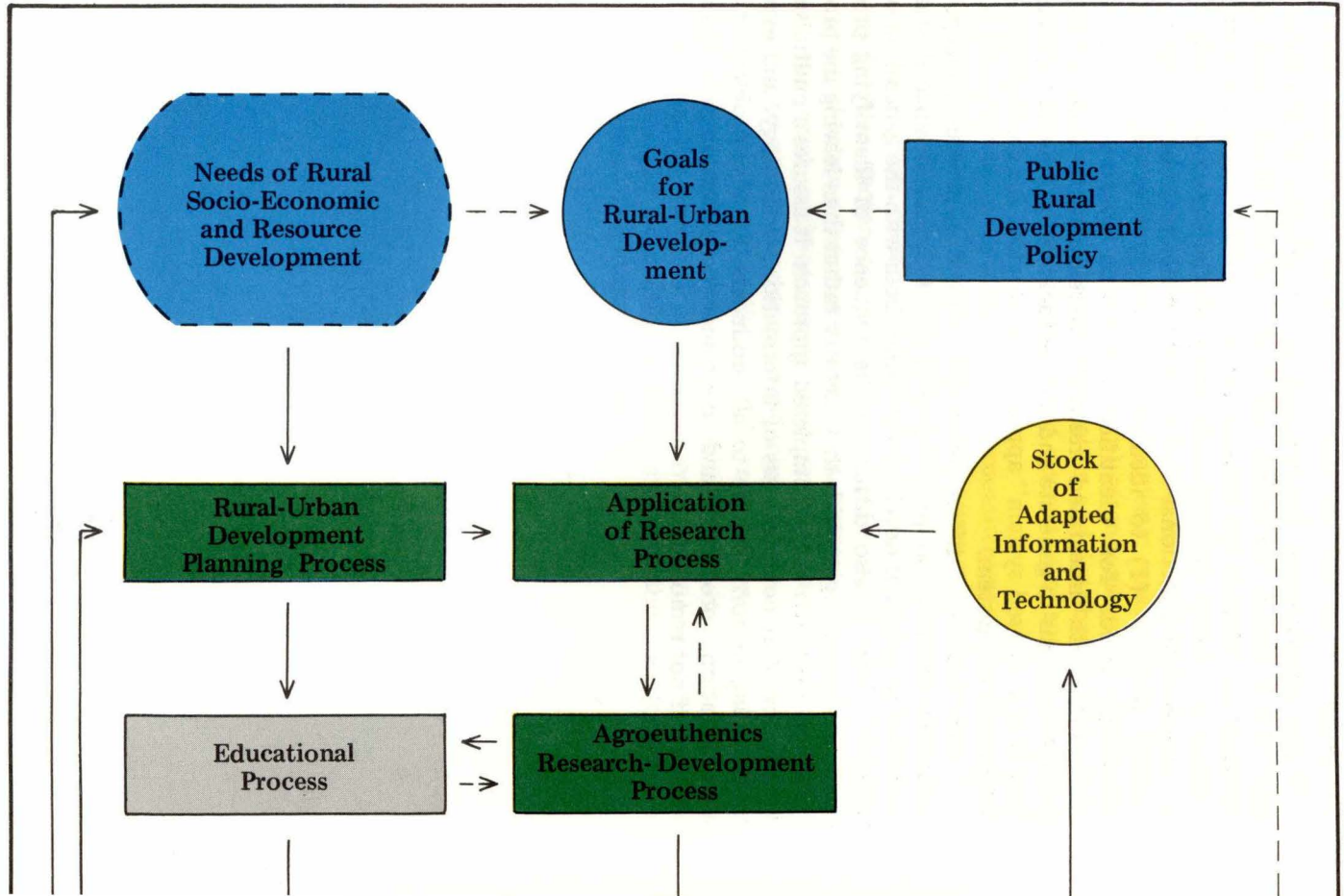
Other products are: (a) field and greenhouse vegetables and berries which exhibit unique characteristics of flavor and/or quality, (b) exotic flowers, shrubs, and trees particularly adapted to this environment, (c) horses and other recreational animals, (d) domestic meat animals for both subsistence and commercial purposes, and (e) greenhouse or growth factory food products in locations where transportation and distribution systems are inadequate to supply desired selections and quantities of supermarket fresh food products.

