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OREGON STATE COLLEGE

Warm Springs Research Project

Final Report

VOLUME III: THE AGRICULTURAL ECONOMY

Part 1. Report and Recommendations

December 1960

OREGON STATE COLLEGE

WARM SPRINGS RESEARCH PROJECT

VOLUME III: THE AGRICULTURAL ECONOMY

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Part 1: Report and Recommendations

This volume is a part of the final report of a study made by Oregon State College for the Confederated Tribes of the Warm Springs Reservation of Oregon. The remainder of the report is contained in the following: Volume I: Introduction and Survey of Human Resources; Volume II: Education; Volume III: The Agricultural Economy, Part 2: Tables; Volume IV: Water Resources, Part 1: Report and Recommendations, Part 2: Appendices and Bibliography; Volume V: Physical Resources.

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CHAPTER I

Section 1: Purpose of the Report.

This report evaluates the agricultural resources of the Warm Springs Reservation. It has four purposes: (1) determination of the current contribution of agriculture to the economy of the Reservation; (2) evaluation of its potential contribution; (3) description of the relationship of the agricultural resource to the Reservation's economic and political structure; and (4) derivation of solutions for enterprise and organizational problems which will allow the resource to be developed.

First, the existing agricultural resources are described and analyzed from an economic point of view. Next, the contribution of agriculture to the economy of the Reservation under current management conditions is evaluated. Finally, the potential contributions of agriculture under different management conditions are appraised.

Because problems on the Reservation, as elsewhere, are not isolated but interrelated, solutions to the separate problems of land, livestock, crops, range and feed, credit, and organization must be combined into an over-all program. However, this does not imply that all these problems must be solved simultaneously; it does mean that any program of development must take account of the interrelationships among problems.

Thus the basic goal of this report is to develop a general organizational structure sufficiently broad to permit the treatment of the several interrelated problems, yet one sufficiently flexible to permit adjustment to future conditions. Agriculture is, of course, influenced by many non-agricultural factors. Therefore, any agricultural program must be integrated with the remainder of the economy on the Reservation.

Section 2: Methodology.

The following sources of information were used in this study.

1. Survey Questionnaire. A survey questionnaire was sent to those persons who were considered to be farming or ranching "more or less regularly"; i.e., those families who either sold cattle or cultivated land. Altogether, it went to 109 families living in 96 households. The questionnaire was pre-tested on ten family heads in ten households who were selected on the basis of extremes in language ability, age, and size of operation. The pre-test served primarily to correct ambiguous questions. The revised questionnaire then went to the remaining 99 families in 86 households. Return visits were made to the ten pre-test households to obtain answers for questions which were added or changed after the pre-test.

The survey was in two parts, a self-administered section and an inventory section. The self-administered section was delivered to the household member who was recognized locally on the Reservation as being the head of a family. The family head was asked to fill this out, place it in an envelope and seal it. An interviewer picked it up for delivery to Oregon State College. When an interviewer delivered a questionnaire to a household, he or she sat down with the family head to fill out the inventory section. Where there was more than one family living in the household, a self-administered portion was left with each family head in the household. The inventory portion was filled out with all family heads in the household sitting together. Therefore, there was only one inventory from each household, but there could be one or more self-administered interviews from each. That is, all of the farming or ranching operations of a given household were considered to be one farming or ranching operation.

The survey questionnaire was handled in this manner because:

- (1) it was assumed the people would be much more willing to give their true feelings on the self-administered portion if they had assurance that their answers would be confidential.
- (2) the consensus of opinion of local leaders was that the operations were run as a single unit where more than one family lived in a single house.
- (3) duplication and problems as to who owned what in the household would be avoided if all of the operations in a household were considered as one farming or ranching unit.

The type of information sought in the inventory was a physical description of individual agricultural operations. Information on the amount and type of machinery, the number and category of cattle, the amounts and types of crops grown, crop yields, the amounts and kinds of land, how cattle and crops were marketed, and farming expenses were obtained.

The self-administered portion of the questionnaire sought the respondents' attitudes toward several specific problems and what they thought could and should be done about them. Farmers' attitudes toward change and what they themselves saw for the future of farming on the Reservation received considerable attention. This was done to estimate the extent to which people recognized the current situation and also to estimate the kinds of problems which the implementation of any development program might encounter.

In general, the survey accomplished its objectives successfully. Almost all of the self-administered questionnaires were completed in full or in part. Ten of the self-administered and 15 of the inventory portions were returned unanswered or were not returned at all. It is possible that had these missing questionnaires and inventories been obtained,

the findings would be different from those reported. Therefore, this qualification must be kept in mind in the analysis of the data. Upon completion of the survey, the data were processed and analyzed using standard IBM techniques.

2. Survey of Existing Records. Tribal and Bureau records were used to obtain data on cattle and horse sales, type of land ownership or land tenure, amount of land by type of ownership, irrigation, crops and yields, credit, general land use, and organizational structure.

In many cases the data were incomplete and often were inconsistent. Therefore, they were used to piece together or fill in gaps in the physical description obtained from the survey inventory as well as in their own right. In some cases much of the physical description in the report is drawn from official records. In others, more reliance is placed on the inventories. In addition, the official records regardless of their completeness are used to help define structural difficulties in organization and operations. Quite simply, the inadequacy of existing records itself points up needed changes.

3. Personal Discussions with Tribal and Bureau People. Many lengthy and repeated discussions with Tribal and Bureau personnel were extremely useful in evaluating past and current programs and practices. These discussions also provided a general background of the Reservation community itself and of the problems which occur in the day-to-day operations of Reservation business.

Section 3: Outline of the Report.

This report considers each of the following: (1) land and land use (including crops and practices, water and practices, and land ownership), (2) livestock and feed (including range), (3) capital and credit, and (4) labor, management, and technical assistance. Where relevant, data and conclusions from the other agricultural surveys are incorporated.

A detailed physical description of these agricultural resources is presented in Chapter II, in which the significant features of the physical description are integrated to clarify the interrelationships among the various components of the entire resource. The implications of these interrelationships are analyzed and discussed. Finally, in Chapters III, IV, and V alternative solutions are presented and discussed from the following standpoints: the problems they are to solve, an estimate of what will be involved, and what can be accomplished or expected.

Because of their large number, all tables have been placed in an appendix which is contained in Part 2 of this volume, bound separately. The tables are arranged in the order in which they are discussed in the text of the report.

CHAPTER II

A DESCRIPTION OF THE EXISTING SITUATION

Section 1: Land.

Scope of the Land Question. Knowledge of the availability, ownership, and use of land is fundamental to an understanding of current problems and future potentials. Discussion of land includes: (1) description of the extent, acreage and types of land, (2) patterns of ownership, (3) land use and crop practices, and (4) interrelationships between ownership and use. The "use classification" includes both a broad definition of land types (e.g., "farming", "grazing", and "timber"), and a functional classification (actual uses made of the land). Where relevant and possible, data are discussed by geographic areas.

Part A Types or Classes of Land on the Reservation

Total Tillable or Arable Land. The Bureau of Indian Affairs' soil survey mapped 55,304.1 acres of land. The acreages of land mapped are summarized in Table 1 by geographic area. The geographic areas correspond roughly to areas common in Reservation terminology.

Tillable or arable land is generally considered to include Classes I through IV. Mapped tillable or arable land and potentially irrigable land by areas is shown in Table 2. Tillable or arable land totals 19,042.1 acres. The maximum usable tillable acreage on the Reservation cannot, therefore, be expected to exceed this figure. 1/

However, certain sub-classes in Class IV are not especially suited for the cultivation of other than tame hay or legumes. Although only Classes I through III are considered suitable for irrigation, some Class IV can be irrigated under proper management. Table 3 gives the characteristics of each class of land.

The Bureau of Indian Affairs, Land Operations Division, in their 1959-60 report indicate 22,553 acres as tillable.2/ For this to be the case, Class VI land would have to be included since Classes I through IV total 19,042.1; there is no Class V on the Reservation, and Class VI then totals 3,427.2 acres. The total with Class VI added (22,469.3) approximates very closely the figure reported (22,553).

1/ In subsequent analysis of the soil survey it was decided that no Class I lands exist on the Reservation. What appears as Class I lands in Table 1 is then actually included with Class II lands in the Soils Report, Volume V.

2/ See Table 4. This figure is irrigable land plus dry farming land. Also in Table 20 it is the summation of the crop acreages.

Total Irrigable Land. There is a total of 15,274.9 acres of potentially irrigable land. In any one of the first three classes, land is "potentially irrigable", but whether or not it actually can be irrigated depends on the feasibility of delivering water to it. Some Class IV land may, of course, be sprinkler irrigated. There are also some Class III lands which cannot be irrigated because of soil problems. However, it is reasonable to assume that the total potentially irrigable land does not exceed the above figure of 15,274.9 acres.

Land Farmed Currently. Existing data do not indicate with any precision the actual number of acres currently farmed. There are, however, varying estimates of the amount of land currently farmed on the Reservation. The Bureau of Indian Affairs indicates there are 22,553 acres of land being farmed at the present time.^{1/} On the other hand, the data summarized in Table 5 show the combined Wasco and Jefferson County Agricultural Stabilization Committee's figure of land farmed currently to be 12,538 acres. It can be assumed this is the combined Counties' estimate of land currently farmed, since County office personnel indicate that in 1959 "all land available for crops had been planted."

It appears, therefore, that the acreage currently tilled is somewhere between 12,538 acres and 19,042.1 acres. For further discussion it is useful to consider dryland and irrigated farming separately.

Dryland. There are again varying estimates of "dryland" (i.e., land to which water cannot now be delivered). Bureau of Indian Affairs' records indicate 21,268 acres of dryland now being farmed.^{2/} Subtracting 1,286 acres of irrigable land from the 12,538 acres of cropland shown by the County office to be in farms leaves 11,252 acres of dryland being farmed. Since all that has been taken out of both gross figures is the 1,286 acres of irrigable land, the discrepancy between the two remains the same. On the basis of these two estimates, dry cropland currently farmed would appear to range from 11,252 to 21,268 acres.

Going back to the soil survey data, if the 1,286 acres currently irrigable are subtracted from the 19,042.1 acres of tillable land, the remaining 17,756.1 acres constitute an upper limit of the dry cropland potentially available.

Irrigated Land. Currently assessed as irrigable are 1,286 acres of land; i.e., land to which water supposedly can be delivered. (For a history of irrigation on the Reservation, see Volume IV, Water Resources, Part 1, Chapter XI.) The total assessed irrigable land has changed little in the past ten years, declining from 1,300 acres in 1950 to 1,286 acres at the present time (see Table 8). Assessed irrigable land and land actually irrigated is shown in Tables 9 and 10 by geographic areas for the years 1958 and 1959.

^{1/} See Table 4. This figure is irrigable land plus dry farming land. Also in Table 20 it is the summation of the crop acreages.

^{2/} See Table 4, item "Dry farming land." Also, the summation of dryland acreages in Table 20 yields the same result.

During the last ten years the land actually irrigated has fluctuated widely; a low in 1956 of 233 acres, a high of 746 acres in 1950. In 1959 there were 437 acres irrigated. Reportedly, the drop between 1958 and 1959 was due largely to major ditch damage in the Warm Springs area. The reasons for the decrease in the Mill Creek unit are unknown.

There is a substantial amount of land in irrigation units which has been dry farmed. Table 8 indicates this has varied from 554 acres in 1950 to 1,053 acres in 1956; 849 acres were dry farmed in 1959.

The term "number of units" in Tables 9 and 10 refers to separate tracts of assessed, irrigable land. A given operator may irrigate more than one tract. According to these data there are a total of 47 separate units of irrigable land on the Reservation.

Grazing Land. There are two basic types of grazing land, timbered and non-timbered. The "open" or non-timbered grazing type appears, from Table 4, to be 187,778 acres. This figure is arrived at by subtracting from the total Reservation land area all other acreages.

Table 4 shows 337,790 acres of forest and timber grazing land. However, not all of the 337,790 acres can be considered available for grazing because not all forest land is accessible.

Known to be inaccessible are the 13,420 acres comprised by the steep canyon areas of the Metolius, Whitewater and Shitike. The maximum timbered range, then, would equal 324,370 acres.

Using this figure, the total land available for grazing equals 512,148 acres, timbered and non-timbered, assuming, of course, that all of the high Cascades are accessible.

On the other hand, the BIA Range Reports indicate a grand total of 497,071 acres of land available for grazing. Subtracting 187,778 acres of non-timbered grazing land, there are 309,293 acres of timbered land available for grazing. The inference is that the high Cascades comprise some 15,077 acres (i.e., 512,148 minus 497,071).

Other Land Types. Primary among the other land types is the forest acreage. While it can be considered as largely available for grazing, this is not its primary function currently. Table 11 indicates the forest acreage by type of forest cover. There are 337,790 acres of forested land on the Reservation (see Forestry Report in Volume V for a more extensive discussion).

Other land type classifications by acreage are as follows: one hundred twenty four acres of land is classed as "Administrative" (the agency and school area); "alienated land" totals 6,629 acres in roads and trails, mission facilities, and business leases; "barren and waste" comprises 9,041 acres.

Part B Reservation Land Ownership

Tribal Lands. Article 8, Section 2, of the Constitution and Bylaws of the Confederated Tribes defines Tribal land as:

"....the unallotted lands of the Warm Springs Reservation, and all lands which may hereafter be acquired by the Confederated Tribes of the Warm Springs Reservation....."

Therefore, Tribal lands include the original Reservation lands still held by the Tribes, as well as Tribal purchases of land from individuals. The Tribes control 460,022.32 acres of land of which 419,408.98 acres are original Reservation lands which were unallotted to individuals.

There have been 11,627.68 acres of land granted on assignment to individuals for farming and ranching, homesites, and other purposes. Land on standard assignment is granted for the life of the individual assignee but the Tribes retain basic ownership. Under Sections 5 and 9 of Article 8 of the Constitution and Bylaws, improvements of any character made on assigned lands may be bequeathed to and inherited by members of the Confederated Tribes. Upon the death of an Indian holding a standard assignment, he may designate, by will or written request, certain heirs or other individuals who shall have a preference in the reassignment of the land in question. However, the decision rests with the Tribal Council.

Tables 13 through 15 showing the survey results on allotments and heirship holdings, indicate a total of only 19,962 acres of heirship land. (Also see Table 18.)

However, there are many persons who apparently have little or no knowledge of their heirship holdings. Also many non-farmers not included in the survey have heirship holdings.

Data from "allotment listing sheets" indicate 4,554.42 acres of land still held by living, original allottees, and 94,767.63 acres of land held in trust and classed as heirship lands. There are 847.66 acres of land for which no data are available except to indicate that it was allotted. Table 16 indicates 100,169.71 acres of land individually owned or held either by the original allottees or in allotment trust as heirship lands. The total land originally allotted was 144,296.75 acres under 1,002 separate allotments.

In Table 17 different types of ownership are shown by category of use. Of the 103,807.41 acres of individually owned lands, 86,472.48 acres are utilized for various purposes by original allottees and Indian heirs. In many cases there are either informal arrangements with other Indians or no arrangements at all for using this land (see Table 19). Under formal leasing arrangements, there are 10,104.93 acres of land leased for farming and homesites. Other formal arrangements for rights-of-way for roads and trails, and business leases for rights-of-way and other rental purposes, comprise 3,592.30 acres. The remaining 3,637.7 acres of the individually owned lands are fee patented.

The remainder of the 460,022.32 acres of Tribal land is composed of Tribal purchases, the agency and school, and relinquished allotments. The Tribes have purchased 31,177.13 acres of allotted lands, and 120 acres of fee-status land from individuals. The May 31, 1960 Realty Office Report indicates \$280,499 had been spent for land purchases as of that date. Tribal purchases of non-fee-status allotted lands are held in Tribal trust. Since the early 1950's, it has not been possible to remove purchased fee-status land from the county tax rolls. There are 124 acres used for the agency and school, and 9,192.21 acres of relinquished allotments.

The Tribal ownership data will not be complete until the Realty Branch has concluded its work of up-dating existing ownership records.

Allotment and Heirship Lands. Allotted lands are lands which have been individually subdivided, described, and granted a trust patent giving trust title in the land to the allottee of his heirs. These lands are commonly referred to as Reservation lands allotted in "severalty". Trust allotments are subject to the laws and regulations set forth by Congress and carried out by the Secretary of the Interior through the Bureau of Indian Affairs. Trust allotments may not be sold, encumbered, leased or otherwise disposed of without the consent of the Secretary of the Interior or his delegated authority. The definition of heirship lands follows directly. Heirship lands are fee patented or allotted lands which have been inherited or which will be inherited upon the death of the present owner.

The latest data available (May 31, 1960, Realty Report) indicate 1,002 individual ownerships have been purchased by the Tribes, with 3,985 ownerships remaining. These figures represent only the number of heirs. Thus, one person is counted as many times as there are parcels of land in which he has an heirship interest.

It has not been possible to consider the degree of non-Tribal ownership in heirship lands.

Fee Patent Lands. Black's Law Dictionary, Third Edition, page 761, defines a fee simple patent as: "A patent which conveys an absolute or fee simple estate. Such an estate, in American law, is one in which the owner is entitled to the entire property, with unconditional power of disposition during his life, and descending to his heirs and legal representatives upon his death intestate." There is another form of fee patent, the restricted fee patent. This is an instrument under which a restricted fee allotment is held. This instrument passes only the fee simple title to the allottee, but recites the restrictions against alienation, encumbrance, or taxation. To our knowledge, there are no restricted fee patents on the Reservation.

At the present time, there are 3,637.70 acres of land in individual fee simple status. This total breaks down into Indian-owned fee patents, 1,011.33 acres, and non-Indian-owned fee patents, 2,626.37 acres. The Tribes also own 120 acres of fee-status land. (This breakdown was calculated in rough fashion from a map developed by the Realty Office showing the placement and disposition of all of the allotments granted on the Warm Springs Reservation. Qualifications pointed out in footnotes to Tables 12, 16, and 17 should be noted.)

