

- B. Continue U. S. training program
- C. Arrange for Short-Term Consultants
- D. Phase out Direct Technical Assistance
- E. Phase out Financial Assistance

These items refer to the administrator's efforts in turning over operational and ultimately financial responsibility to the host government. People must be trained to do the work and continued U. S. training is desirable. Consultants can be sent to assist in special phases of the program or to help on special problems even after the long-term technicians have left the program.



## Strengthening Range Management Technical Assistance—The Advisor<sup>1</sup>

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### Highlight

**The advisor would be more effective if he would forget detail of his discipline and remember principles; if he would learn as much as possible as quickly as possible about the culture he is supposed to advise; and, if he would apply principles in light of cultural limitations. Often the greatest service the foreign advisor can provide is to speak for the technicians of the country, to add the prestige of his position to the recommendations that local technical officers are confident will succeed.**

This paper is based on a single year's experience as a foreign advisor to one Middle Eastern country. It was one of the arid countries of the world where the rangelands have been grazed by cattle, buffalo, sheep, goats, donkeys, horses, and mules for thousands of years and where the native woody vegetation has pro-

vided fuel for the human population equally as long. The vegetation has reached a very low point on the successional scale. It often seemed that the poor rangelands and the livestock dependent on them had reached a sort of precarious balance—the animals being mere frames of low productivity, the vegetation sparse or lacking, the soil eroded leaving great expanses of bare rock or sandy desert. The livestock were little different from the wild animals from which they originated; they thrived during the wet season, starved during drought.

And while there are other developing countries where conditions for plant growth are less harsh, the range management advisor has a difficult job in most of them. His first move will likely be to tour the country of assignment in company with his "counterpart", the national with whom he is going to work. The advisor should remember that, in most countries to which experts are sent, advisors have been going on familiarization tours for at least the last 15 years and he should not be surprised if he is greeted with something less than wild enthusiasm. As he sees the biological problem the advisor will realize that, in spite of the efforts of numerous experts over the 15 years, there has been little change in traditional patterns of grazing; the "wasteland" philosophy of pasture still persists. And yet he will occasionally see areas that will make him hopeful, for example, the tribal ranges in West Pakistan in the former Baluchistan Province, which were managed under a system called "pargore". Members of the tribe agreed that certain areas of rangeland would be deferred for a specified period of time; good stands of *Chrysopogon montanus* were evidence of the success of the practice. The advisor will see in airports, cemeteries, and other areas where grazing is prohibited, an abundance of forage

that will show him that the country has a potential to be realized.

But today, in many of the regions of Asia that have climates characterized by summer drought, this is the picture: an extension into the range areas of dryland farming, rapid exhaustion of cultivated lands since all topgrowth is harvested and dung is used as fuel; general overgrazing of the native vegetation and the uprooting of woody species for fuel; seasonal starvation of livestock; and, trampling and erosion of soils, loss of water by runoff, increased evaporation, and the extension of deserts.

There are reasons why the rangelands of these countries have not shown more improvement. It is harder to improve management of rangeland than it is to show the usefulness of a fertilizer program on cropland, for example. Results of a range improvement program are slow to appear and success is difficult to demonstrate. In the past, authorities have authorized range improvement schemes and have abandoned them in disgust because results were so slow in coming. Insistence on quick results fails to recognize the slow nature of vegetative change and the paucity of present knowledge; it works against the long-term planning and sustained effort that are necessary in range improvement programs.

It is important, then, for the advisor to gain an appreciation of the reasons behind the present condition of the rangelands. He will see that the problem is basically one of too many animals attempting to graze too limited a forage resource. He should see that the solution is likely to be complicated and that it will involve much more than a suggestion that livestock numbers should be reduced. He will find himself becoming less concerned with the biological problem and more concerned with the political and social problem;

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much hinges on the actions and policies of government and on the attitude of local people.

The advisor will find a lack of basic data and that it is difficult to track down any that he knows are available. Often he will find that previous experts did not make much of an impression, that their reports are lost, that their recommendations make a lengthy list but that few of their suggestions have been implemented. The agencies could do much to provide the advisor with literature in range and related fields but, unbelievable though it may seem, the advisor may not even get the reports of the previous expert. The agencies should make a greater effort to obtain for the advisor all reports—vegetation studies, watershed surveys, statistics on acreages and animal populations, related agronomic studies—available in the country of assignment and from nearby countries with similar rangeland problems.