The final thrust in developing the agroethnics approach is being directed to a development *process* which will serve not only the needs of socio-economic and rural resource development, but also the particular needs of both rural and urban consumers. Particular attention has been directed to a number of critical factors for developing a suitable approach: (i) identity of both rural and urban consumer's product and service desires and demands, (ii) needs for rural socio-economic and resource development, (iii) a functional and economic development planning process, (iv) an application of research process to critically identify research needs and possible applications, (v) integrated research, development, demonstration, and contact functions for specified production systems, (vi) the need for, and efficiency of, packaged production *systems*, and (vii) the need for local or regional research-development institutions.

The Model

The agroethenics development model (Figure 4) illustrates a single path (flow) system for public initiation and service of a rural new-lands development process. Its primary focus is on the ultimate consumer, and meeting the needs of rural socio-economic and resource development. It incorporates the functional and economic efficiencies of an "application of research process" (1) to identify and specify very precise research and technology needs for identified production *systems*. It provides for institutions with integrated research, development, demonstration, and contact functions to generate and service packaged production systems. And, since it is a "closed system" approach, it provides for continuous feed-back throughout the system.

This approach differs from the typical American concept of the traditional information processes and flows approach since it starts with identified purposes of development rather than with the generation of "basic research" data. It also differs in the sequence of identifying production *systems*, since it begins with that identity rather than leaving the production system as a residual to the completed approach. It assures a multidisciplinary attack, and thus completeness of information, technology, and experience, in providing uniform service to all producers. Finally, problems of policy, administration, producer, and consumer coordination are significantly reduced, if not removed.