Other Forms of Land Ownership. There are 40 acres of land owned by the Government, 46 acres owned by the Presbyterian Mission, 949 acres have been granted for business lease rights-of-way, and 5,634 acres for road and trail rights-of-way.

Land Leases and Sales. The acreage of land sold by individuals cannot be considered significant on the Reservation. For example, for the twenty-year period 1941-1960, the \$280,499 spent to purchase land from individuals would mean that individuals were receiving only about \$14,000 per year.

The latest records available indicate that there are 84 leases on the Reservation, either in process or in force, totaling 10,104.93 acres of land. The amount of land leased ranges from a homesite lot of about .2 acre, to 884 acres, an average of 120.3 acres per lease. Lease fees are usually for a nominal amount of money, or for a share of the income, and/or minor improvement on the land.

In connection with payment of lease fees, reportedly there are some irregular practices prevailing. An example: When a lease specifies a division of gross income, individuals may harvest a crop from leased land, haul the grain to an elevator, pay the harvesting and hauling expenses, and then divide the net income between the lessor and the lessee. In such instances, there is a definite question of the land owner's rights to the income which his land generates.

Part C Reservation Land Uses

Land Use in Production. Where land functions as a factor of production or production input, it produces indirect income. A production input is any agent used in a production process. Examples are labor, land, fertilizer, feed, or machinery. In considering indirect income land uses, dryland farming, irrigated farming, and range use are discussed separately.

On dryland, the principal crops planted are wheat, barley, oats, some rye, and various types of grain or grass hay with some alfalfa-grass mix. Land Operations' "estimates" of the acreage committed to the various dryland crops appear in Table 20. In Tables 21 and 22 are the dryland crop data obtained from the survey inventory. It is doubtful the crop acreages attain levels indicated in Table 20. For example, wheat acreage harvested for grain is indicated at 4,925 acres. However, allotments on the Reservation (Tables 5, 6, and 7) total only 3,296 acres.

Table 23 summarizes crop marketing patterns prevailing on the Reservation obtained from the survey inventory. The grain grown, with the possible exception of oats, moves to a local elevator for sale. In some cases, such as oats and hay, the disposition of the crop was not indicated. It is believed, however, that oats which are not marketed are fed to horses on the Reservation with the hay being fed largely to cattle. No attempt was made to assign a value to locally produced hay since a very small amount is sold.

In virtually all cases, grains are seeded annually on a given piece of land in the spring of the year. Although Table 20 indicates 2,350 acres of dryland devoted to soil improvement and fallow practices, the location of this land is unknown. Discussion with county office personnel and the resident extension agent indicated that there are virtually no practices being followed on the Reservation which enhance the productivity of the soil. Accompanying Tables on fertilizer questions from the questionnaire indicate that there is some fertilizer used (see Tables 39-48). Most respondents indicated little or no use. There is no indication that liming of the soil is done.

There has been sporadic production of various irrigated crops, but primary emphasis has been on alfalfa, timothy, wheat, and oats. Tables 24, 25, and 26 show the acreage of crops, average crop yields per acre, and the total crop production on lands irrigated for the years 1950 through 1959.

It is of interest to compare Tables 24, 25 and 26 with Table 20 because of the divergent data. Table 20 indicates that the crops grown on irrigated land during 1959-1960 totaled 1,285 acres. The acreage of crops actually irrigated has not been separated from those which were dry farmed within the irrigation units. The yield figures attributed to each crop imply the acreage attributable to that commodity was all irrigated. To suppose, for example, that the same yield of wheat was obtained on both the irrigated and non-irrigated lands within the irrigation units implies that water does not influence yields. The data in Tables 24, 25, and 26 probably represent a more accurate picture of Reservation irrigation results.

Crops grown on irrigated land are marketed in much the same way as are those grown on dry land. Wheat, barley, and some of the oats are sold to the local elevator and virtually all of the hay is fed to livestock on the Reservation.

The low crop yields recorded in Table 25 likely result from an insufficient application of water during the season, due in part to the condition of the existing system, a lack of adequate fertilization and other soil treatment measures, and an insufficient knowledge of irrigation practices.

Range Lands. According to the Range Report (Volume V) and from interviews with local operators, a number of generalizations can be made about the use of range lands. These are as follows. The lower or eastern portions of the Reservation are noticeably overgrazed. Although some operators have tried to start their own seasonal range-use programs, lack of cooperation by others has resulted in a virtual abandonment of any seasonal grazing operations. Generally, land which is not fenced for crops is considered to be open grazing land. There has been a relatively small amount of development of the large number of springs on the range. No concerted attempts are made to push or to hold cattle on summer ranges. If the few cattle pushed to summer range choose to, they can remain there or they can wander back down to what should be spring, fall and winter ranges. Basically, all land which is not fenced for cropping, homesites, or business activities is considered locally to be available for grazing. According to data in Table 19, 79.9 percent of heirship land (75,921 acres) is used for grazing purposes by individual Indians under informal arrangements with heirs. Reportedly these

arrangements range from simple verbal agreements to no agreements at all (i.e., trespassing). The use of land without permission is outright violation of the owner's rights to his property and should be prohibited.

Forest Lands. The forest now provides the major source of Tribal revenue and is the mainstay of the Reservation economy. Most of it is distributed in per capita payments to Tribal members. Aside from providing revenue for Tribal operations and incomes to individual Tribal members, the forest also provides grazing lands for Reservation livestock. According to the Range Report, this source of grazing is underused at the present time. Of the two functional uses of the forest land (timber and grazing) the only one which is avidly pursued is the cutting of timber.

Part D Tenure, Ownership and Crop Production

Introduction. From the standpoint of planning, the data on land availability, ownership and use are quite significant. The ability to improve production and income in planning has relevance at both the farm enterprise and Tribal levels. This is related not only to technical problems of crop practices but also to the way land is held and used. Just as many variables in a production process are not independent of each other, the ability to manipulate variables at the farm enterprise level is not necessarily independent of variables at the Tribal level. For example, the ability of an operator to expand the size of his farm depends upon the Tribes' ability to control land in a way which permits purchase and sale between individual owners and operators.

There are many factors which affect crop yields and which in turn influence per acre costs, per acre returns, and total agricultural income. To understand how yields are influenced by such factors as management, fertilizer, and crop practices, it is necessary to investigate yield differentials between agriculture on the Reservation and agriculture in similar areas adjacent to the Reservation. By comparing yield differentials the effect upon income can be estimated. Assuming that yields in adjacent areas can be achieved on the Reservation, the changes in farm practices which will have to take place if they are to be attained can be indicated.

Assuming yield differentials can be eliminated, other factors which influence farm income must be accounted for as well as the extent to which they themselves can be altered. Investigation along these lines will outline problem areas to be met in programs of development.

Crop Yields. A comparison of current Reservation crop yields and adjacent area yields for major Reservation crops is shown in Table 27. There is a distinct gap between yields currently being obtained on the Reservation and yields being obtained in areas adjacent to the Reservation which have similar soils and climate.

On dryland, the largest differential appears in barley production. Adjacent area yields are 430 percent of those being obtained on the Reservation. The smallest differential is in dryland alfalfa hay production where adjacent area yields are 133 percent of those on the Reservation.

For irrigated crops the largest yield differential is for wheat, where North Unit yields are 283 percent of those on the Reservation. The smallest differential is in the production of oats where North Unit yields are 175 percent of those on the Reservation. Currently, potatoes are not a cash crop on the Reservation, but they are included in the Table for later reference in discussion of irrigation potentials.

A further indication of relative Reservation productivity is the 1959 productivity index and average normal yield for wheat by community production areas for Wasco County (see Table 29). Areas just east of Warm Springs such as Antelope, experience average normal yields over 175 percent of those at Warm Springs; areas just north of Warm Springs such as Juniper Flat, experience average normal yields over 220 percent of those at Warm Springs.

Table 30 compares gross value per acre for selected commodities under current yields and under possible yields. Since both yield figures for a given commodity are multiplied by the same price, the percentage differential remains unchanged. However, the data do indicate a significant difference in gross dollar returns per acre between the Reservation and adjacent areas with similar soils and climate. While potatoes are a very high risk crop, they are also given one of the highest returns per acre of commodities suited to irrigation. Where irrigable soils are suitable for potato production, potatoes should be considered as a realistic alternative on the Reservation to current hay and grains. However, they do demand a high level of technical ability, special equipment and are grown in rotation. This point will be discussed later.

The major impact of yield and income differentials appears in net returns per acre. Comparisons of costs and returns per acre for three irrigated commodities, wheat, barley, and alfalfa, are shown in Tables 31 and 32. Several things should be pointed out about these cost relationships.

The cost figures for the North Unit are average custom rates prevailing in the North Unit. Cost figures for the Reservation were taken from the 1955 Land Operations Irrigation Economic and Feasibility Report. These costs were reportedly derived from a combination of custom rates prevailing in the area adjacent to the Reservation and Tribally subsidized rates for work done by Land Operations. Given the amount of farming equipment on the Reservation, there is a serious question as to whether a \$4.00 per acre seedbed preparation or harvesting cost for wheat and barley are relevant for Reservation farming operations. Farm management personnel at Oregon State College suggest that the North Unit costs would more nearly approach Reservation costs, since the amount of machinery available on the Reservation suggests farmers largely do their own field work. This means they are facing costs at least as high as an unsubsidized custom operation. The impact of the lower cost figures is to increase the net return per acre from a crop. On the basis of Land Operations' cost figures, there is a difference between North Unit and Reservation net returns per acre of \$37.83 for wheat, \$17.93 for barley, and \$21.22 for alfalfa.

If North Unit costs are utilized for seedbed preparation and harvesting, per acre costs for wheat and barley on the Reservation would increase by \$9.00. The net cash return per acre would fall to \$7.06 for wheat and \$.77 for barley. This would increase per acre differentials for wheat and barley to \$46.83 and \$26.93, respectively.

Where the same physical field operations such as seedbed preparation, harvesting, hauling grain to market or hay from field to stack, are performed by operators on both the Reservation and the North Unit, these differentials mean Reservation farmers are receiving a great deal less for their labor. It follows then, that family income on irrigated farms is a good deal lower than for farms in adjacent areas. There is a rather large difference between current income per acre and possible income per acre.

Specific per acre cost data for dryland crops shown in Table 27 and 30 are not available either for the Reservation or for areas immediately adjacent to the Reservation. There is work in progress at Oregon State College on per acre costs and returns for summer-fallow wheat farming in the Columbia Basin. However, the minimum size operation being considered in this study is for 400 acres of cropland per farm. Farm management personnel suggest that per acre costs for dryland operations will take about two-thirds of the gross income per acre.^{1/} For Reservation dryland wheat and barley, this would mean per acre net returns of \$7.31 and \$2.94, respectively. For adjacent areas net cash returns for wheat and barley would be \$16.44 and \$13.34, respectively. This indicates a net income differential of \$9.13 per acre for wheat and \$10.40 per acre for barley.

Utilizing the yields and income estimates, it is possible to indicate the income differential, or gap, for the Reservation as a whole. That is, an estimate can be made of income currently being generated from crop production on the Reservation, and it can be compared to an estimate of what could be generated assuming the presence of management practices comparable to those found in the North Unit and adjacent dryland areas.

Based on soil survey mapping, there is a maximum of 17,756 acres of dry farmland which could be tilled, assuming there were to be no further irrigation development. In 1959 the Reservation had 3,296 acres of wheat allotment. There were 56 allotments below 15 acres. If it is assumed that

^{1/} Suggested by Mr. Frank Conklin, Oregon State College. Using a "rule of thumb" estimate of two-thirds of gross income for expenses may be underestimating net income for the Reservation. This "rule of thumb" is more applicable to many operations adjacent to the Reservation. As such, it presupposes expenses (hired labor, fertilizer, machine and building repairs, other inputs and taxes) similar to those in the adjacent area. Even if it is assumed that only 50 percent of gross income goes for expenses the conclusions drawn in the report would not be changed. In any case, net incomes comparable to what are being obtained off the Reservation are not possible with the existing magnitudes of gross income. This has been discussed in the examples above. Quite simply, net incomes comparable to areas adjacent to the Reservation are not possible because of the major gap between productivity on the Reservation and that in adjacent areas.

all farmers with allotments below 15 acres planted 15 acres of wheat, the acreage of wheat would be increased to 3,789 acres. This is the maximum legal limit for existing allotments. Assuming this acreage to be planted each year, there would be 13,967 acres of dryland available for other purposes. Under current yields and prices, 3,789 acres of dryland wheat would yield a gross return of \$83,093. The remaining 13,967 acres could be devoted to barley, oats, or alfalfa hay. At current prices and yields, barley would return \$123,398 and oats \$186,599. This many acres of alfalfa hay at .75 ton per acre would yield 10,475 tons. Unless this hay is actually sold it is not meaningful to include it as a direct income. Where ranchers feed hay to their own livestock, the livestock sold are counted in income and hay is merely a production input and, therefore, a cost for production of livestock. This amount of hay would provide feed for about 6,983 animal units for a four-month period.^{1/} (See Table 33, Alternative I.)

The attainment of possible yields where only grain is grown implies that for each acre of grain there will have to be an acre of summer-fallowed land. That is, 3,789 acres of wheat would need 3,789 acres of summer-fallow. The remaining 10,178 acres could then be devoted to 5,089 acres of barley, the same acreage of oats, or any combination of the two. There would then be 5,089 acres for summer-fallow. However, under possible yields, each acre of oats substituted for an acre of barley means one is substituting \$33.60 for \$38.00. That is, a farmer gives up \$4.40 per acre for each acre of oats he grows; this explains in part why only 3,901 acres of oats were grown in the entire Columbia Basin in 1959.^{2/}

Under possible yields, 3,789 acres of wheat would return \$186,798. Barley on 5,089 acres would return \$193,382, while oats would return only \$170,990. There would be no hay produced since grain and summer-fallow would utilize all dryland. Any hay fed to livestock would have to come from irrigated areas on the Reservation or be purchased from off the Reservation. (See Table 33, Alternative II.)

There is another alternative for attaining possible yields which has direct effect on income from wheat. Attaining possible yields under a five-year rotation of three-years hay and two-years grain or four-years hay and one-year of grain means that farmers could lose most or all of their wheat allotments. Assuming that wheat allotments would decline and

^{1/} This feeding period differs from the two-month feeding period indicated in the Range Report. Subsequent discussion with Dr. C. E. Poulton, Oregon State College, indicates a two-month feeding period should be considered minimum. The condition of spring-fall grazing and the type of range cover would make a four-month feeding period preferable if hay is available.

^{2/} Oat acreage for 1959 was compiled from county summary sheets, United States Census of Agriculture, 1959.

the 123 allotments would all fall below 15 acres, there would then be 1,845 acres of wheat if each allotment grows 15 acres.

Since grain in rotation requires summer-fallow, the remaining acreage not planted to hay each year could be planted to oats and/or barley. On the average, for a three-year hay -- two-year grain rotation, 1,706 acres would be available for barley or oats or some combination of the two, 1/ and 1,706 acres available for barley and oats summer-fallow. There would be 10,654 acres available for alfalfa; at one ton per acre this would yield 10,654 tons of hay to feed 7,103 animal units for four months. Wheat would return \$90,959, barley \$64,828 and oats (if grown in place of barley) only \$57,321. (See Table 33, Alternative III.)

Each of these three alternatives (Table 33) has a counterpart wherein part of the wheat is grown on irrigated land (Tables 35 and 36). Assuming the 1950-1959 acreage of irrigated wheat, there would be 116 acres of wheat grown on irrigated land. Each figure would be changed as shown in Table 33. In each case it is assumed the indicated acreage of wheat would be grown. The other acreages are alternative uses. For example, in Alternative I, gross income would be from wheat plus barley or oats or alfalfa or some combination of barley, oats, and alfalfa. Total acreage must equal 17,756 acres.

There are 1,286 acres of land currently available for irrigation. This discussion assumes the entire acreage will be irrigated. The 1,286 acres, under Alternative I - III, 2/ could be devoted entirely to barley, oats, alfalfa, or any combination of the three. With 1,286 acres at current yields planted to barley, gross income would be \$32,986, planted to oats \$41,152, or planted to alfalfa would yield 2,958 tons. If this hay was sold by the operators, it would yield \$73,950. Any substitution of commodities in production would, obviously, change the gross return from irrigated agriculture. The change in gross income would be the difference between the per acre values of the crops times the number of acres involved. At possible yield levels the 1,286 acres could return \$85,519 from barley, or \$72,016 oats, or \$135,025 from alfalfa if it were sold as hay to livestock growers. Alfalfa on 1,286 acres at possible yields would produce 5,401 tons of hay. This would provide four-months feed for 3,601 animal units.

The existing irrigated acreage could also be utilized under a basic North Unit rotation. This rotation is derived from crop production proportions devoted to legumes for hay (47 percent), potatoes (18 percent), grain (33 percent), and other crops (2 percent). Hence, the rotation assumed is alfalfa 50 percent or 643 acres, potatoes 17 percent or 214 acres, and grain 33 percent or 429 acres. This rotation assumes that possible yields will be attained. It should be noted that this rotation would yield, on the average, only 2,701 tons of alfalfa, enough for only 1,801 animal units for a four-month feeding period. This means it would have to

1/ Under a four year hay -- one year grain rotation, 3,551 acres would be available each year for grain and 14,205 acres would produce hay. At one ton per acre this provides a four-month feeding period for 9,470 animal units.

2/ Assumes no irrigated wheat.

be used in conjunction with a dryland alternative which produced hay, or the winter feed problem would continue to exist. This rotation assumes no wheat would be produced on irrigated land. This does not mean wheat could not be substituted for oats or barley. Assuming the 1950-1959 average acreage of irrigated wheat would be produced, there would be 116 acres of irrigated wheat. This means acreage available for other grains would decline. Each acre of irrigated wheat would add \$95.20 gross income, replacing an acre of barley worth \$66.50 or an acre of oats worth \$56.00.