The advisor should learn as soon as possible some of the unique range and livestock problems that will likely influence his recommendations and suggestions. He will find that there has been a traditional separation of the shepherd and cultivator, a separation typified by the Biblical story of Cain, the tiller of the ground, and Abel, the keeper of sheep. The shepherd has long been a nomad who owns no land. His flocks and herds use the rangelands but he accepts no responsibility for their maintenance or improvement. The cultivator has been sedentary, satisfied with his small acreage and way of life. Both the shepherd and the cultivator have destroyed the land for fuel. And each has destroyed it for his own separate purpose, the shepherd to obtain more forage for his animals, the cultivator to obtain more acres for his crops. (The nomadic grazing of the shepherd is still important in much of Asia

and may continue to be the only method of utilizing large areas of arid land. Problems arise when nomadic populations cross national boundaries or enter areas already fully occupied by sedentary cultivators.)

Separation of shepherd and cultivator has reached the point where, should a farmer also own livestock, his animals must rely on the rangelands for their upkeep and they do not form part of the normal farming pattern. No fodder crops are grown to carry livestock over the dry season. With existing methods of cultivation and the near-impossibility of breaking up stands of perennial grasses or grass-legume mixtures using the wooden Asiatic plow, it is unlikely that perennial forages could be grown. Here and there annual clovers are grown but are used mostly for stall feeding milk buffaloes or draft bullocks. This crop is cut several times during the year and hauled into nearby cities for sale; clover fields are never grazed and hence there is no return of fertility in the form of manure. Range livestock are usually kept in the village at night and are trailed out to grazing in the morning. The animals tend to be close-herded by individuals with little or no idea of range management.

The advisor will find that his ideas of uses of domestic animals may be radically altered in the country of his assignment. In some developing countries livestock are kept for reasons of religion. This is best seen in India where about 226 million animals, one-quarter of the world's bovine population, are maintained in a social environment where the slaughter of the cow is banned by law in most States. Many of these animals are of little or no economic value and are inferior in quality. In other areas livestock are kept for reasons of sentiment, of prestige, as capital, as bride price, or as insurance

against losses due to disease or to drought.

Similarly, the advisor's ideas of products from the range will be changed. In West Pakistan, for example, the products of the range cattle industry in descending order of importance are bullocks for draft purposes, milk for human consumption, hides, and meat. Beef is an inferior product since the slaughter of agriculturally-useful bovines is prohibited and meat must come from aged animals. The sheep industry produces wool, mutton, skins, and milk. Goats, usually introduced to ranges that have become too poor to support other classes of livestock, are kept for meat, milk, and hides. Camels are kept for transport or motive power, buffalo as milk producers or draft animals, donkeys as beasts of burden, and horses and mules are kept for transport. The latter are usually well looked after. The destructive grazers seem to be goats and camels; a local saying where a weedy plant, Ak (*Calotropis gigantea*), grows on the sandy wastes around the villages is: "The camel leaves Ak but the goat leaves only the stones".

The relative importance of these various products is of significance to the range manager. The graziers of developing countries tend to be concerned with the immediate needs of themselves and their families. The ranges are grazed in common and, if the first arrivals do not take all the forage, those that follow certainly will. Consciously or unconsciously, graziers believe that they can obtain high production over a short period by deliberately overgrazing the range, even with the attendant destruction of the soil and vegetation. And this knowledge is supported by the results of many of the world's grazing studies. On any particular range at a particular time, regardless of range condition, higher production per

unit area can be obtained by overstocking than by moderate grazing. (It is obtained by accepting a lower gain from a greater number of animals; in the developing countries numbers are important and quality is of little consequences.) Higher production per animal is obtained where ranges are moderately grazed and the soil and vegetation maintained in good to excellent condition. Thus, although the advisor knows that the long-term interests of the grazier—and of the developing nation—are best served by a program of moderate grazing, the grazier knows that temporary benefits can be secured through exploitation of the rangelands. A prime task of the advisor is to reconcile these opposing points of view.