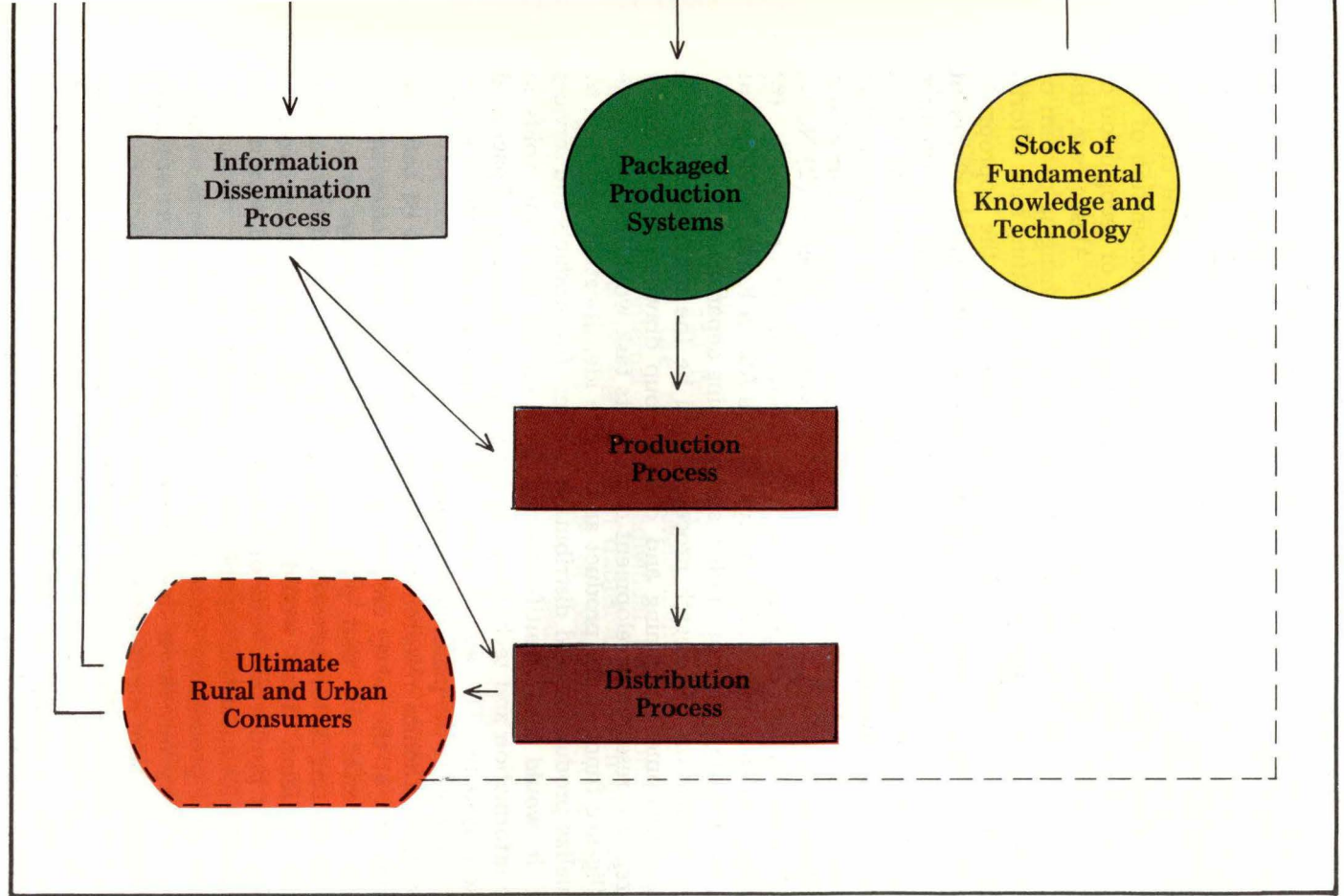


Figure 4. The Agroethnics Development Model as Conceived for Use in Rural-Urban Socio-economic and Resource Development of Isolated, Undeveloped Regions.

Application of the Approach

The application, or implementation, of the agroethenics approach to new-lands development would, of course, necessitate acceptance of the concept as part of public policy, and the subsequent creation of research-development institutions to carry out the public portion of the development process. The initiation of policy, and institutional creation, could come from either governmental or general public recognition of the need for rural socio-economic and resource development, or recognition of the need for public institution and agency reform. In the Alaska case, the ongoing state-wide land use planning process, and the changing pattern of private land ownership, could provide the stimulus for initiating such efforts.

Application of the approach, assuming creation of the appropriate public policy and institutions, would begin with the rural-urban development planning process, which recognizes needs for socio-economic and resource development in rural regions to provide products and services that would satisfy cultural, psychological, and nutritional needs of both rural and urban consumers. In Alaska, the development planning process could be carried out by a task-group representing: (1) rural and suburban residents, (2) Native regional and village corporations, (3) urban consumer groups, (4) conservation and environmentalist groups, (5) the Alaska Rural Development Council, and (6) the Governor's policy and planning department.

The application of research process would be the responsibility of a technical development planning and design group drawn from the newly created regional research-development centers. Its task would be to provide the intelligence function for product and service identification, and then to conceptualize production and distribution systems for products and services selected. It would also identify needed research on gaps and voids in available information and technology to carry out development of packaged production systems. The administrator of this group could serve as the executive officer for the planning task-group.

The agroethenics research development process would be activated and carried out at the newly created centers by professional scientists and technicians selected for that purpose. Their primary charge would be research on limiting factors to successful activation of identified and assigned production systems. They would also have the concurrent charge of developing pilot production units of sufficient scale to test and demonstrate their suitability for subsistence, public, or commercial use.

These pilot production units would be used for public demonstration purposes, to carry out career development programs, and to provide plant and animal germplasm for developing enterprises in the region. Scientists and technicians working with any given production system would provide the "peer-group substitute" function for individual operators in the region who were in the process of enterprise development. The individual research-development center would serve as the contact and service

location for the development region, providing both direct information, consulting expertise, analytical services, and communication translation, and coordination with other university, state, and federal programs relevant to the development process approach.