The significant irrigation possibility is shown in Table 36. This projection assumes the development of irrigable land to 8,443 acres. This includes the existing 1,286 acres, so there is an increase of 7,157 acres in irrigable land. Given the development costs associated with this development, ^{1/} it is not feasible to assume that production can take place at current levels. It will be necessary to produce high value crops such as potatoes, mint or seed crops. For illustrative purposes, potatoes have been selected for inclusion in an assumed rotation. This rotation is the same as the one just discussed of alfalfa 50 percent or 4,222 acres, potatoes 17 percent or 1,407 acres and grain 33 percent or 2,814 acres. Wheat has not been included, but it is assumed it would be limited to 15 acres per farm. The total acreage would therefore be determined by the number of irrigated farms. Since the entire irrigation base is changed under this alternative, it is untenable to assume the 1950-1959 average annual acreage of irrigated wheat would prevail.

At current prices, 2,814 acres of barley would yield a gross return of \$187,131; the same acreage of oats would return only \$157,584. Oats are a relatively low value crop compared to alternatives and explains why only one-half to one percent of the land in the North Unit produces oats. The 4,222 acres of alfalfa could produce 17,732 tons of hay. If sold commercially, at current average prices, it would return \$443,300. This is a commercial hay operation when production reaches this level. The production of this much hay alludes to a future possibility of developing a commercial cattle feeding operation to use the hay along with feed grains and cull potatoes produced on the Reservation. The 1,407 acres of potatoes at current prices would yield \$911,736 gross.

For a given farm, the substitution of 15 acres of wheat would reduce barley or oats by 15 acres. This substitutes \$1,428 of wheat for \$998 of barley or \$840 of oats.

Clearly, this type of irrigation cannot be combined with any of the aforementioned dryland alternatives. To irrigate 8,443 acres of land would mean only 10,599 acres would be available for dryland operations. Assuming the 3,789 acres of wheat would still be produced on dryland, the gross wheat revenue at possible dryland yields would remain unchanged from

^{1/} Volume IV: Water Resources, Part 1, Chapter XI.

\$186,797. This means 6,810 acres would be available for other uses. Since attainment of possible yields on 3,789 acres of wheat assumes summer-fallow practices, 3,789 acres of the 6,810 would have to be summer-fallowed. This now leaves 3,021 acres for other grain or dryland hay. Planted to summer-fallow barley (1,510 acres) it could return \$57,380 gross. Planted to oats it would gross only \$50,736. Dryland hay at one ton per acre would produce 3,021 tons.

What are the implications of these estimates? It is possible to indicate an estimated range in gross income from crops under current yields and possible yields. A comparison of these will give an estimate of the gap which must be closed if Reservation agriculture is to realize its potential. It should be kept in mind that these calculations are only rough estimates based on production of major crops.

The range in gross income from major crops under current yields and prices (assuming all hay is fed and none sold) is then \$238,887 to \$310,844. 1/ Finding the estimated range in income under current yields and prices for major commodities simply involves combining alternatives in Table 37, subject to the footnote there. Assuming all irrigated hay is sold, the estimated range in gross income from major crops (current yields and prices) would then be \$276,152 to \$343,642 (see Table 38).

The range in gross income under possible yields and current prices (assuming no further irrigation) from major crops (current prices, possible yields) would be \$280,352 to \$616,923 (see Table 38).

The range in gross income under possible yields and current prices (assuming development of 8,443 acres of irrigable land) from crops in the indicated rotation (assuming no hay is sold) combined with a dryland alternative would be \$1,306,853 to \$1,343,044. Assuming all irrigated hay is sold, the estimated range in gross income from crops would be \$1,750,153 to \$1,786,344. Of course, the addition of such crops as mint or seed crops in place of grains would permit an even higher gross, at least under current price relationships (see Table 38).

An unsuccessful attempt was made to compare the above figures with the gross value figures shown in Table 20. Aside from such minor crops as timothy and rye included in Table 20, there are several major problems precluding comparison. These are as follows:

1/ This would be: \$238,887 equals Alternative IV: Dryland, wheat-barley grown combined with Alternative IV: Irrigated land, wheat-barley grown. The \$310,844 equals Alternative I: Dryland, wheat-barley grown combined with Alternative I: Irrigated land, oats only grown.

- (1) Wheat acreage in Table 20 is too high by about 1,200 acres. There were 123 allotments for 128 ASC farms. There were 56 farms with allotments of less than 15 acres or no allotment at all. In total there were 3,269 acres of allotment. Assuming these 56 all grew 15 acres, wheat acreage would still only be 3,789 acres.
- (2) Wheat prices differed by \$.17 per bushel. Table 20 indicates \$1.87 while the above computations use \$1.70. The latter figure was used at the suggestion of Mr. Frank Conklin, Oregon State College.
- (3) Hay is indicated in Table 20 as a crop value on the same basis as grains. In turn, livestock gains are valued at an apparent average market price. If it is assumed that these data represent income from the Reservation, then there is serious double-counting error. That is, hay is counted as income on the basis that it was sold. Yet, livestock which apparently consume almost all Reservation produced forage on the farm where it is produced, are also counted as income. Hence, Table 20 cannot be considered as representing Reservation gross farm income. Gross farm income would be grains sold plus hay sold plus livestock sold.

Income and yield differentials outlined above derive directly from existing cropping practices (i.e., spring planting, inadequate use of fertilizer, and annual cropping) and current management and irrigation practices. Attainment of possible yields and approaching of estimated gross income will be possible only by major changes in cropping methods, upgrading of management and improvement of irrigation activities. Some of these factors will be discussed.

With the exception of alfalfa, all of the grains including grain harvested for hay are soil depleting. To combine the soil depleting nature of grain crops with the current practice of spring planting, it is clear that winter moisture benefits are being lost, fertilizer usefulness is impaired, resulting in dryland yields below adjacent areas. The effect of current cropping practices on moisture benefits and fertilizer usefulness are not difficult to see. By seeding in the spring of the year, plants use what moisture remains for initial growth and grains do not head out properly, resulting in lower crop yields. Fall-planted grain has its initial growth by the time spring planting takes place. Attempts to replace soil nutrients with fertilizer are ineffective. The low soil moisture level in the spring precludes full utilization or absorption of fertilizer nutrients.

Nevertheless, the proper use of fertilizer in conjunction with cropping practices suited to the land being farmed can be one of the most profitable agricultural expenditures. Survey inventory expenditure data

indicate only 12 operators spent a total of \$1,776 in 1959 for fertilizer. These results suggest that the use of fertilizer is quite limited, but many respondents apparently recognized the advantages to its use. (See Tables 39-48). In terms of eliminating yield differentials this recognition suggests there is an opportunity to disseminate information or train operators in the use of fertilizer. Considering both the recognition of usefulness and the lack of current use, it is apparent there is an impediment to fertilizer use. Survey data suggest that money is one factor.

Aside from fertilizer and dryland management practices, the other physical factor influencing irrigated yield differentials is irrigation practices.

Conklin's work on the North Unit indicates alfalfa is irrigated five times and grain four times, between May and early July. The predominant number of times which land is irrigated on the Reservation is three, with some irrigating four and five times, and a few irrigating six or more times (see Table 53). Irrigating more or less than four or five times suggests several problems: (1) the amount of water available per irrigation is not sufficient, forcing more frequent use of smaller amounts of water; (2) insufficient water forces operators to irrigate less than necessary; and (3) some operators do not know proper irrigation water uses and methods.

The responsibility for poor irrigation practices does not necessarily rest solely with the Bureau. However, the provision of adequate water in a fully functional system is a Bureau responsibility which cannot be overlooked. On the basis of data in the Water Resources Report (Volume IV, Part 1, Chapter XI) it is apparent that there must be a major revamping of the entire irrigation operation on the Reservation. The deficiencies in yields when compared to the North Unit have their roots not only in the actual process of irrigation, but in the practices, size of farming operations, and state of repair of the existing system. These factors are recognized by irrigating operators and there is definite desire to correct them (see Tables 49-70).

Factors influencing yields such as spring rather than fall planting, annual cropping rather than summer-fallow or stubble mulching, insufficient fertilizer, lack of conservation practices, improper irrigation or inability to irrigate, and general management ability are certainly as important as the amount of land available for cropping.

However, in a planning process, they differ from the problem of land availability. These factors can be changed by intensive programs of training (for example, as a prerequisite to having land made available to farm), and a functional credit system to finance changes in operations.

Yet, if farm operators were to implement practices which would increase yields, per farm income would not necessarily be changed materially. Previously, the influence of yield differentials on per acre returns was considered. The other side of the coin is the effect of farm size on per

acre costs of operation. That is, assuming per acre yields to be equal on two farms, one with 80 acres of cropland and one with 160 acres of cropland, the operating costs per acre on the larger will generally be less than on the smaller. This is known as an economy of large scale operation. These arise where the same capital and labor inputs on a small farm can be more fully utilized on a larger acreage. Aside from the influence of unit size on costs, it is a simple fact that gross returns on, say, 160 acres of barley are greater than those on 80 acres of barley, assuming equal yields and prices.

Hence, unit size is of major importance. On the Reservation it is of greater significance than elsewhere because of the greater impediments to increasing farm size.

Farm Size. The ability to alter the physical size of farms (in terms of acres) is influenced by two distinct factors: (1) heirship problems, and (2) assignment limitations. There is, however, a force with which decision makers must contend. This is the type of land ownership desired by both farmers and non-farmers.

Survey respondents recognized both the existence of an heirship land problem and the impact it has upon Reservation agriculture. In general, survey results stress the points that land in heirship: (1) cannot be farmed or leased, (2) cannot be bought or sold easily because too many heirs are involved, (3) cannot be sold because not all of the heirs involved are known by each owner, and (4) must be released from heirship for operating (see Tables 71-79).

According to the May 31, 1960 Realty Report, 14,758 acres of dry farming land and 886 acres of irrigated farming land, a total of 15,655 acres, were involved in heirship. This means that tillable acreage involved is the equivalent of 80 percent of the mapped tillable dryland on the Reservation. The 886 acres are virtually 70 percent of the land currently assessed as irrigable. Further, in terms of total land remaining in heirship (about 95,000 acres), the 3,954 heirs remaining in ownership would each own, on the average, 24 acres.

To obtain a lease on heirship property, an operator must obtain agreement from all of the heirs to a piece of property prior to obtaining the lease, unless an allotment has been divided among the heirs. Considering that the number of heirs involved can range up to 20 or 30, this is a distinct limitation upon the ability to lease farming land.

It appears that survey respondents recognize the need for land holdings of adequate size. For example, the single factor mentioned most as to what it would take to make a decent living from farming was "more land" (Table 80). Further, a majority of survey respondents favored private purchase of land over having land on assignment, especially for any new farm land which may be opened. The most common reason for desiring full private ownership was that the individual would be the legal owner and have more security (Tables 81 and 82). A further indication of the desire of respondents to own their

own land is the definite interest in purchasing land from heirs. (See Tables 83-85.) The survey indicates that slightly over two-thirds of the persons interviewed are not only interested in owning their own land, but would purchase land from heirs if they could get the money. However, 20 percent of the survey respondents felt there should be limitations placed on the amount of farmland a man can operate. On the other hand, there were 53 percent who felt no limit should be applied (see Tables 86-88).

The next factor is that of land assignments. Article 8, Section 4, of the Constitution and Bylaws of the Confederated Tribes reads as follows:

"Tribal lands under this section may be assigned by the Tribal Council in economic units, but not in excess of 40 acres of irrigated farm land, and 80 acres of pasture land, or 80 acres of dry farm land and 80 acres of pasture land to any head of a family."

This places an upper limit of 160 acres upon the amount of land which the individual can obtain on assignment. Since the 40 acres of irrigated land and 80 acres of dry farming land are direct limitations on productive land in farms, they have a direct impact on the ability to expand operations. Unless a person can purchase or lease tillable land from a group of heirs, there is little or no opportunity for him to increase the size of the operations under his direct control.

What do these limitations on ability to expand farming operations imply? In the first case, a continuance of existing heirship patterns will mean either an increase in or maintenance of the current number of heirs as existing holdings are broken up among new heirs. Clearly, this assumes no further purchases of land by the Tribes. With 15,644 acres of cropland in heirship, a continuance of or an increase in the number of heirs means an operator must continue to contend with the task of obtaining unanimous agreement among heirs for both purchase and lease of cropland. Where an operator is able to purchase cropland from a group of heirs, an heirship problem remains since his land may be divided among heirs upon his death. Subsequent purchasers will continue to face fractionated ownership in trying to aggregate cropland into an operating unit. Where an operator must depend upon a series of leases to obtain cropland, he must contend with the possibility that a lease may not be renewable because of dissention of one or more heirs. The uncertainty created by such a situation has a direct effect on the willingness of an operator to plan his operations in the way he would if he owned the land. In other words, the short-run view prevails.

Secondly, assume that the Tribes continue (and are able to do so) to purchase all remaining heirship lands and thus liquidate multiple or fractionated ownership. Putting such purchased land into production under current regulations means assignment limitations apply. If almost 80 percent of the mapped tillable dryland and 70 percent of the currently assessed irrigable land is involved in heirship, purchase and subsequent assignment by the Tribes would mean 80 percent of the dry cropland farming will be restricted to 80 acre units, and 70 percent of the irrigated will be restricted to 40 acre units.

Suppose that farm operators can and do raise their per acre yields to levels prevailing in areas adjacent to the Reservation. First, this assumption encompasses more than may appear on the surface. To achieve per acre yields comparable to those in adjacent areas implies the following: 1/

For Dryland:

- (1) Summer-fallowing one-half of available cropland.
- (2) Fall planting of grains - wheat and barley - with reseeding of frost-damaged barley in the spring.
- (3) Fertilizer application at least at levels recommended in the Soils Report, and seeding rates comparable to adjacent areas.
- (4) Management ability comparable, on the average, to adjacent areas.

For Irrigated Land:

- (1) Irrigation at levels or intensities comparable to the North Unit.
- (2) Fertilizer and land plastering at levels comparable in the North Unit.
- (3) Management ability comparable, on the average, to the North Unit.

For dryland, the effect of the 80 acre limitation is obvious. Summer-fallowing one-half of the dry cropland available in an assignment would mean only 40 acres being planted in any one year. Even if the entire 40 acres were to be planted to wheat, a 30 bushel yield 2/ would mean only a 1,200 bushel yield. At \$1.80 per bushel this would mean a gross income of \$2,160. If an operator does not have a 40 acre allotment and is forced to grow barley, he would have a lower gross income.3/

1/ These factors were discussed previously in a consideration of yields. It is only necessary here to indicate what the initial assumption entails for discussing land availability.

2/ This is an average expected yield in summer-fallow wheat areas of the Columbia Basin adjacent to the Reservation.

3/ Although barley yields in adjacent areas are about 40 bushels per acre, prices are only \$.85 to \$.90 per bushel.

As a general rule, expenses can be expected to consume two-thirds to three-fourths of gross income.^{1/} Net farm income would therefore range from \$540 to \$720 for a straight wheat - summer-fallow operation. Also, since all cropland would be devoted to grain production, an operator would have to purchase any hay to supplement available winter pasture if he had a supplemental livestock enterprise.

If an operator had a 160 acre assignment he would have 80 acres available for winter pasture. The number of cattle these acres would support is a function of the condition of the pasture and the amount of hay an operator is able to buy and feed during the winter months.

Some conception of what the limitations mean for irrigated operations can be had by considering data available for the North Unit.^{2/} Not a single farm in the 30.0 - 89.0 acre size class returned \$4,000 for family use. Seventy percent of farms in this size group depend on off-farm employment or other off-farm sources of income. In fact, the average labor income of 17 farms studied in this size group was -\$293 and ranged from -\$4,920 to \$3,990. Where supplemental off-farm income was not available, many operators were apparently living off their depreciation and/or accepting less than a five percent return on their investment. Essentially, this means such operators are consuming their capital investment or covering such charges from other income sources.

However, 40 acres of irrigated land at North Unit yields could produce 168 tons of alfalfa for a supplementary livestock enterprise. This hay could winter 80 to 100 cows and heifers. Under this use of the land, however, it is assumed no cash grains would be produced.

Assuming the Tribes will eventually purchase all heirship land and put it into production via assignments, agricultural enterprises will be frozen at levels either equal to or below those currently prevailing. Neither the Tribes nor farm operators are in a position to materially alter farm size under current conditions and regulations, regardless of whether or not programs to improve management ability, fertilizer use, or cropping practices are put into effect.

Hence, the impediments of assignment limitations and the restrictions implied in unanimous consent requirements for leasing or selling heirship land are basic problems which preclude significant increase in farm incomes.

^{1/} See footnote 1/, page 13. The statement there applies to both two-thirds and three-fourths.

^{2/} "Adjustment Possibilities on Irrigated Farms in Jefferson County, Oregon," by Conklin, Frank S., and Castle, Emery N., Agricultural Experiment Station, Oregon State College, Corvallis, miscellaneous paper 100, November 1960, p. 7.

Adding the definite desire of a large majority to own their own land to this, there is a need for major reorganization of current land ownership patterns to prevent future inheritance difficulties and to allow farm size to adjust to levels commensurate with operators' capabilities.

Summary. Existing acreage limitations and fractionated ownership patterns place important limits upon the extent to which assets can be manipulated, upon an operator's incentive to utilize proper practices, and upon an operator's ability to improve his income position.^{1/} A series of small fractionated ownerships or leases generates little incentive to implement proper practices; often an operator finds it easier simply to crop what land he has on an annual basis in an effort to generate some income. Assignment limitations will place limits on income possibilities even if proper management practices are to be implemented.

Furthermore, when an individual's income is low and he is rated as a bad credit risk and he has little opportunity to change cropping practices because of a lack of finances, his income will be kept low and cause him to continue as a bad credit risk. The circular nature of this problem is quite clear.

While the wheat allotment program plays an important part in any wheat area, its influence appears to be more significant on the Reservation than elsewhere. Where an individual operator does not have enough land to summer-fallow a portion of the land and plant in alternate years, maintenance of his allotment means he must plant annually. Apart from utilizing immature grain as winter feed for livestock, many persons apparently see cash grain operations as a means to obtain funds to supplement per capita payments. A main impetus for committing all land to annual production appears to derive from a desire to maximize current or immediate income rather than income over a longer period of time.