Technical range management has been most successful when applied in those areas where large holdings are commonplace, where a considerable investment has been made in land and buildings, and where owners have not been forced to overgraze their ranges. It has been much less successful in those areas where operators own a small number of livestock and are forced to exploit the rangelands instead of managing them for sustained use.

The advisor will encounter attitudes and beliefs that will be strange to him. The grasslands are regarded as a gift of God and it is assumed that, if He wished, God would continue to provide His bounty in spite of continual misuse. Fatalistic beliefs are common and lead to an acceptance of things as they are. If the grasses disappear and the land washes or blows away, it is the will of God and a mere mortal can do little about it. The belief that commercial fertilizers will poison the soil impedes progress in cropland improvement; the belief that meat from an entire male animal confers added viril-

ity to the eater of the meat impedes elimination of scrub males and consequent livestock improvement.

An obvious solution is to suggest that animal numbers should be reduced even though large-scale reduction of animals in areas already deficient in animal protein is hardly desirable. But most reports do suggest a reduction in numbers or, conversely, an increase in the forage supply. And even though lowered animal numbers is a simple and obvious solution, it will require much persuasion and education of users and administrators to accomplish needed reductions.

Nevertheless reduction in animal numbers has been attempted, especially of the goat. West Pakistan has a 1960 Goat Restriction Ordinance in effect, which prohibits goats within five miles of forest areas unless stall fed and under license; slaughter houses are required to slaughter four goats for every sheep. The Turkish Forest Service has authority to prohibit goat grazing inside forests but has been unable to enforce the law because of owner resistance. Attempts were once made to reduce the goat population of the island of Cyprus but without much success. The reason for these failures is not hard to find. The goat is looked upon as a "poor man's cow"; it can increase in numbers fairly quickly; it provides meat and skins; it can exist under very difficult range conditions. The livestock owner is aware of these good qualities but fails to recognize the capabilities of the animal for destructive grazing. Thus he makes little or no attempt to control its grazing behavior. Many consider the goat, often called the "curse of Asia", to be an expression of poor land use and not its cause.

The advisor may wrongly conclude that the problem is simply too big for one man to handle. But there is much he can do. He

can study the over-all problem and attempt to break it down into manageable proportions. He will work with a national of the country of assignment and thus help to train a sorely-needed technician. Together they can attempt to analyze the problems and endeavor to formulate workable solutions. He can instill feelings of hope and encouragement. He will likely be a member of a team since the team approach seems to have been adopted by most international agencies. It is obvious that the solution to the fodder and livestock problems of the developing countries will not come from a single discipline but rather from a combination of many. Cropland must be used to a far greater extent for fodder production, for example. If the fodder could somehow be harvested by the grazing animal, the return of fertility and improved tith would improve yields of succeeding crops in the rotation. Improvements in marketing techniques, in storage facilities, and in refrigeration could have major effects on the rangelands.

The advisor may be able to influence the government to draw up a clear statement of policy and thus provide local technical officers with a framework within which to work. While many governments have issued policy statements, there may be a need for a statement of policy to underline the importance of the rangelands to the economy of the country, and to provide a mandate for the land utilization agencies with necessary legislative and administrative backing for the furtherance of a range improvement program on these lands. The advisor may be able to aid in the creation of an organization within the government to assume responsibility for range improvement. Working conditions and other amenities within the organization should be such that the development of a cadre of professionals would

be encouraged. In the final analysis, it is members of this cadre who must assess the work and recommendations of foreign experts, who must utilize and adapt their own training, knowledge, and experience for and to the ecological and sociological conditions that prevail, and who must formulate management systems that are acceptable to the graziers of the country.

This brings me to my final point: my belief that the most important function of the foreign advisor is to speak for the technicians of the country of his assignment, to add the weight and prestige of his position and office to the recommendations that local technical officers are confident will succeed. There are few developing countries where some technicians have not received training in the United

States, Australia, Europe, or elsewhere. A few remain in range management, usually. These technicians are aware of the principles of range and pasture management. Further, they have a knowledge of the country and of its people that the advisor can never attain. The ability to pick the right men to listen to and speak for will be the hallmark of a successful assignment.