The stock of "packaged production systems" would be, of course, the documented and demonstrated results of the agroethenics research-development process. They would encompass not only published descriptions, but design, germplasm, adapted technology, and hard data with which to effectively and efficiently carry out the production process. Inherent in the packaged production systems concept is suitability for replication and parcelization to fit various development situations and needs. Further, the packaged production system is intended to allow the beginning producer to move directly into production rather than spending several years putting a system together and suffering the stresses, frustrations, and failures in doing so.

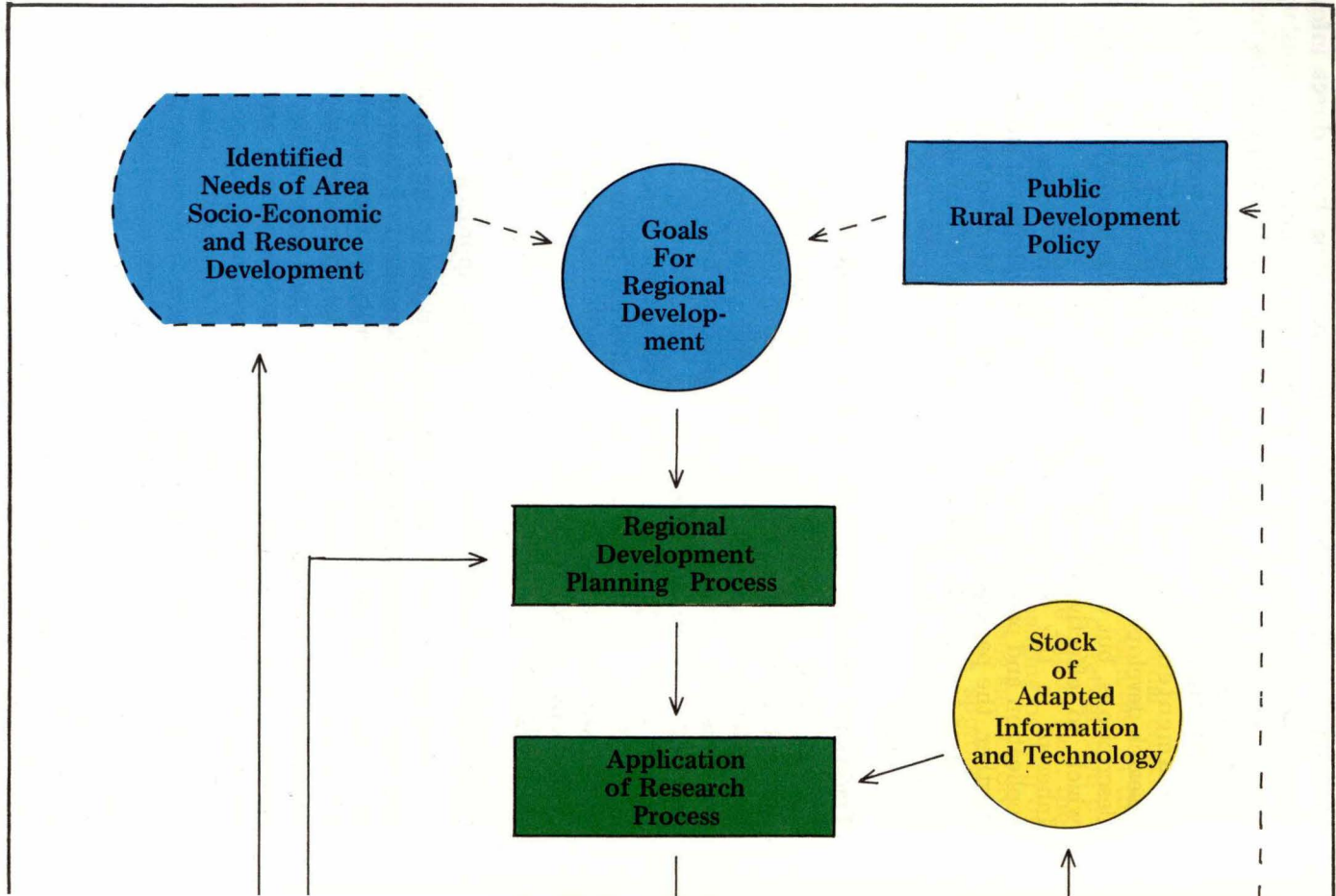
Traditional Education and Research Institutions