In this context, dryland wheat problems are due largely to insufficient land to adopt fallow methods, as well as inadequate management practices.

Irrigation problems are reflected in per-unit costs and returns, as well as in crop yields. Improper irrigation practices and the inability to irrigate properly result in lower yields, high per unit costs and lower incomes.

Cropping practices, unit size, credit position, organizational structure, and incentives all affect income levels; but in turn, the level of a person's income affects his ability to implement practices, his credit

^{1/} "Manipulating" assets means here, the extent to which the Tribes can incorporate all grazing into Tribally owned units, work toward larger acreage in farms, and break up fractionated heirship holdings which prevent full use of farmland.

position, and his incentive to improve his operation. The problem is to break this downward spiral. It appears that the land ownership pattern is the one variable which cannot now be manipulated either at the Tribal or farm enterprise level under existing tenure and organizational arrangements.

Section 2: Livestock, Range, and Feed.

Introduction. Two aspects of any livestock-range-feed complex are important. First is the number of livestock currently grazing or feeding, and the second is the nature of the livestock-range-feed interrelationships.

Part A Livestock Numbers

Cattle. There is no current estimate of the existing cattle population which can be satisfactorily documented and defended. However, there are ways of arriving at an estimate of the cattle population, such as veterinarian reports, sales data, or adding tally sheets of individual ranchers. This latter method is the best if each cattle owner was, in fact, able to give an accurate account of his or her cattle. But, given the roundup and herding methods being practiced, it is doubtful that an accurate number of cattle on the Reservation could be obtained in this way.

Tables 89 and 90 record a partial inventory of the cattle numbers by class from the farmers and ranchers interviewed. The 1,942 head include 1,097 cows and heifers in the 54 herds recorded. With 35 bulls for this number of breeding animals, this constitutes an average bull-cow ratio of one to thirty-one.

The Land Operations' estimate of 3,700 head is shown in Table 20. In a Bureau Range Management Report, an estimate was made by Avex Miller on January 5, 1959 of 4,500 head of livestock being grazed on the Reservation. Brucellosis and vaccination reports covering the period from March 1956 through March 1959 indicate 2,983 cows and heifers were vaccinated (see Table 91).

There is general agreement of opinion that the number of cattle on the Reservation is remaining relatively constant. If this is true, it would appear that either less than half of the replacement heifers were vaccinated during the three-year period, or that all cows were not tested, or both. It has not been possible to obtain a plausible estimate of either the rate of death loss or herd replacement.

Estimates of the size of the calf crop on the Reservation are as variable as those of the cattle numbers. Most place the calf crop between 25 and 40 percent; one or two estimates approached 80 percent.

On the basis of Table 92, it would appear that cattle numbers would either be decreasing slowly or remaining relatively constant. The accuracy

of these results depends upon the respondent's knowledge of the number of cattle, by class, which they own. But there is reason to believe that knowledge of cattle numbers by class is not entirely accurate in all cases.

An evaluation of all available data (Tables 89-92), including sales data, suggests cattle numbers would fall in a range of from 3,000 to 4,000 head; a calf crop from 25 to 45 percent, and that cattle numbers are either remaining relatively constant or declining very slowly. Bull-cow ratios, on the average, are between one to thirty and one to thirty-five.

Horses. Estimates of the number of horses on the Reservation are as varied as those of cattle. Table 93 shows the distribution of horses by size of herd, obtained from the survey inventory. According to this, there were 57 herds totaling 572 head. Probably these horses are used mainly in cattle operations and for general riding. In some instances, though, individuals indicated that the number of head they were recording included both wild and gentle horses.

The Bureau horse estimate for 1959-1960 given in Table 20 is 1,500 head. There is also an estimate made by Avex Miller on January 5, 1959 of 1,200 head.

There is apparently a rather large number of horses running wild to which no one has formal ownership claim. The number of wild horses and the foal crop are unknown. Without accurate knowledge of the composition of horse herds, wild or otherwise, or the foal crop, no statements of the increase or decrease in total horse numbers can be made.

Other Livestock Types. As Table 94 indicates, seven households keep small flocks of chickens. The birds are used for home consumption of meat and eggs (Tables 95-96).

Sales data for 1959 indicate two head of hogs sold. Hogs did not appear in the survey inventory and it is doubtful that more than a few people kept hogs. In total, therefore, livestock other than cattle and horses are negligible.

Part B Livestock Practices

Cattle. The data in Tables 97-111, on the breeding and calving season, indicate that in general cattle breeding takes place throughout the year. The results are then an uncertain calving season and an uneven growth pattern for calves. While there are exceptions, the usual practice is to allow bulls to run on the range throughout the year (see Tables 107-111). There is general agreement among survey respondents that the number of bulls available is markedly inadequate (see Tables 112-124).

So far as herding and ranging practices are concerned, cattle are in large measure allowed to range at will. They are herded only during the branding seasons and when the few cattle remaining in higher ranges when summer grazing is finished are driven down (see Tables 127-133). While it

is true that some operators drive their cattle to the higher elevations for summer range, this is not common. When cattle are driven to higher elevations, generally they are not held there. The practice is to allow most of them to drift back down when weather conditions force them out of the higher elevations. Few attempts are made to utilize salt as a means of obtaining a balanced distribution of cattle over ranges.

Concerning cattle marketing, with few exceptions, there is no specifically defined marketing season. In some years the largest marketing months were June and November. However, in other years no single month predominates (see Tables 134 and 135). This is borne out by the survey results. Many persons said they market only a few head at a time primarily because of their need for money to meet current expenses, or because they did not have many cattle available to sell at one time (see Tables 136-138). Data compiled for Tables 139-141 indicate the outlet most frequently used is the Madras auction market, although some stock moved to auction markets in Portland and Redmond.

Tables 139 and 140 show cattle sales patterns by classes obtained from livestock removal permits. Often, cattle sold were recorded simply as "Hereford." To delineate these by class it was necessary to match sales slips at the Madras Auction with removal permits for the years 1956-1958, inclusive.

Table 139 shows that the largest number of sales are five head or less. This is true for all classes of cattle as well as for the total. Comparing marketings of various classes of cattle (see Tables 137, 139 and 140), it appears that the general type marketing operation is about evenly balanced between cows, yearling steers and calves (see Table 139-143).

Regarding livestock practices in general, survey results indicate that livestock operators are dissatisfied with their current operations (see Table 170-171). While many indicate they are attempting to increase the size of their herds, the data suggest that this is more of a hope than a fact (compare Table 92 with Tables 125 and 126). Their dissatisfaction does not rest alone with income derived from operations as Tables 170 and 171 show, but it extends also to calf crop size, bulls available, calf crops of uneven size, and winter calf losses.

Horses. Except for a few head kept in a pasture available for immediate riding, horses range without restriction. Herding of horses appears to take place only during general horse rides when horses in the general area of the ride are rounded up for branding. Those which are not sold are turned back on the range. With the exception of small periodic drives to gather small numbers of wild horses for sale, there are reportedly no attempts to round up wild horses to either put them under brand or sell them off.

Data compiled for Table 144 indicated horses are sold primarily as riding stock or directly to pet food packers. Questionnaire results (see Table 145) indicate that a substantial number of individuals recognize

horses detract from the profitability of their cattle operations, although over half the respondents indicated horses were a relatively important source of income (see Tables 146 and 147). Many respondents indicated dissatisfaction with the lack of restrictions on horses (see Tables 148-152).

Range, Feed and Feeding. Tables 21, 22, 24, 25, and 26 show acres devoted to various crops by years. As can be seen, the production of hay is secondary to the production of cash grain crops. This is not only reflected in the relative acreage devoted to each, but as well in the amount of hay purchased off of the Reservation.

Considering all of the pertinent data, the production of hay seems to vary a good deal from year to year. This produces variation in the amount of hay purchased each year, almost all of which is obtained from growers on the Agency plains (see Table 157, 160, and 161). The weighted average price per ton is about \$30 with a range of \$25 to \$40 per ton. Very little grain is fed to cattle on the Reservation.

Information from the survey questionnaire (see Tables 153 and 154) and discussions with informed persons on the Reservation indicate that it is sometimes necessary to feed hay at times of the year other than winter. Table 155 indicates that 71 percent of the livestock men fed their cattle between one and six months of the year.

The 1,942 head of cattle reported in the survey inventory had a reported 1,212 tons of hay available for winter feed in 1959-60 (see Tables 155 and 156). This is an average of .62 tons of hay per head. However, other data in the survey indicate 1,536 tons of hay produced and purchased.^{1/} Assuming this tonnage to have been fed, the feeding rate would be an average .79 tons per head.

In general, the amount of hay fed to cattle seems to be determined not by need but by how much hay an operator can afford to buy (see Tables 158 and 159). As used here, "need" is defined as the amount of hay necessary to supplement available winter grazing so as to provide enough forage intake that cattle are able, at the very least, to maintain their weight level through the winter months.

During field visits several ranchers were asked about maintenance of body weight during the winter months. Cows were estimated to lose up to 200 to 300 pounds due primarily to a lack of winter feed. Such weight losses have a direct effect not only on the size of calves born, but on the size of the calf crop.

^{1/} Survey respondents indicated they purchased 1,046 tons of hay. Data from Table 22 indicate 490 tons of hay produced. The summation of these two figures equals 1,536 tons.

A Brief Summary. Given the nature of the existing data no single estimate of cattle or horse numbers is adequate. The implications of this lack of information should be quite clear.

With regard to current livestock practices (i.e., breeding, herding and ranging, feeding and marketing) there is a demonstrable lack of proper or adequate management. For example, the modal tendencies are these: cattle and horses graze at will; are bred the year around; cattle produce uneven and seasonally small calves and are not supplementally fed during the winter to maintain them in adequate condition. Also, hay production is secondary to cash grain production. While, of course, there are individual operators who manage their cattle operations efficiently, all livestock men on the Reservation are involved to some degree in the overgrazing of winter ranges. The effects of current grazing practices are the result of the management practices of all operators.

Part C Livestock-Range-Feed Interrelationships

Crop production patterns are important for livestock production because they determine the amount of hay produced on the Reservation. When insufficient hay is available for winter feed, native ranges are grazed which should be reserved for spring and fall grazing. The shortage of hay for winter feed has, in fact, led to overgrazing of spring-fall ranges. Oregon State College range technicians estimate there is spring-fall range for about 4,000 head of livestock and summer range for 7,000 head. These should not be considered as permanent upper limits on livestock numbers. Implementation of the strict adherence to Range Report recommendations (see Volume V) should allow these limits to move upward slowly through time.

Given the current condition of native ranges, it is desirable that cattle should be fed for a four-month period. In doing this, cattle should not be permitted to run free while being fed. They should be removed completely from ranges, put into fenced areas and subsist for four months on hay alone. Such a feeding program would require about 1.5 tons of hay per head for the four-month period, i.e., 4,000 head of livestock would require about 6,000 tons of hay. Feeding for a four-month period will permit better regrowth of fall-grazed ranges needed in the spring of the year.

In the earlier discussion of crop yields, estimates were made of hay production assuming both current and possible yields. For current yields assuming no further irrigation development and 17,756 acres of dry cropland available, hay production could range from 2,691 tons to 13,433 tons. The former assumes no dryland hay production, the latter that all land not in wheat would be in dryland alfalfa. For a four-month feeding period, this would provide feed for 1,794 to 8,956 head of livestock.

Under yields potentially possible, hay production could vary from 2,701 tons to 16,055 tons. For a four-month feeding period, this would provide feed for 1,801 to 10,704 head of livestock.

Given development of irrigation to 8,443 acres, the Reservation could produce an average of 17,732 tons of hay, assuming attainment of possible yields.

Clearly, production of hay crops in excess of 6,000 tons would produce feed for more livestock than native ranges can support during grazing seasons. The danger of pushing crop production patterns too rapidly in the direction of hay production is that a good deal of pressure would likely be generated to increase livestock numbers. That is, given current range conditions, the production of more than about 6,000 tons of hay could cause livestock numbers to exceed by far the limits of spring-fall grazing ranges.

Under current management practices and hay production, cattle sales for 1956-1959 averaged 1,477 head per year. A rough estimate of cattle income would be from \$105,266 to \$158,030. Assuming there are 3,500 animals available for producing calves and that a 90 percent calf crop can be attained, there would be 3,150 calves produced. Assuming also that these would split 50-50 between heifers and steers, there would be 1,575 steer calves and 700 heifer calves sold with 875 being held for herd replacement. Hence, herd replacement is assumed to be 20 percent and death loss five percent. Assuming calves are sold at 400 to 450 pounds, and cows are sold at 800 to 900 pounds, at \$.25/lb. and \$.15/lb., respectively, gross cattle income would range from \$311,500 to \$350,438. This assumes no bull sales, but of course, such sales would increase the income.

It should be emphasized that a 90 percent calf crop is attainable only under certain conditions. These are mainly:

- (1) Cattle are herded closely between fenced seasonal ranges and horse numbers decline.
- (2) Hay is fed during the winter period at adequate maintenance levels (20 to 25 pounds per day) in feed lots. This means cattle are completely removed from native ranges. This also implies that all cattle are rounded up at the beginning of the feeding period.
- (3) Cows and heifers are bred in pasture areas in a defined and regulated breeding program with bull-cow ratios of 1:25.
- (4) Herds are culled heavily to remove shy or non-breeders.
- (5) Ranges are reseeded to other cover forage such as wheat grasses.

There are numerous other lesser factors indicated in the Range Report (see Volume V) which also must have a place in any livestock program.

The development of 8,443 acres of irrigated land could provide adequate hay, cull potatoes, and feed grains to eventually set up a cattle feeding business on the Reservation. It is not possible to estimate closely how much such an enterprise would add to income; it certainly should add to it. Given implementation of Range Report recommendations, Reservation livestock enterprises could well be pointed in the direction of a feeding enterprise.

Currently, horses appear to be generating between \$25,140 and \$31,430 gross income. It is assumed that this will decline as horses are cleared off of native ranges. They consume forage which could be utilized to produce cattle of higher marketable quality. For example, horses are rated as 1.25 animal units, whereas a full grown cow with calf is rated only as one animal unit. This means four horses replace five cows and five calves. In terms of value, four horses at 900 pounds, worth \$.07 per pound or \$252, would replace five cows at 800 pounds worth \$.15 per pound and five calves at 350 pounds worth \$.25 per pound, or a total of \$1,038. Of course, the cows and calves are figured at estimated market values, but so are the horses. Only those horses needed for efficient range management should remain on the Reservation.

In sum, therefore, it appears livestock are currently generating a gross income between \$130,407 and \$189,370. If management practices are changed to permit attainment of a 90 percent calf crop, gross livestock income could rise to between \$308,200 and \$346,725. This should not be considered as the maximum attainable. With balancing of the seasonal grazing facilities and improvement in range cover, livestock income could be increased even above the \$311,500 to \$350,438 range. That is, total permissible animal units could rise up to or even above 7,000. This is a 75 percent increase in the current 4,000 animal unit limitation. In order to better understand factors to be handled, it is worthwhile to discuss further the interrelationships in the livestock-range-feed complex.

No Defined and Practiced Breeding Season. In view of the respondents who indicated that "no problems" exist regarding calving season (see Tables 97-99), it appears that many ranchers (1) do not care when their calves are dropped, (2) are willing to accept an uneven marketing season and lower quality animals, or (3) are willing to bear the risk of losing calves in cold weather. In any case, there is adequate evidence that there is no generally defined breeding season.

Breeding bulls on the range the year around are a central factor in the lack of a defined breeding season. When breeding bulls run free the year around, cows are bred the year around. Breeding bulls running free on the range during the entire year can be the result of any or all of three different conditions: (1) the lack of adequate bull pastures,

(2) lack of breeding bulls which forces individuals to let their bulls run free in order to breed a maximum number of cows, or (3) lack of proper breeding grounds where breeding can be adequately managed. The solution of these three problems will be important in determining the ability to set up a breeding program. Unless these three central problems are solved there will be little chance of approaching a general 90 percent plus calf crop or a crop of even sized calves.

The Lack of Breeding Bulls. With 35 bulls for the 1,097 breeding animals in the survey, there is an availability ration of one to thirty-one; an accepted proper management ratio is one to twenty-five. Discussion with persons on the Reservation disclosed a good deal of unwillingness to purchase bulls. However, there is again the problem of distinguishing unwillingness from inability since good bulls are expensive and the availability of funds for this form of investment is a function of income as well as credit. Most survey respondents recognized bull availabilities as a function of credit or available funds (see Tables 112-116). While the current situation is not encouraging, a majority of persons feel there is something which could be done (see Tables 115, 116, 118, and 119). The predominant remedies mentioned were that everyone should have his own bulls and that more money or credit should be made available for bull purchases (see Tables 115, 116). These may be equivalent because the ability for everyone to have his own bull would be, in part, a function of income and credit.

It appears there is some difference between the responses to questions relating to an individual's bulls and to questions regarding the general availability of bulls on the Reservation. These differences suggest that a number of individuals do not really know either proper bull-cow ratios or the general availability of bulls on the Reservation. However, there is adequate evidence to indicate a definite general bull shortage on the Reservation.

The Livestock and Feed-grazing Imbalance. This imbalance is noticed most in the lack of winter feed. While overgrazing of spring-fall ranges during the summer period is a contributory factor, the lack of hay (legume and grass) production is the winter feed problem. Land which should be used for the production of grass and legume hay is currently utilized for the production of cash grain or is untilled. Except in the case where grain crops act as a nurse crop for a first year's growth of hay and pasture, grain and hay compete for land. Where grain is planted annually there is little opportunity to produce much needed winter feed supplies. Where grain is harvested annually for hay it acts as a soil depleting crop, lowering both grain hay yields over a period of time, as well as grain yields. So long as there is a desire to maintain cattle herds, the production of forage crops is a necessity.

For the cattle recorded in the inventory, the amount of hay was below maintenance levels, given the condition of the lower ranges. Overgrazing of the lower ranges makes it necessary to feed hay for a longer winter period as well as at other times of the year. When it becomes

necessary to feed hay during the non-winter months, feed available for the winter period is decreased. While a lack of proper herd management practices is not the whole problem, the shortage of winter feed is aggravated by their absence.

As noted earlier, horses are also involved in overgrazing of ranges. Not only do horses eat more grass than cattle, but they clip the range differently, making revitalization more difficult where grazing is continuous. Horses and cattle compete for existing grass and feed facilities. A decrease in the number of horses roaming Reservation ranges would increase the availability of seasonal graze for cattle.

With current hay production being what it is, the current general low level of agricultural income and the character of the existing credit program are influential factors in determining whether adequate amounts of hay will be fed. However, it is difficult to separate inability to purchase enough hay from unwillingness to purchase enough hay. A person may be unwilling to purchase hay because it would involve the commitment of financial resources needed for family subsistence. Since the ability to feed hay in adequate amounts over the winter months depends directly on income and credit, it appears that one deficiency is the lack of an adequate feed-financing program. That is, when hay is not produced in adequate amounts on the Reservation, the ability to feed hay is a function of income and credit.

Another factor involved in the overgrazing of the lower ranges is the lack of defined and fenced grazing units. While a set of different ranges exists at the present time, these are apparently based largely on custom and there is no internal management control. The lack of defined and regulated grazing units is one of the basic causes of the imbalance between the seasonal availability of graze and livestock numbers.

The ability of the Tribes to enforce proper use of ranges implies the need for control over the land asset, just as was the case for cropland.

Section 3: The Agricultural Income Situation.

Gross Income. Three questions in the self-administered portion of the questionnaire dealt with aspects of gross income. These related to farm and ranch income, non-farm income of the respondent, and non-farm income of other family members.

There were 43 individuals who reported income for 1959 (see Table 163). Reported income per family from farming and ranching ranged from \$236 to \$12,000. For the 43 families, it averaged \$1,741.

A substantial amount of non-farm income was reported. Non-farm income per family ranged from \$152 to \$8,000 (see Table 164). These are not necessarily the same families as those reporting farm income, although in Table 163 some are the same. There were 68 families who had income

either from farm or non-farm sources (see Table 165). The range in full gross income is from \$210 to \$13,850 per family. With 43 respondents indicating farm income for 1959 and 49 respondents indicating non-farm income for 1959, there are 92 separate answers. This means there were 24 families reporting income from both farm and non-farm sources. As a result, there were 68 families reporting either farm or non-farm income, or both. The average income for those 68 families from non-per capita sources is \$3,077.

Expenses and Net Cash Income. For families reporting both income and expenses, expenses (shown in Table 166) were subtracted from each income bracket to obtain their net cash income. Since all individuals did not report both their income and expenses, 20 respondents who reported income only were omitted. The net cash income per family ranges from a negative \$580 to plus \$6,984 with an average for the 48 families of \$1,921 (see Table 167). The implication of the negative \$580 is that, on the average, these families are utilizing funds, such as per capita, to meet cash expenses incurred in their farming operations. Also, these figures make no allowance for interest or investment, depreciation or taxes.

A sizable majority of operators are not satisfied with their current income position relative to farming and livestock operations (see Tables 168 and 169). Noticeably, the largest group indicating they are "very satisfied" are in the age group of 51 years and over. It could be that these persons have become resigned to their income status, or they are in fact, the larger operators on the Reservation. The group expressing the most dissatisfaction indicated that their operations are too small because of lack of production inputs, viz., land, capital, livestock (see Tables 169 and 170). Those who indicated that their operations are too small and thus yield low income, or that their debts consume all their income, or they have little or no production, are essentially talking in the same terms as the group indicating operations are too small because of a lack of production inputs. Tables 171 and 172 on hired labor and share rent arrangements, would tend to indicate that most operators (1) choose to operate wholly owned operations, and (2) farm operations are not large enough to make hired labor a significant factor.

If overhead charges and interest and depreciation allowances were charged against income currently being generated on the Reservation, the result would be significantly lower returns than those indicated here.

Implications of Estimated Gross Incomes. To obtain an estimated range in gross agricultural income for the Reservation as a whole, under current and possible yields and under current prices, it is necessary to add the gross figures for crops and livestock presented earlier in the crop and livestock sections. These would be as follows:

1. Current yields and prices, 17,756 acres dryland, 1,286 acres irrigated land, current livestock income, irrigated hay fed:

Crops	\$238,887	to	\$310,844
Livestock	130,407	to	189,370
Total	\$369,294	to	\$500,214

2. Current yields and prices, 17,756 acres dryland, 1,286 acres irrigated land, current livestock income, irrigated hay sold:

Crops	\$276,152	to	\$343,642
Livestock	<u>130,407</u>	to	<u>189,370</u>
Total	\$406,559	to	\$533,012

3. Possible yields and current prices, 17,756 acres dryland, 1,286 acres irrigated land, possible livestock income, irrigated hay fed:

Crops	\$220,296	to	\$549,398
Livestock	<u>311,500</u>	to	<u>350,438</u>
Total	\$531,796	to	\$899,836

4. Possible yields and current prices, 17,756 acres dryland, 1,286 acres irrigated land, possible livestock income, irrigated hay sold:

Crops	\$280,352	to	\$616,923
Livestock	<u>311,500</u>	to	<u>350,438</u>
Total	\$591,852		\$967,361

5. Possible yields and current prices, 10,599 acres of dryland, 8,443 acres irrigated land, irrigated hay fed:

Crops	\$1,306,853	to	\$1,343,044
Livestock	<u>311,500</u>	to	<u>350,438</u>
Total	\$1,618,353	to	\$1,693,482

6. Possible yields and current prices, 10,599 acres of dryland, 8,443 acres irrigated land, irrigated hay sold:

Crops	\$1,750,153	to	\$1,786,344
Livestock	<u>311,500</u>	to	<u>350,438</u>
Total	\$2,061,653		\$2,136,782

If the mid-points of the six ranges are taken as an estimate of gross income for each set it is possible to estimate net returns. Generally, expenses will range from two-thirds to three-fourths of gross income.^{1/} The estimates of net income would then be as follows:

^{1/} See footnote 1/, page 13. The statement there applies to both two-thirds and three-fourths.

	<u>Mid-point of Estimate</u>	<u>Range in Expenses</u>	<u>Range in Net Income</u>
1.	\$ 434,754	\$ 289,836 to \$ 326,066	\$108,688 to \$144,918
2.	469,785	313,190 to 352,339	117,446 to 156,595
3.	715,816	477,211 to 536,862	178,954 to 238,605
4.	779,606	519,737 to 584,704	194,902 to 259,869
5.	1,655,917	1,103,945 to 1,241,938	413,979 to 551,972
6.	2,099,217	1,399,478 to 1,574,413	524,804 to 699,739

Increases in net income, as well as gross income, imply a decline in the number of farmers as land ownership is reorganized to permit increased unit size. For example, numbers 1 and 2 would imply the current number of farmers, whereas number 3 - 6 imply one-half to two-thirds of the current number of farmers. A decline in the number of farmers then means a larger income divided between fewer farmers, increasing per farm income. The types of operations which these potentials imply and the impact on the number of families in agriculture are discussed in Chapter IV.

Section 4: Capital and Credit.

Introduction. A knowledge of the existing capital structure, on both the individual and Tribal level, is necessary to understand the amount of change which will have to take place in the capital structure if agriculture is to realize its potential.

The subject of capital involves the extent and kinds of individual and Tribal capital resources and the current availability of credit. The prevailing level of knowledge regarding the function and uses of capital and credit in the production process is also involved.

Part A Agricultural Investments

Farm Enterprise Level. Investment in farm machinery items by individual operators appears to constitute the largest single avenue for investment outlays (see Table 173). The classes of machinery investments recorded were tractors, land preparation equipment, seeding equipment, harvesting equipment, transportation vehicles, and miscellaneous items (see Table 174). The data in Table 175 are separated into relevant equipment classes with a breakdown of the individual machinery items within that class. Neither the investment figures nor the number of machinery items represent either the total investment in machinery on the Reservation or the total number of machinery items, since 15 operators did not respond to the survey inventory. However, the data in Tables 176 and 188 do allow the inference that individual operators apparently desire to own their own equipment regardless of the amount of use a machine will have. For example, this is illustrated by the number of combines relative to the acres of grain harvested or the number of hay balers relative to the acres of hay harvested.

According to Table 176, individual ownership of machinery predominates. As can be seen, the frequency of cooperative ownership is minute. Cooperative ownership was said by respondents to be unsatisfactory primarily because the machinery was not available when needed or because there was no satisfactory basis for handling machinery repairs. The relatively small amount of cooperative ownership testifies to the desire of farmers to own their own machinery.

There is a small number of farm buildings in generally fair to poor condition (see Table 189). They are used mostly for horses or for grain and hay storage, with a few used for machinery storage. The small number of buildings recorded and their generally poor condition suggests a very small investment in farm buildings and structures. Since there is no need at the present time for farmers to keep farm account records of their investment values for tax purposes, there is no pressure for them to maintain depreciation values on their buildings and structures. The same is true for any other farm investment. Records of this type are vital for the evaluation of farm investments and in the making of other farm decisions.

Although Tribal credit records indicate that there has been \$149,207 of credit funds invested in livestock through June 1960, investment figures for breeding herds are not available. Given the lack of data about livestock numbers, it is doubtful that any meaningful figure on breeding herd valuations could be obtained.

There are no investment data for farm improvements and inventories.

Tribal Level. Data on Tribal investments in agricultural improvements are available only since 1954 (see Table 190). Through June 30, 1959 the Tribes had invested a total of \$30,612 in agricultural improvements with a present value of \$26,949. Virtually all of the Tribal improvements are in the range and cattle management phase of agricultural operations. Most could be classified in the following groups: stock-water troughs and ponds, dams, corrals, spring development, fencing and cattle guards, seeding and reseeding, and "general" improvements.

There is an additional area of Tribal investment. All loans granted under the Tribal credit program carry interest rates of only three percent. Individual operators could not obtain loan funds from non-Reservation sources at this rate; the cost of money to individual borrowers at non-Reservation sources would range from five to eight percent. The difference between these rates and the interest rate on Tribal loans is in fact a Tribal investment in individual agricultural enterprises.

Part B Credit

Tribal Credit Activities. Currently, the Tribal credit program is under an "emergency" system. All loans must be approved by the Area Director, Portland, Oregon. Thus, the Tribal credit code as written is effectively suspended for the duration of the "emergency" period. It appears, however, that the term "emergency" has been broadly interpreted.

Apparently only machinery loans are closed to borrowers since this has been the only inoperative agricultural category during the last year (see Table 177).

In the existing Tribal credit code, the only positive statement concerning loan types deals with educational loans. Other permissible loan types are spelled out in a negative manner in Section 13 of the code. It appears that the only loan types specifically excluded would be loans for the purchase of passenger cars and all non-productive loans except loans for bonafide emergencies and home construction, improvements, or appliances, as well as any loan resulting in a borrower having more than two loan agreements with the Tribes in effect at any one time. All loans carry a three percent interest rate with annual extensions when commitments cannot be met. Only housing, land improvement and purchase, water system, educational, business, and V.A. insured loans are for a period of longer than one year.

Survey results indicate dissatisfaction with current credit activities (see Tables 178-184). Lengthy processing resulting in the receipt of funds after the time they are needed as well as collateral requirements are prominent sources of dissatisfaction. There is also a pronounced lack of understanding concerning the function and use of credit (see Tables 182 and 185). These Tables imply that respondents do not understand that certain restrictions are necessary to insure that lenders will be able to recover their funds.

Part C Capital and Credit Deficiencies

The Central Question. The main capital and credit problems are in two areas: (1) a general lack of knowledge about the functions and uses of credit in a production process and an inadequate credit program; (2) a general deficiency in capital management skills and management control mechanisms. These apply at both the Tribal and individual operator level. At the Tribal level these are reflected in the structure of the existing credit code and lack of investment budgeting. At the individual level these are reflected in the types of investments being made, and the structure of existing farming enterprises.

Manifestations of the Central Problem. It is noticeable that the current credit program puts all credit under the same general rules and interest rates. There is no separation of loans by the amount of risk involved. While loans for homes, water development, land and education can be obtained for periods longer than one year, this does not mean that the degree of risk is recognized. The loan period generally reflects the average useful or productive life of an investment. Interest rates generally recognize the degree of risk involved in a loan.

The amount of security or collateral which an individual has available to him determines, at least in part, the amount of credit he can obtain. It appears clear that survey data illustrate a gap in knowledge about factors involved in credit. Respondents see a lack of credit as a problem,

but they do not, in general, see the necessary rules which inevitably must accompany credit. However, more knowledge about credit will not provide the collateral for loans. While it is necessary that borrowers and potential borrowers understand what collateral means and why it is a necessary part of credit, a widespread lack of collateral on the Reservation is a definite impediment to arranging credit activities in a commercial manner.

Initially it appears that the Tribes will find it necessary to underwrite some development change risks. That is, collateral requirements can be made flexible where a particular type of investment will be a step in the direction of attaining planning objectives. Clearly, this implies a great deal of judgement in making loans on a flexible collateral basis and demands the skills of a person trained and experienced in the field of credit management. While flexible collateral policies may be useful in making credit an effective tool for financing change, the simple addition of this feature alone to the existing credit structure is not enough. A credit policy must recognize the differing risks and lengths of useful life among investments. Not only does this gear loan repayment to investment productivity, but it also establishes a base from which credit can be properly explained to users. For example, to explain to borrowers that investments generally are classed as short, intermediate and long-term, with each period having a differing rate of interest, is rather confusing when the existing credit code puts loans on an annual basis under a straight three percent interest rate.

Another manifestation is the farm planning connected with loans. The credit code defines farm planning in terms of the period of the loan. The result of such an outlook could be recombination or disruption of resource use-patterns whenever an individual found it necessary to utilize credit. Credit is simply one mechanism in the over-all production process. The current credit code does very little to expand knowledge of the function and use of credit in this process. While farm plans should be flexible, once a major course of action is selected, an operator has commitments in terms of fixed resources which can be liquidated either by selling assets or using them up in production.

For example, an operator committed to summer-fallow grain operations has investment in heavy machinery. Flexibility in such an operation would probably come from addition of a supplementary livestock enterprise to use off-season labor rather than shifting entirely to a livestock and hay operation. While livestock and hay may be a less risky operation than grain farming, in terms of obtaining credit the degree of risk should be handled through interest rates. Where farm plans are set up for the first time, they should be arranged to provide an outlook beyond the loan period. In these terms, a farm plan could not only allow for loan repayment, but a plan for the future, after a loan is repayed. As well, a farm plan should even contemplate future loans to expand or extend an operator's farm business. In these terms, planning is a meaningful and useful device for both the Tribes and the farm operator.

The other major manifestations of the central questions deal with loan maturity, interest rates, and separation of loans by risk and length of useful life. These are interrelated since investments with a long life, such as a home or barn, almost always carry higher interest rates and have a longer maturity period than shorter term investments such as a tractor or bull. However, this can be modified by the degree of risk involved in a short-term loan. Nevertheless, long-term loans, on the average, carry a higher rate interest than shorter term loans. For example, a 25-year home loan will probably cost about five and one-half to six percent interest annually, whereas short-term production loans for operating capital would cost only about three to four percent annually. While collateral requirements can be adjusted to meet development objectives of the Tribes, an operational credit program will have to recognize different investment types through loan maturities and interest rates.

In capital management, at the Tribal level, the greatest deficiency is the lack of a capital investment budget and consequent management controls. At the present time, there is little separation of cash or current expense budget from an investment budget. There is little investment planning. The central advantage of a capital investment budget is that it provides a mechanism for guiding the development of Reservation resources; it is a management control device. The establishment of a development or investment budget, in a sense, defines the objectives the Tribes wish to attain with their resources.

Many of these problems prevail at the individual level as well. The Reservation farm machinery investment obtained in the survey inventory is not unnecessarily high when figured on a total cropland basis, but it is high when figured on the basis of harvested acreage. While current investment does not appear far out of line, this equipment will eventually run out its useful life. Replacement of equipment at original investment levels is untenable, given current operating practices.

Initial investment in farm machinery (i.e., purchase price of equipment) per cropland acre reported in the survey was about \$37 per acre, but on a harvested acre basis was about \$236 per acre. Current or existing investment (i.e., initial investment less depreciation) was about \$21 per acre of cropland and \$131 per acre harvested. It should be pointed out that the initial investment figures include investment in automobiles and trucks. Assuming that one-half the investment in transportation equipment was devoted to automobiles, this would drop the initial investment per acre of cropland to \$29, and the investment per harvested acre to about \$180, and current investment to \$15 and \$95 per cropland acre and harvested acre, respectively.

On dryland grain farms in the Columbia Basin, operations on 700 acres of cropland and 400 acres of cropland indicate, respectively, initial investment in machinery per acre of cropland of \$24 and \$42. This would mean a machinery investment per harvested acre of \$48 on a 700 acre farm and \$84 on a 400 acre farm, since only one-half of the land is cropped annually. Conklin's study on the North Unit Project indicates an initial machinery investment for a 140 acre irrigated farm of \$83 per acre. Since the whole

140 acres is harvested annually, the investment per harvested acre would be the same. There is a good deal of difference between these initial investment figures on a harvested acre basis and those for the Reservation (see Tables 186 and 187).

As a rough performance indicator, the machine-use required to break even can be considered (see Table 188). Even as a rough indicator it is apparent that the average use on the Reservation is below the point where investment in the machinery item yields a return above its annual cost. In other words, it would pay individuals who cannot match such use rates to rely upon custom facilities. It is apparent from reviewing the credit data on machinery loans and the investment data gathered from the survey inventory, that there is a considerable over investment in machinery relative to the amount of use currently available on the Reservation. Under current conditions machinery investment at levels indicated in the survey inventory indicates very poor management of capital resources. Given current practices, continued investment at past levels clearly diverts investment capital from more needed alternatives such as bull purchases or putting all available land under cultivation.

Section 5: Labor, Management, and Technical Assistance.