As noted previously (Figure 4), the agroethenics approach does not supplant traditional education and research institutions, but does redefine their relationship to, and role in, the development process. Formal education programs are retained in their traditional institutional setting, but are provided purpose and relevancy by the planning process, and relevant information by the research-development process. Many types of information not internal to the individual production and distribution system will still be the prerogative of traditional research institutions. Such institutions would retain their role of basic research on fundamental knowledge and certain areas of "applied" research.

Community or Regional Inauguration of the Approach

The agroethenics approach is quite suited to the community situation, and thus to community inauguration independent of state or national policy and program development. The community or regional model (Figure 5), while less inclusive than the general model, identifies critical processes for application of the approach. Each individual community, particularly in Alaska, has its own unique needs for socio-economic and rural resource development. Needs and desires of consumers can be more precisely determined at the community level. Community planning is a well established process. The application of research process could be carried out by representatives of the planning group, local expertise, professional staff from the *community agroethenics research-development center*, and consultant expertise from state and federal agencies and institutions as needed. Only the research-development institution need be a new creation.

The agroethenics research-development center could be created in a manner analogous to that of the local "community college". The



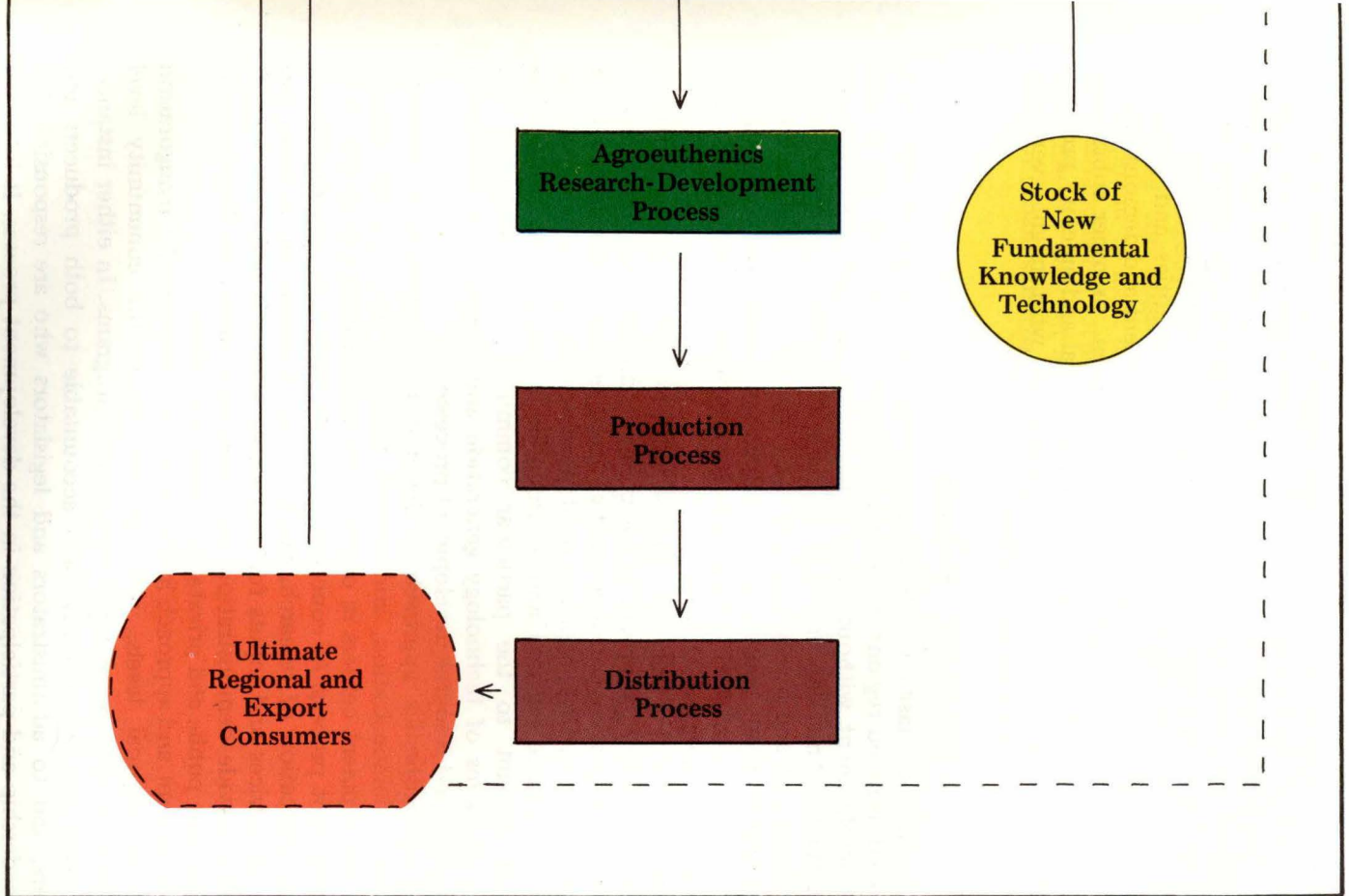


Figure 5. The Agroethenics Development Model as Conceived for Community or Regional Inauguration of the Development Approach.

prerequisites for creating such an institution would be: (i) a recognized need, (ii) acceptance of the concept, and (iii) local commitment to accomplishing the task. The center could be initiated with a local board, limited staffing complemented by local expertise, facilities acquired by agreement or contract, and funding generated by grant, agreement, contract, and/or taxes. The mature institution would require permanent facilities and sufficient lands to carry full-scale production systems development and demonstration. Such developments could range from home garden, or other subsistence enterprises, through the full range of environmental and amenity products previously mentioned, to development stages of what might eventually become commercial agricultural products.

Summary