Part A Farm Labor

Families in Farming and the Farm Labor Force. In the 109 families interviewed, there were 145 males 14 years old or older (see Table 191). This group is the Reservation's agricultural labor force, using U. S. census age limits. It is most likely that these 145 males are not all engaged full time in agricultural pursuits. This number of persons should not be considered as the total number of people in the families actually engaged in farming and ranching at the present time. However, this number can be taken to be the farm labor force. Table 192 shows the range in age of respondents.

The survey indicates that the amount of agricultural as well as non-agricultural training, in the sense of formal education, is not extensive (see Table 193). Agricultural training was obtained largely in the Warm Springs Boarding School and at the Madras High School (see Tables 196-197). Non-agricultural skills are found throughout a variety of occupations such as mechanics, nursing, secretarial and office skills, welding, carpentry, and plumbing (see Tables 197-199).

Most of the problems in agriculture are known to persons within the family unit and in leadership positions despite relatively lower levels of formal education. The condition of resources and operating practices being followed are inadequate or poor even under cursory examination. For example, it is readily apparent that cattle are grazing winter ranges the year around or that there is an inadequate number of bulls and production of hay. These are facts which are readily apparent to anyone. This suggests that there exists at the present time a rather elaborate mechanism for avoiding decisions and for ignoring "facts."

Part B Agricultural Services

Technical Assistance Facilities. At the present time there are three general technical assistance facilities available to residents of the Reservation: The Extension Service, the Bureau of Indian Affairs, and the Confederated Tribes. These overlap and are uncoordinated in the sense that there is little formal delineation of their respective areas of responsibility.

At the present time there is a resident Extension Agent on the Reservation, as well as an Extension Home Demonstration Agent. The Extension Agent is concerned with the entire field of agriculture, including such things as farm organization and management, crops, livestock, range management and soil conservation practices, irrigation practices, farm machinery, and soils. If he does not have the information readily at hand, he has available to him the resources of Oregon State College. Technically then, the Extension Office is available to provide service facilities concerning all areas of agriculture.

The Bureau of Indian Affairs also provides agricultural service facilities through its Land Operations, Forestry, and Credit personnel. Credit and Forestry are included here on the basis that the Reservation forest land provides grazing facilities which must be utilized in a manner consistent with sound forest practice and the Credit Officer technically should function as an advisor on credit needs. Basically, Land Operations provide the same agricultural service as provided by the resident Extension Agent.

The Tribes also provide some service activities through a Livestock Fieldman and field trips for selected individuals. Apparently, the primary area of concern for the Livestock Fieldman is the handling or processing of livestock removal from the Reservation as well as other facets of the livestock industry such as brand registry and hay and bull purchases. The Livestock Fieldman has apparently engaged himself in other agricultural activities such as field consultant on fertilizer application and elementary irrigation procedures.

The field trips are for such purposes as attending range management conferences. Persons attending such affairs are apparently selected on the basis of their position in the community, i.e., persons in a position of elected office or persons recognized as local area leaders.

There are some custom facilities provided through a Tribally subsidized program, under the direction of Bureau personnel in Land Operations. The subsidized activities consist of such work as land leveling, plowing, corrugating, and the clearing and breaking of new land.

Technical or Advisory Facilities. Advisory facility deficiencies are one of the contributing factors in the existing agricultural situation. It is apparent that too many Reservation farmers do not look to existing advisory personnel for guidance. While it is clear that the professional ability of a given individual can only be evaluated by persons of comparable

training, it is also true that persons being served must feel he is competent. In other words, regardless of the degree of training, an individual must be able to communicate both his professional knowledge and the idea that he is professionally qualified.

Numerous survey questions already discussed indicate farmers and ranchers desire information and assistance in all areas of their operations (see also Tables 200-205). Further, they see advantages to changing existing practices (see Tables 207-218). The prime requisite for service persons is experience in agriculture (see Table 206). Given these desires and the requisite for competency, Reservation farmers are apparently indicating why they are not using existing services. The apparent reason for non-use of existing services is the belief by many farmers that service personnel are not fully qualified to handle problems.

Since the basic needs from the standpoint of agricultural services can be supplied both by Extension and by the Bureau of Indian Affairs, the comments on performance and needs apply to both of these agencies. It appears that the general problems regarding these two agencies are one or both of the following: (1) a lack of trust in general, or (2) a lack of trust in the professional ability of persons working in these agencies. It is clear that there is a lack of communication of knowledge between these agencies and the Reservation farmers in general. While there are individual farmers who have been able to utilize these services with some degree of success, it is apparent that in general, these agencies have not been successful in developing Reservation agriculture.

The distinct lack of coordination of Extension and Bureau activities results in the performance of duplicate activities. Such disorganization and duplication precludes any direction to Reservation planning. As a result another vicious circle is created wherein duplication and disorganization creates dissension leading to further disorganization and denies to the majority of operators the service facilities supposedly available. The primary need in this area is the coordination of these activities under the direction of the Tribes so the services may be utilized initially to furnish technological knowledge needed for changing or reorienting Reservation agriculture.

Part C A Summary Statement

The achievement of the potentials will require the emergence of competent and forceful leadership both in the Tribes and in the Bureau. This is especially true for the Tribes. This means that facing obstacles realistically as well as recognizing opportunities will be an important factor in the achievement of potentials.

While the achievement of the outlined potentials will mean a decline in the number of persons in agriculture on the Reservation, the survey questionnaire indicates that there are a number of persons who would like to leave farming for one reason or another if alternative employment and training were available (see Tables 219-226). It is appropriate to note

that while persons would like to leave farming, the majority desire to remain on the Reservation (see Tables 227 and 228). The creation of alternative employment opportunities would be a powerful force in not only fulfilling this desire, but in maintaining the asset structure intact.

The achievement of potentials is possible, given the willingness to undertake the formation of structural mechanisms which provide not only solutions to general questions, such as the heirship problem, but to specific enterprise problems such as the spring-fall planting or the bull-breeding season questions. Although a majority of survey respondents felt forces were against them when they attempted to expand operations, they still felt a person has a chance to make a living in agriculture. That is, the situation is not hopeless (see Tables 229-232). This suggests a basic belief that Reservation farmers may be receptive to programs to reorganize and reorient farming so that potentials can be realized.

CHAPTER III

Section 1: General Programs and Techniques for Achieving Potentials

Basic Factors. Alternative techniques and programs presented in this chapter are "general" primarily because of their import. They are oriented toward agriculture, but they deal largely with reorganization of the overall structure of business and government on the Reservation. It is untenable to assume that the Tribes can undertake agricultural economic development programs without accounting for Tribal members outside of agriculture. Before reorganizing existing organizational structure and undertaking programs to develop the agricultural resource, persons not engaged in agriculture must be given a stake in the development of these resources. If they are not insured of a stake in the development of the agricultural resource, there would be little reason for them to want to maintain Tribal assets intact. The lack of such an earning stake might well generate pressure to dissolve the existing asset structure and divide the sale proceeds.

Another requirement of any program of development is that it allow for the eventual solution of the major problems facing the Tribes. This is not to say that all problems must be solved immediately. It does mean that plans undertaken to develop resource potentials must be flexible enough to permit future adjustments. Because of the mutual dependence of the problems, a successful program cannot be concerned solely with specific, isolated problems.

Regardless of the approach which may be chosen, there are three requirements of any development program: (1) dynamic, positive leadership, (2) knowledge of the ramifications of the approach chosen, and (3) a willingness to use unbiased expert consultation to obtain necessary knowledge of approaches and their consequences. Obviously, these three factors are related.

To understand the ramifications of the alternative solutions outlined below, it is necessary to realize that if the Tribes are to maintain some things, they will have to change others. For example, if the Tribes desire to manipulate their assets for future income production, it will be necessary to make changes in the organizational structure within which Tribal assets are managed.

Section 2: Alternative Solutions to Land Problems

Nature of the Solutions. There are two fundamental concerns with respect to land problems: (1) land ownership and heirship, and (2) land use or practices. Some of the solutions to problems of land uses or practices are general, but many are specific to the individual farm enterprise. Solutions specific to individual enterprise problems are discussed in the next chapter. This chapter is concerned with problems that are more general in nature.

Assumptions. These may be stated briefly as:

1. The number of farmers will decline.
2. The Tribes want agriculture on a paying basis.
3. The Tribes want to hold Reservation land intact.
4. The Tribes must plan in advance to hold Reservation land intact.
5. Current constitutional and organizational mechanisms are inadequate in preparing for the future.

Part A Alternative I - Tribal Ownership of All Land

A Definition. This alternative consists of the formation of a land and timber corporation for the purpose of managing the land and timber resources of the Reservation. Under existing law the activities of a land and timber corporation would initially be limited in scope. As this subsidiary corporation became operative and required expanded powers to operate its business, the Tribal Council could, under Section VI of the Warm Springs Corporate Charter, request release, step by step, of supervisory powers currently reserved to the Secretary of the Interior.

The operating head of the corporation would be a person hired specifically for the job. He should be a person who does not now have any interest in the disposition of Tribal assets. Neither should he be a person who has a potential interest in the disposition of Tribal assets. Anyone in either of these categories could not be expected to be free of bias in the implementation of any decision of a Board of Directors. This individual would be responsible for the coordination, staffing, and operations of various departments. To expect to obtain an individual capable of filling such a post would require not only a salary comparable to corporate executives elsewhere, but would require granting the power necessary to make and enforce operating decisions. This person would be responsible only to his immediate superiors - a Board of Directors.

Initially, the Board of Directors could be the Tribal Council. However, the Board of Directors should be elected in a different manner than the current Tribal Council in order to provide policy continuity. The election of Board members should be staggered so part of the members are elected every year to permit gradual evolution of policy and to preclude precipitous policy breaks. (See also Part C.).

The function of the Board would be policy planning. With operations handled by an executive head, operating decisions are removed from the direct concern of the Board. The Board of Directors should hire persons familiar with a given problem area on a consulting basis to aid in the planning of policy decisions. Three types of Board decisions would be:

1. The establishment of various departments with a broad delineation of activities within each of the departments. Examples are farm advisor, timber management, health, education and welfare, accounting and personnel management.

2. The establishment of future objectives and a development program. In consultation with hired consultants the Board would develop long range management plans to manipulate resources to attain objectives.
3. Periodically review progress made toward the attainment of the specified objectives and redirect activities in line with any changes in possibilities which may arise.

Upon its creation, the corporation should have title to all assets currently classed as Tribal. For example, Tribal assets are Tribally owned timber, all land not individually owned, and Tribal machinery and equipment. The first job of the corporation would be to undertake a full professional appraisal of all existing assets on the Reservation. Appraisers should not be selected solely by the Tribes. The Tribes should request either the Government or possibly Oregon State College to select the proper persons. The appraisers should not be in the employ of the Government.

Upon determination of capital asset values, the Board of Directors would specify that, as of a given date the corporation would divide the assets of the corporation equally among all living enrolled Tribal members on that date. Each living enrolled member, as of that date, would receive one share of value worth whatever the division specified. For example, it appears that a realistic appraisal of all of the Tribal assets would yield a value approaching \$90,000,000.^{1/} If, as of a given date there were 1,750 living enrolled members, each one would receive shares of stock with a total value of approximately \$51,000. These could be any par value desired, but the total value per person would approach \$51,000. Each share of stock would carry with it the right to receive annual dividends from the income of the corporation. The shares going to minor children should either be given to the parents or held by the corporation in trust until the child attains 21 years of age. If the shares are held in trust by the corporation until the minor children reach the age of 21 years, an arrangement could be worked out whereby the corporation paid to the parents one-half, or all of the annual dividends on the stock. If one-half of the dividends were to be paid to the parents for child support, the other half could be placed in the trust for the child until he attained his adult age. This would provide sufficient income for the parent to support the child and yet assure the child's rights to his share in the assets.

What does this imply? This structure would stop the continuous dilution of each individual's share in Tribal assets. As the Warm Springs' population increases rapidly, as it is now doing, the value of each individual's share of ownership continues to decrease.

^{1/} The basic data involved here are the values for timber and land. Timber values used are \$25 per thousand for pine (2 billion feet), \$15 per thousand for fir (1.5 billion feet), and \$7 per thousand for other species (500 million feet). The remainder is made up of land, machinery, and equipment.

Upon dividing the assets and issuing individual shares of stock there would be no more shares issued. This does not mean that individuals could not divide their shares among their heirs. What it does mean is that in having a large family, a man and his wife are only diluting their own shares in the Tribal assets. Other families and individuals would not, as is now the case, have to bear the costs of someone having a large family. This has advantages both for the young people and for the old. For the young people now living, there is the assurance that their stake in Tribal assets will not be diminished by a continual rise in the birth rate. For the older people, it gives more assurance of a steady income. For all members there is some assurance of a home so long as they choose to maintain it, but it gives flexibility to permit future changes without disastrous discontinuity.

By issuing stock in a corporation a mechanism is provided whereby those who desire to sell their share of the assets can do so. However, the remaining members can have the assurance that no stock will be sold to non-members if they so desire. In issuing stock, recapture clauses would be included specifying that individuals must first offer any stock they desire to sell either to the corporation or to other members. If the corporation were to repurchase any stock, it could cancel out this ownership which would result in an increase in the value of the remaining shares. If an individual were to buy the stock, his ownership would rise by the amount of the purchase. Further, the corporation could reserve the right of recapture of a share or portion of share willed to an individual or individuals, who would not be considered as enrolled in the Tribes prior to the establishment of the corporation. The dilution of corporate assets through outside ownership would be prevented. Therefore, a mechanism is provided which would keep control of the Tribal assets in the Warm Springs Tribes in perpetuity if desired.

This description of a land and timber corporation is important because the basic concept applies throughout the other alternatives. It will be modified somewhat to fit the other alternatives. It is the basic tool recommended for manipulating or managing Tribal assets.

Ownership. Ownership of a Tribal land and timber corporation would reside in the enrolled Tribal members. Ownership would be in the form of limited-right stock certificates. The limitation on rights would appear as a limitation on the individual's rights to dispose of his corporate shares in a manner not in the interest of the other owners, for example by selling stock to persons who are not members of the Tribes.

Dividends on stock would be paid, if available, either quarterly, semi-annually, or annually, at the discretion of the Board of Directors, or could be specifically delineated. The annual rate of dividend would be at the discretion of the Board of Directors, but the Board would be, after all, responsible to the Tribal member-owners. Dividends would be paid from timber income, from leases and any other rental income.

In future years should stock certificates be split among heirs, the corporation could employ various devices to lessen the bookkeeping and accounting expenses of small shares. For example, the corporation could

require that all stockholders with shares worth \$1,000 or less would have to come to the corporation office and request his or her dividends. This would mean dividends on small amounts of stock could accrue on the books of the corporation until claimed.

During initial stages, dividends could be paid at a relatively high level and then gradually lowered as more funds were required for capital investment purposes. As investments begin to create employment opportunities, the need for annual dividends at high rates would be decreased. This would offer a device whereby the Tribes can make the transition from dependence upon per capita payments to dependence upon employment.

Each share of stock would carry with it one vote for the Board of Directors of the corporation. For shares of stock held by minor children, the corporate charter could indicate the voting procedure. It may be that the Tribes would want to grant the voting proxy for the shares held by minor children to the parents of the children. On the other hand, if the shares and a portion of the income are held in trust, the Tribes could grant the voting power to the trust officers. This latter method would mean that parents with large families would not have the power to force high dividend rates by utilizing their voting strength as a threat against the Directors.

This corporation would set up a group of service departments in such areas as agriculture, credit, farm advisor, and health, education and welfare. These facilities would be available to all of the stockholders and their families to service and counsel their needs.

Acquisition and Disposition of Farm Lands. After all land had been appraised, one of the first functions of such a corporation would be the purchase of all privately held lands within existing Reservation boundaries. The land should be purchased at the value set by the initial appraisal. Assuming the establishment of a long-range development program, it is possible that the Federal Government could be asked either to appropriate the entire amount of money needed to purchase privately held land, or to appropriate the money on a matching basis with the Tribes.

To facilitate purchase of heirship interests, it is recommended that the Tribes propose legislation providing that heirs holding interest in a given piece of land could sell the land if either fifty-one percent of the heirs approve the sale or heirs controlling fifty-one percent of the acreage approve the sale. Such a proposal would be consistent with the views expressed in the survey questionnaire.

While all privately held land was in the process of being acquired, the Reservation should be adequately surveyed to delineate all tillable areas as defined by the soil survey. This should be done by competent soil, range, and forest management persons. Then a system of rural zoning should be established to ensure that agricultural land would be utilized to its best general use. By zoning or limiting the tilling of land to delineated tillable areas, farming, as such, would be limited to land which could properly be tilled.

Upon the acquisition of all privately held land, farms could be leased to individuals in contiguous units within the defined tillable areas.^{1/} In leasing the land, the Tribal corporation should specify in the lease the nature of the conservation practices desired by the Tribes. Farm land leases could be for the life of the individual unless voluntarily relinquished. There should be a development period of five to ten years in which the land would have to be developed to the satisfaction of a corporation farm advisory staff. Should the development of the farm not be undertaken within this period, the corporation should have the power to cancel the lease and re-lease the land to some other person.

In leasing lands in zoned tillable areas, the Tribes should change existing land limitations. It is suggested that land be leased in minimal units of 400 acres of dry cropland, or 140 acres of irrigated land. However, if at some future date, dry cropland were to be put under irrigation, an individual should have the right to retain his initial lease. This provides opportunity for continuity of operations of a given unit if operating conditions change. The operator should, however, be permitted to relinquish any leased land if he so desires.

Also, the original lessee should have the privilege of specifying, in writing, another person to whom the lease should be transferred upon his death. The new lessee should be allowed a period of development to permit adjustment of operations to the temperament and capabilities of a new operator. The new holder of the lease should, as a minimum, maintain the over-all condition of the particular unit.

Should an individual desire to relinquish his lease voluntarily, the Tribal corporation could purchase from him the value of the improvements on the land. If upon the death of a lease holder there were no written specification as to the transfer of the lease, the corporation could purchase the value of the improvements from the heirs and re-lease the land to another person. The purpose of such measures is to have a minimum insurance of continuity of operations of a given farming unit.

As an initial guide to long-run development of the land resource, the corporation should, upon leasing land to an individual, cover the cost of breaking the land and line-fencing the farmstead. In other words, the Tribes should initiate basic improvements to put land into operating condition. Leases should carry a rental fee which could include the cost of breaking and clearing any land, as well as line fencing, and should be assessed with interest as a rental cost over a 25 to 30-year period. The total fee should be decided by the Tribes. After the payment of initial development costs, lease fees should be continued. The development of land in this manner will improve its value and would insure that Tribal funds would be repaid to the corporation. In this manner the value of stock held by owners of the corporation would be increased, and benefits accruing from development

^{1/} The term "contiguous unit" means all land in a given farm would be in one unit rather than being scattered in various places around the Reservation.

shared by all owners of the corporation. Repayment of the initial cost of land development with interest would give non-farmers direct benefit from the development of the agricultural resource.

By zoning or restricting farm lands to tillable areas, the corporation would make definite progress toward limiting cultivation on land best suited to tilling. Further, in leasing lands in contiguous units large enough to permit efficient operations, it would be possible for an operator to make farming a paying enterprise and provide non-farmers an investment income from the development of the land resource.

Grazing Land. Land not leased for tilling could be used for the grazing of livestock. The Tribal corporation should lease grazing land to local associations in defined, fenced, grazing units. The optimal or best coordination of seasonal grazing and winter feed production areas should be determined by competent range and farm management persons. The guide lines underlying such coordination could be made part of association bylaws or the recommended zoning code.

Leasing of land in defined grazing units presupposes the establishment of grazing associations which would provide earnings for non-stockmen from the range resource because they would be assessed a lease-rental fee based on the value of the grazing to livestock producers. (Organization and management of associations are discussed in the Range Report, Volume V). The fee assessed the individual stockman by the grazing association should be sufficient to pay the expenses of the association, including the charge made to the association by the Tribes for grazing privileges.

It is possible that after fencing grazing units there would be no agreement among the users of a particular grazing unit, and, therefore, no association formed. Should this situation arise, the Tribes should undertake operation of the grazing unit, performing functions comparable to grazing units with associations. That is, hiring personnel necessary to operate the unit under the direction of a range management technician, and assess grazing fees comparable to those in adjoining grazing units with associations. Such an approach would not preclude the formation of associations simply to avoid payment of fees, and, would continue to give non-stockmen an income from the range resource.

Both methods of handling grazing units within a Tribal corporation give a direct interest to all of the owners of Tribal assets.

Forest Land Disposition. The forest resource would be managed by the Tribal corporation in a manner which would maximize long-run income and employment possibilities consistent with proper management practices. The management of the forest, like that of farming and grazing, must be done on a large scale basis. Since agricultural potentials suggest a decline in the number of people which agriculture can support, alternative employment must be made available for those leaving agriculture but desiring to remain on the Reservation. The forest resource provides the major means of creating alternative employment opportunities. To accomplish this, the Tribes should seriously consider as one alternative some arrangement with

a large lumber processing corporation. A large firm might well provide the best opportunity to develop and utilize the forest resource over a long period of time. (See the Forestry Report, Volume V, for a discussion of these points.) Not only could a Tribal management corporation receive income from stumpage sales, but it could receive income from processing and sale of the lumber. Location of any processing activities on the Reservation could give Indians first opportunity for employment in a given job, providing skills were available. A job training program could be established wherein the company and the government, possibly on a matching basis, cover the cost of retraining an individual for a given position.

The importance of such a large company lies mainly in its extended view of the future and the management resources at its command. That is, the management outlook contemplates continuous operations beyond the life of the current managers or executive body. On the other hand, small companies centered around or directed by a single individual, too often view the future in terms of the life span of this individual. An extended view of the future is required to provide a continuing income base for future generations. Such long-term income provides investment funds for the development of Tribal resources as well as a fund to pay dividends on stock. If the asset structure is to be maintained intact for a long period it is necessary that income be more or less continuous during the life of the Tribal corporation.

Part B Alternative II - Tribal and Private Ownership of Land

A Definition. The Tribal corporation proposed in Alternative I would apply to this alternative, with some modifications. The change from Alternative I is the manner in which tillable farm land would be owned. Under this alternative, land designated as tillable would be privately owned. The function of the Tribal corporation with respect to creation and operation of various departments, the position of executive head of the corporation and the Board of Directors, remains unchanged from Alternative I.

Ownership. Ownership of the corporation remains with the Tribal members. Since the definition of the corporation remains unchanged from Alternative I, the manner in which shares are distributed and their value is unchanged.

There are two basic ways in which the disposition of farm land could be handled under this alternative. A brief consideration of these is necessary to the discussion of corporation ownership. These are:

- (1) The Tribes would purchase all land not in Tribal ownership and resell delineated tillable acreage to individual operators.
- (2) Purchase all non-tillable and tillable land not currently held by a single owner, that is, all non-tillable and tillable land in multiple ownership, and resell delineated tillable acreage to individual operators.

Under (1) the value of the stock distributed initially to each individual would be equal. As payment for land, a person could relinquish his dividends on stock for a period long enough to cover the value of the land purchased. Under (2) the value of stock distributed to individuals holding single-owner lands could be the same as in (1), since purchase and resale of single-owner tillable lands would be largely a paper transaction. All assets would be appraised as in Alternative I.

The major change from Alternative I is in the right of individuals to hold land in private ownership and still receive a full share of the remaining corporate assets. There is a decided advantage to the purchase of all land currently held in private ownership, whether in single or multiple ownership, and the distribution of stock certificates of equal value to all living enrolled members. This would avoid any questions about the adjustment in the value of corporate ownership shares.

Stock rights and conditions remain unchanged from Alternative I, for both adults and minor children.

Land Acquisition. Land acquisition under this alternative requires special consideration. The Tribes would have to decide whether to acquire all land and then resell the tillable areas to private individuals, or whether to acquire all multiple-owner lands and non-tillable single-owner lands, allowing single-owner lands to remain in private ownership.

In either case, it is recommended that the Tribes acquire all fee patent lands. The reason for acquiring fee patent lands is clear. This would mean that all Reservation land would then be under some degree of Tribal jurisdiction. The aggregation of land under a single jurisdiction is imperative if Tribal assets are to be maintained intact under any foreseeable exigency. The manner of acquiring land would, however, follow the same pattern as Alternative I.

The aggregation of land into a single jurisdiction has importance from another point of view. If the Tribal corporation has jurisdiction over all of the land within the Reservation, it then has the power to resell this land on a limited rights basis. In selling land under limited rights, the corporation would simply be selling the use of the land or the surface rights. This is discussed further in the next section.

Disposition of Farm Lands. All lands within the confines of the Reservation should be completely surveyed to permit delineation of farming areas. Farming would then be restricted or zoned to the areas which were delineated as tillable. The zoning concept would be applied as in Alternative I. Land sales would be restricted to tillable acreage. The combination of a zoning ordinance and a limited rights concept lends some assurance that land will be used properly and that the effects of inheritance practices would be minimized.

The type of disposition of farm lands which would have the greatest benefit for the Tribes would be a total purchase and resale program. This should not, however, preclude consideration of the other type. Retention

of single-owner lands by current owners is only a slight modification, although it would create problems in instituting limited rights in ownership. Minimum acreage sales and qualifications regarding subsequent irrigation remain the same as for leased land in Alternative I.

In all cases there should be an initial five to ten year development period after which it should be possible for an individual to resell or lease his land. This would allow Tribal members to purchase or lease land from other individuals to increase the size of their operations. Small parcels of non-contiguous tillable land could be sold to a person if it is adjacent to a larger unit, or it could be held as Tribal land and incorporated in grazing units.

Were the Tribal corporation to purchase only multiple-owner, non-tillable single-owner, and fee patent lands, the reselling of tillable lands to individual owners should give owners of adjacent single-owner lands first preference in the purchase. Sales should still carry the limited rights limitations outlined previously, however. But single-owner land retained by individuals would not necessarily be under limited rights since the Tribes do not basically own it.

Use of limited rights in the sale and use of farming land is important to the maintenance and operation of Tribal assets for future generations. The basic feature of limited rights ownership is that all land owned by individuals could be disposed of only within the limits established by the basic owner of the land. For example, in selling land an individual should have to offer land for sale to the Tribal corporation. This would prevent the dilution of Tribal assets by sales to individuals outside of the Tribes. Further, the Tribes could specify some recapture-at-death procedures. For example, they could specify that the land could only be passed on to a person eligible for membership in the corporation or the corporation could repurchase land under reversion clauses. The Tribal corporation could retain all timber rights and, say, for example, 50 percent of the mineral rights on the property. The limited rights concept provides a powerful tool for the maintenance of the Tribal land asset.

In purchasing land under limited rights, an individual essentially purchases a right to use land in any manner in which he chooses within the limits set down by the body reserving the remaining rights. It should not be supposed that an individual does not, in fact, own the land.

To implement this type of ownership if tillable single-owner lands are not purchased and resold, the Tribes could utilize Article V, Section I (D) of the Constitution. This means the Tribes should submit, through proper Government channels, a recommendation for the implementation of limited rights ownership on land held privately by single owners. In any case, limited rights ownership should certainly be written into legislation. It is recommended that the Tribes propose the amendment of existing legislation wherever necessary, to permit ownership of land by private individuals only under limited rights, with the reserved rights residing in Tribal corporation. On the face of it Article I (B): "To establish and enforce such rules as may be necessary to safeguard Indian property and resources for the use

of present and future generation" would seem to make it incumbent upon the Tribes to make land ownership possible only under limited rights.

Grazing Lands. The disposition of grazing lands would be identical to that under Alternative I.

Forest Lands. The disposition of Tribal forest lands would be the same as under Alternative I.

Part C Alternative III - A Land Exchange Proposal

Definition. The central feature of this alternative is a proposal that the Tribes incorporate a village of Warm Springs. A suggested area to be incorporated would be Range 12 East, Town 9 South, Section 23, 24, 25, and 26; and Range 13 East, Town 9 South, Section 30. Within this incorporated village the Tribes, either singularly or on a matching basis with the Federal Government, would completely develop the land for homes. That is, the area would be developed into a modern community with sewage and water facilities, domestic power, paved streets, landscaped lots, and any other features desired. Electric power is already available to the area.

The main cost of such a project would be land acquisition, planning the community, paving the streets, and landscaping individual lots. The development of individual lots for homes would play a central role in exchanging land within the incorporated village for heirship interests held by individuals outside of the incorporated area. However, a community development of this nature should be undertaken only in consultation with persons experienced in planning and constructing complete community facilities. Another significant advantage of the incorporation of a village area is that it would be a first step toward the creation of a county of Warm Springs, should that eventuality become necessary and desirable.

A necessary corollary to the incorporated village would be the creation of a Tribal corporation identical to that in Alternative II. The corporation is a definite necessity since it would provide the mechanism whereby assets of the Tribes would be held intact, and the entity which would exchange developed homesites within the incorporated area for heirship interests held by individuals at the present time.

Ownership. Ownership of the corporation would be the same as outlined under Alternative II. All factors regarding ownership, stock distribution, voting, sale of stock, appraisal of assets, and stock to adults or minors remain unchanged.

Land Acquisition. The first step under this alternative would be the acquisition of all land within the area to be incorporated. Because of the importance of acquiring ownership to land within the area, it is recommended that the Tribes offer the current owners of such land the fair appraised value of this land, plus a developed lot within the incorporated area. If such individuals owned heirship interests outside the incorporated village area, they should be purchased on a straight cash appraisal value. There should be a limitation of one lot per family within the incorporated area.

In making the exchange of heirship interests, adult family members should be required to exchange all of their heirship interests for the developed piece of land.^{1/} If appraised value of the heirship interests were greater than the appraised value of the developed piece of land the differential should be paid in cash. Where heirship interests are appraised at a value less than the appraised value of a developed lot, the owners should have the option of either accepting cash for their interests or take the developed lot and make up the difference in cash. As an alternative, owners could forego their corporation dividends until the difference between heirship land value and developed lot value is paid.

To protect interests of minor children holding heirship land, the Tribal corporation should place an amount of money equivalent to the appraised value of the minor child's heirship interest in a trust account. On maturity the child could be given the option of accepting the money in the trust account or relinquishing it for a developed homesite lot.

The same program could also apply to interests in fee status lands. That is, developed lots could be exchanged for fee lands. Differentials in value could be made up by the Tribes or by the individual as the case might be.

Disposition of Farm Lands. The corporate form outlined under Alternative II would accompany this land exchange program. Disposition of farm lands would be according to the outline presented there.

Grazing Lands. The disposition of grazing lands would remain unchanged from the manner outlined under Alternative I.

Forest Lands. The disposition of forest lands under this Alternative would also remain unchanged from that presented under Alternative I.

Tribal Corporation - Incorporated Village Relationships. A fundamental relationship of the Tribal corporation to the incorporated village would be that the former would retain certain rights relating to land ownership within the incorporated area. That is, land would be owned under limited rights to insure that all of the assets of the Tribes are held intact. Apart from that basic requirement the relationship of the Tribal corporation to the incorporated area could be quite variable.

The Tribes through their corporation, could, for example, provide any technical or social facilities desired for their incorporated village. Since the Tribal corporation is concerned with the management of the Tribal assets, the management of village affairs should, therefore, be left to a Board of

^{1/} Since there would be a limitation of one lot per family, all adult individuals in a family would pool their heirship interests for exchange or sale in one block. A family means the immediate family of a married couple or widow or widower and dependent children.

Village Supervisors. The Board of Village Supervisors would not necessarily be identical with the Board of Directors of the Tribal corporation, although members elected to the Board of Directors of the corporation could also be elected to the Board of Village Supervisors.

The Board of Village Supervisors should, in turn, hire a village manager to run the day-to-day village business. He would be responsible to the Board of Supervisors who are, in turn, responsible to their constituencies. Since it is proposed that a Tribal management corporation provide various technical and social services through its various departments, individuals residing in an incorporated area would not have to depend upon a village administration for services oriented toward the development of resource potentials. A suggested breakdown of services between a village administration and the corporation is as follows:

<u>Tribal Corporation</u>	<u>Village Services</u>
1. Educational counseling	1. Law enforcement and judicial services
2. Farm advisory services	2. Garbage services
3. Health and Welfare services	3. Provision of recreation facilities
4. Credit services	4. Liaison between village inhabitants and corporate service departments
5. Maintenance of Tribal assets	

The relationship of a village to a Tribal corporation as outlined here yields the advantage of avoiding personal property taxes. The corporation-village relationship suggested here would mean the village could have the power to assess the Tribal corporation an amount necessary to run annual village business. Discussions with persons on the Reservation suggest that one great concern is taxes. To avoid undertaking development programs simply to avoid taxes would be a mistake. While the desire to have the best of all possible worlds is not an unworthy objective, the situation facing the Warm Springs Tribes demands more worthy calculation.

A Brief Summary. A land exchange program would provide the Tribes a means of developing an area which would raise living conditions of the Tribes considerably. The working relationship between an incorporated village and a Tribal corporation is a detail which can easily be worked out. It is important to recognize, however, that if the land exchange-incorporated village idea is attempted it should be done only in conjunction with adequate, technical management.

The presence of an established incorporated community in conjunction with the Tribal corporation holding Tribal assets intact provides an excellent beginning for the establishment of a county. The arrangement of the Tribal corporation-incorporated village would mean that all of the assets within the boundaries of a county would be owned by the Tribal members.

Part D Alternative IV - The Status Quo

Maintenance of the status quo will likely lead to a pronounced decline of interest in maintaining the Reservation as a unit. As problems become

more pronounced, ever increasing pressure will be generated to break up the asset structure as a means of trying to stop further decline of prorated values. In evaluating and discussing non-status quo alternatives, Tribal members may feel they are inviting "Termination." Views such as this arise basically because of a lack of understanding of what is facing the Tribes. Achieving self-determination is a process. The process has been operative for some time and with or without planning it will in all likelihood continue. Maintenance of the status quo will simply preclude undertaking plans to put assets into a form which could produce Tribal income and employment for many years to come.

Maintenance of the status quo offers little for the Warm Springs Tribes. While it is true that many changes proposed are drastic, the changes can be implemented in a manner which would be minimally disruptive.

Part E A General Summary

The programs discussed in this section are suggested solutions to the land ownership and heirship problems. Further, they are means for preventing the recurrence of heirship problems. In reorganizing the assets of the Tribes along the lines proposed in the alternatives above, the Tribes have a way to manipulate their assets to generate income for as many future generations as desired and also to allow persons who want to sell their Tribal interest to do so without dissolving the entire asset structure of the Tribes.

The use of many of these alternatives will require that proper legislation be proposed. In aggregating land within the existing Reservation, it will be necessary to propose legislation permitting the removal of fee status lands from the tax rolls of the county in which the land is located. To facilitate purchase of heirship interests, it will be necessary to propose legislation which will change the current unanimous consent requirement in disposing of heirship lands. Private ownership of land is important to the people. It is also important that the owners of the land be in a position to utilize land for their own purposes and to permit the Tribes to better manipulate their assets in a development program. This means that laws regulating ownership and disposition of land must be made more flexible to better permit transfer and/or sale of land between individuals or between the corporation and individuals. The complicated pattern of land ownership which currently exists on all Indian Reservations is inconsistent with the manifest aspirations of the Warm Springs people. The basic ownership pattern should be that all land not owned privately would be owned basically by the corporation. Since the corporation would be owned by the Tribal members, all land would still be owned by the Tribes but problems of asset dilution through sale are mitigated by the introduction of limited rights ownership. Upon deciding on a particular alternative, the Tribes should utilize the services of persons not now involved in Reservation affairs or business but who are familiar with the legal necessities for implementing the particular alternative. The same may be said for implementation of the technical needs involved in zoning, range management, forest management, and farm management.