The state of Alaska vividly illustrates the case of largely unsettled, undeveloped, isolated regions facing urgent problems of human and natural resource development without viable concepts or infrastructures to do the job. The typical American approach to rural and agricultural development has been impotent and overly costly in such situations since it is directed to products rather than people and development needs. In contrast, the agroethnics approach is directed to consumer desires and rural socio-economic development needs.

Agroethnics redefines the purpose and direction of public leadership and participation in rural-urban, socio-economic, and resource development. It reflects the increasing consumer and environmental concerns in new-lands development. It further expands rural development policy and program concerns to include cultural and environmental amenities and enterprises which are relevant to the particular community environment. It also addresses problems of technology generation and utilization in rural-urban modernization and resource development processes.

The agroethnics approach is directed to integration of research, development, demonstration, and contact functions into multidisciplinary research development centers in order to accelerate timing and efficiency of the development process. As conceived, it would provide for coordination of planning, application of research, development of production systems, and creation of services and inputs for product development and utilization. It would also provide demonstration and peer-group substitute functions for producers, both public and private, in isolated situations.

This concept and approach has been designed not only for inauguration at state or national levels, but also for use at the community level independent of state or national policies and programs. In either instance, the approach can be responsive and accountable to both producers and consumers, and to administrators and legislators who are responsible for public leadership and participation in the development process. It has been further designed to encompass the widest possible public participation in

planning and evaluating the ongoing approach, as well as its effective contribution to human well-being and environmental concerns.

Discussion of the concept and approach has been restricted to rural areas because of the Alaskan situation at this time. Problems faced, and not being addressed, are those of cultural transition and socio-economic well-being for present and future peoples who will carry on resource development to meet burgeoning needs for energy, food, fiber, and minerals, of urban-industrial societies in temperate and tropic climates. Nevertheless, the agroethnics concept and approach does have equal applicability to a wide range of urban, suburban, and public situations.

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