Section 3

Part A Tribal Reorganization Recommendations: Farm Advisory Staff and Program

Introduction. Recommendations made here can be considered as first steps toward the broader reorganization objectives outlined under Section 2. These recommendations stem directly from: (1) lack of coordination in current advisory facilities, (2) the organizational process of Tribal policy-making, and (3) the functioning of the Tribal Council regarding resource management.

A Short-Run Mechanism. The Tribal Council, utilizing powers granted under Article V, Section 1 (A) of the Constitution and Bylaws, should develop recommendations necessary to coordinate agricultural service activities on the Reservation. Such recommendations should coordinate the farm advisory activities of credit, extension, land operations and the Tribal fieldman to form a Bureau-Tribal farm advisory committee. The committee should be chaired by the Superintendent and the vice-chairman should be a member of the Tribal Council appointed by that body. Meetings should be held weekly to delineate areas of responsibility and to keep each department informed as to the progress and direction of the other departments. The Tribal Council member would function as a liaison person with the Council and he should chair the meeting in the absence of the Superintendent. Departmental personnel working in the field but not on the committee should be called upon to provide project reports. Under the direction of the chairman and vice-chairman the staff should seek to implement the development plans or objectives outlined by the Tribal Council. The plans proposed by the Tribal Council would in turn be developed by the Council itself. Such a coordinated approach places a service staff in its proper light. That is, as a group whose primary function is to implement the decisions of the executive management and to service local needs.

The staff function is not, however, a one-way affair. Even though plans for development of Reservation resources would be developed by the Council, the staff, through its meetings and reports to the Council would function as a feed-back mechanism, calling attention to new problems and suggesting alternative solutions. This form of coordination eliminates duplicated activities and sets the stage for steps to be taken in the next phase.

An Intermediate-Run Proposal. In this phase the Tribes should hire the professional and technical personnel recommended in other survey reports. For example, the range technician would take over the livestock and range activities of the Tribes including activities of the current livestock fieldman.

During this intermediate period also, the Tribes should hire a farm management specialist. The suggested duties of this person would be: (A) take over the coordinated farm planning activities, (B) work jointly with the range management and livestock technician to integrate agricultural activities with the proposed range units, (C) perform the field duties to

insure proper functioning of the land-use zoning ordinance, (D) assist farmers in the planning and management of their operations, and (E) act as the feed-back mechanism to the Council on the progress of agricultural developments.

Both the range and farm management technicians should be responsible directly to the Council during this phase when functions are being transferred from the Bureau and the Extension Service to the Tribes. Also, the Tribes should negotiate with the Extension Service or the College to provide for technical counseling suggested by the farm and range management staff. This would alleviate the need to maintain Extension personnel facilities on the Reservation, but would insure the availability of the services when desired. In looking at this proposal it can be asked why the Extension Service or other public groups could not provide all of the farm management services. This is a legitimate question.

If the Tribes undertake a development program it is to their advantage to have personnel available who will devote all of their time to implementing programs of change along lines desired by the Tribes. It is not realistic to expect that the Tribes could direct the activities of the Extension Service or other public group in the same manner they could direct activities of persons hired specifically to implement Tribal development decisions. The concern of the Extension Service is much broader than the implementation of Tribal decisions. However, it is possible to insure that the services will be available when desired or needed.

The creation of range management and farm management positions permits entrance into the final phase of the proposal.

The Long-Run Arrangements. In the longer period, the Council or Board should initiate a subcommittee which may appropriately be termed an Agricultural and Water Resources Development Subcommittee. This committee would function to develop plans for further land and water development projects in consultation with a Tribal farm advisory staff, and whatever professional consultation would be needed. This arrangement meshes well with the initiation of the corporate alternatives discussed under Section 2. This Council or Board subcommittee should replace any existing subcommittee dealing with water, land operations, agriculture, and range. The creation of the suggested staff positions merge into one corporation department. Realistically, however, it makes little sense to fill any of the suggested positions if the Tribes are not willing to undertake a program to solidify the asset structure so as to permit resource manipulation. It is common sense that if there is no mechanism to hold the assets together, any current advantage gained from the hiring of professionally competent personnel would be dissipated upon dissolution of the asset structure. The revitalizing of range lands, the creation of economically efficient and profitable farming operations, and the development of enlightened management on the part of individual operators all will take time. Without the creation of the basic organizational tools, the Tribes will not be able to insure that enough time will be available to fully develop resources existing on the Reservation. While the mechanisms are complex, they are comprehensive. The basic decision for the Tribes to make is whether or not they want to go ahead and create the mechanisms.

If the basic decision to proceed is made, then the Tribes can hire the talent or technologists needed to plan the most advantageous development program. Basic decisions would remain with the Tribes, but concern with the techniques and mechanisms would rest with hired consultants. Not only does this approach to development offer opportunities to take immediate steps, but it gives the Tribes time to develop their own human resources to assume management and planning positions in the future.

Part B Educational Recommendations

The Suggestions in General. The proposals here are outlined in broad terms only since education has been the subject of a report in itself (see Volume II).

The first program is aimed at raising the management capability of Reservation livestock operators. The Range Report indicates livestock and range needs for successful livestock operations. An educational program is a basic need for communicating the significance and meaning of the Range Report recommendations to livestock operators. To simply move in, implement improvements, and then turn them over to the operators is definitely not enough. It is necessary that the meaning and importance of changes be fully understood if initial developments are to be used as a base upon which to build sustaining livestock enterprises.

The second program deals with credit. There is a definite need that operators understand the economic function and potential usefulness of credit. An adult education program is needed to transmit a working knowledge of the function and use of credit to adults on the Reservation. The success of any credit activity undertaken by the Tribes will be dependent upon the ability of borrowers to utilize credit in an efficient, advantageous manner. This, in turn, depends at least partially upon knowledge of the economic function of credit. Credit is a useful tool and a basic necessity if the Tribes desire to make any progress in agricultural development.

The third program deals with irrigation. Knowledge of proper irrigation procedures is a prime necessity. Irrigated agriculture can be profitable only if proper management techniques are applied. It is necessary that the techniques of irrigated agriculture be transmitted to irrigation farmers in the existing system as well as any new irrigation developments.

While it is true some facilities exist for transmitting knowledge and information of the kinds just outlined, it is also true that it is not being transmitted or communicated to any significant degree. The manner of handling such education programs is now the main point to consider. The coordination of farm advisory services under the leadership of the Council and the Superintendent would provide an initial means whereby such programs can be undertaken. A proposal in the Education Report for acquiring an education coordinator provides an opportunity for having all adult education programs under the guidance of a skilled professional director. Placing the programs under an educational coordinator still means that the basic responsibility for developing information to be transmitted remains with the area technologist.

For example, development of material to be transmitted on credit would rest with a credit officer or manager. The same would be true for range and livestock, crops, farm management, and irrigation. An educational coordinator would function to aggregate individual programs into an adult education program for the entire Reservation. This would remove pressure from a technical specialist to develop a complete educational program and would leave him free to develop the information to be presented.

An educational coordinator fits well into the other programs presented. A staff adult education committee dealing with development of subject matter in various fields should be set up. It should be chaired by an educational coordinator responsible to the Tribal Council. In later phases, under a Tribal corporation, the educational coordinator should head an education department and be responsible to the executive head of the corporation. The staff committee would be composed of the education coordinator and persons from other departments in which there was an adult education program.

The adult education recommendations for agriculture are necessary if the persons remaining in agriculture are to manage their operations in their own best long-time interests, and in the interest of Tribal resources. Management is basically decision making. Decision making is a process of continuous acquisition of knowledge or learning for the purpose of taking action or avoiding being forced into an action.

Part C General Policy Development Recommendations

Dual Language Meetings. The younger age group, roughly those people from 21 to 35 years of age, will be a significant force in determining the direction in which the Reservation will move in the future. Unless this group is involved directly in the formation of policy, it cannot be expected that they will be motivated to maintain Reservation assets in any operational form. In the next 10 to 20 years, the number of persons in this age group will increase greatly (see Table 247). (See also the Population Report, Volume I.)

To educate young people, change their value systems and then expect them to live in the same manner as their ancestors is unrealistic. In order to utilize education in a manner which will benefit both the individual and the Tribes, it is recommended that the Council undertake an active program of encouraging participation of younger age groups in policy formation.

The first step in this program might well be the institution of single language meetings. Reportedly, the number of persons on the Reservation requiring the use of a translator is small in relation to the number of people affected by Tribal policies. It should be recognized that the growth of participation by younger age groups in policy formation will lead to changes in traditional policy formation mechanisms.

Tribal Council Reorganization. The successful functioning of a corporate or political body and the achievement of orderly change through time depends to a large extent on continuity of policy through time.

Policy continuity means that policies are more or less continuous through time. In this sense, policy changes are incremental; that is, changes from existing policies are small deviations in one direction or another. This is generally achieved by having some members of a policy making body carry over from one period to the next. That is, not all members of the policy making body are changed at one time. New members elected to the body must either moderate their new views to accommodate incumbent members or present a case strong enough to convince incumbent members that their approach is the right one.

Achievement of Reservation potentials will require a stable, continuous policy of change. Actions taken now are foundations for future action. Each change is a building block upon which other changes can be built. This means the atmosphere for policy making must generate a feeling of stability. It means that where there is an opportunity for breaks or discontinuity in the policy process, policy makers do not generally feel secure in their decisions. The decision making process can stagnate as a result.

While continuous, gradual change is possible where all elected members to a policy making body are elected at one time, there is always the chance that policies of development will be abruptly changed or stopped completely by an entirely new group of policy makers. To insure success in the development of economic and social opportunities on the Reservation, it will be necessary to preclude any chance of sudden sharp breaks in the policy making mechanism.

It is recommended, therefore, that Council members have their election years staggered so that some members would be up for election each year. The Tribes could still maintain the three-year term of office, but under a staggered election system, three Council members would be up for election for two years and two members elected the third year (i.e., 3, 3, and 2). 1/

This proposal is to provide continuity of the policy process through successive Councils. The overlapping of terms of office makes it possible to hold annual elections, but still keep Tribal Council activities more or less intact. Too, if this type of election system was installed the younger age group would find a political process operating which is quite close to those to which they are exposed in school and elsewhere. Quite simply, this form of policy making process is a step toward full participation in state and local affairs. Only through the creation of a mechanism such as this will the Tribes have some assurance of success in future development activities.

1/ Basically, if the Council members were all up for election, say in 1962, three persons could be elected for three years, three for two years, and two for one year. The Chairman of the Council should be one of those elected for a three-year term simply because there would be a more stable situation created.

Section 4

Part A Capital and Credit Recommendations

Basic Factors and Assumptions. The maintenance of Tribal capital assets will require some form of operational credit structure. An operational credit structure is more than one which simply has enough money to make loans. While it is true that individuals may be borrowing their own money in the sense that they are all members of the Tribes, it is also true that a successful future for each individual on the Reservation will be dependent upon the mutual cooperation of all individuals.

Part B Agricultural Credit

The existing credit code will be of little or no help in a development program.

Although resources are available to build an adequate credit program for development of the agricultural and range resources, it must be an integral part of the over-all organizational mechanism. In other words, an agricultural credit program must be meshed with credit needs in other areas.

It should be pointed out that the programs proposed here for credit may be considered as alternatives to proposals made elsewhere in the report. In considering these alternatives, the Tribes should weigh the advantages and disadvantages in terms of cost and potential service in a development program.

The implications of the changes proposed are essentially that a new credit code be written if the Tribes want to operate their own credit program. In this sense, the recommendations are suggested minimal needs for an adequate program.

The Short Period: Credit Fund. The first recommendation is that the program be oriented around a separation of short, intermediate, and long-term investments. The apparent magnitude of development facing the Tribes suggests that a basic credit fund of between \$750,000 and \$1,000,000 would be needed. Separation of investment types into short, intermediate, and long-term would allow the basic fund to operate either as three separate revolving funds or as a single revolving fund with internal control on the amount committed to any one type of credit.

In setting up a single fund of \$750,000 an internal policy could be maintained where not more than, say \$100,000 was committed to short-term production credit, \$200,000 to intermediate-term credit, and \$450,000 to long-term credit. An advantage of maintaining only internal controls would

be that it would be possible to have some flexibility in the program. For example, internal controls could provide that some average commitment to one credit type be maintained over time, permitting greater availability of funds in any credit type at any one time. This type of fluidity is not easily obtained in setting up three separate revolving funds. In the case of separate revolving funds, it would be necessary to maintain a higher basic fund for each type of credit.

In the establishment of three separate revolving funds it is suggested that a minimum of \$1,000,000 be committed to the program. The level of the three funds could be about \$150,000 for short-term credit, \$300,000 for intermediate-term credit, and \$550,000 for long-term credit. The level of a given fund would depend upon the expected rate of turnover. The advantage here is that it would probably be easier to regulate the amount of money being utilized for any given investment type. However, by committing this larger amount to credit there is the disadvantage of having large amounts of unused funds in any given revolving fund. This could produce a situation where farm enterprise investment decisions would be frozen for a period of time because of a lack of short-term credit, while a surplus of funds in other credit types existed.

The maintenance of one single fund would require a skilled credit manager. The requisite financial management skills are not currently available on the Reservation. The lack of financial management skills is not really solved by the creation of three separate revolving funds. This alludes to the next recommendation: the Tribes, in cooperation with the Bureau, should acquire the services of a skilled credit management person. This person would manage the credit program for the Tribes, and in the short period should be responsible jointly to the Bureau and the Tribal Council. This person should be trained and experienced in the area of agricultural credit and also should have a working knowledge of general non-farm and long-term credit. This person would participate in the coordinated staff activities.

A breakdown of farm credit into loan types and suggested loan maturities is applicable at this point. Short-term farm credit loans are generally considered to be for feed, seed, fertilizer, and operating capital between livestock and crop sales periods. Short-term loans should have a maximum maturity of thirty-six months. This type of credit is commonly referred to as production credit. Intermediate-term credit should be utilized for livestock purchases, machinery investments, and farm improvements such as fencing, and farm building additions or repairs. The maximum maturity should be seven years but not less than three years. Long-term credit involves loans for homes, farm buildings, sprinkler irrigation systems, and land purchases, if the Tribes select the private land ownership alternative. Long-term maturities should not exceed twenty-five to thirty years.

Credit for land purchase would allow individuals to borrow money and purchase land as an alternative to foregoing dividends on corporate stock. This feature would impart flexibility to the individual operations. In borrowing the money to purchase land rather than forego dividends, there would be more assurance that funds would be available (corporate dividends), to meet both credit obligations and provide the individual an operating cash reserve.

Long-term credit has application in the non-farm areas. Under an incorporated village development, long-term credit would offer the source of funds for the building of modern homes. Utilization of the long-term credit program for the building of modern homes could easily be tied into a community building code. The ability to obtain a home building loan could be made dependent upon fulfillment of building code requirements. As well, a credit manager could provide the service of asking for contractor bids in home construction. This coordinated function would provide a great deal of assurance that homes would be built at costs not exceeding the amount of the loan. It is recommended that no credit be used as installment credit, e.g., automobile purchases. This type of financing should be left to banks or installment loan companies.

The Short Period: Credit Code. The recommendations made here deal with other specific sections of the existing credit code which should be modified in writing a new code.

It is recommended that a revised code should provide that one member of the Tribal Council serve on a loan committee. If the program is to be utilized for development purposes, the Council member would provide liaison with the Council in coordinating credit and other activities. This person should be the person from the Council who is judged to be the most competent in the area of credit and general monetary management.

It is recommended that a revised credit code delete existing exceptions for officers and employees from loan limits (Section 9a of current code), as well as the current \$3,000 loan limit. New limits should be set. For example, such limits could be \$2,000 short-term, \$5,000 intermediate-term, and \$10,000 long-term. If the cost of homes runs much in excess of \$10,000 it may be that the long-term limit could be raised to \$15,000 or \$20,000.

As a further revision of the current code, it is suggested that authority granted the Superintendent to approve loans be changed to a blanket authority to approve loans up to \$10,000. Since it is clear that the Bureau of Indian Affairs will be involved in Reservation activities for some time, it is necessary that the area of their authority be written into a credit code. A code should, however, contain the necessary clauses to assume gradually the grants of authority now given various Bureau personnel.

The next recommendation concerns Section 19 on loan maturity. As currently constituted, provisions for repayment of the loan are unrealistic. Scheduled repayment of loans should be made specific and the schedule enforced.

It is recommended that Section 26 (B) (5) be changed to allow for the coordinated staff activities in farm planning. The section currently reads, "these (farm) plans shall be worked out in cooperation with appropriate Federal or State agencies, or personnel of the Bureau of Indian Affairs...." This should be worded: "In cooperation with the staff farm advisory personnel..." This then precludes differences in planning from disrupting farm enterprise operations. The use of this approach to planning would permit credit to be used as a device for shifting agricultural activities either to a livestock-feed economy or large-scale dryland wheat operations

in combination with livestock. Proper management of planning activities in conjunction with proposed adult education activities provides the means to implement project recommendations, and the means for showing farmers and ranchers long-run advantages of the proposed programs.

Longer-Run Recommendations.^{1/} The function of a credit manager would be applicable to a future as well as a current credit manager. Hence, as the Tribes work toward self-determination it is only logical to expect they would use the services of a credit manager if they operate their own credit program. This person should be a staff member responsible to executive head of the Tribal Corporation rather than the Council or Board of Directors.

A trained and experienced credit manager must have adequate flexibility and authority to run an effective program. It is, therefore, recommended that the function of the loan committee be reconstructed. The function of the loan committee should be one of review and study of more doubtful loans, taking under consideration the recommendations of the farm advisory staff and the opinion of the credit manager. The basic structure of the loan committee could remain much the same as at the present time except for inclusion of one Council member. As well as handling doubtful loans, the loan committee should function as a continuous review body to see that the credit program was taking the directions outlined by the major policy making body, the Tribal Council or Corporate Board of Directors. Functioning in this manner, a loan committee would be able to provide the Council or Board a concise over-all report of the progress and direction of the loan program through the liaison member. Such an arrangement permits a double evaluation and cross checking of the credit activities.

If a village is incorporated there will be a need for a mechanism to finance building within the urbanized area. There is also a need to include provisions for educational loans and emergency consumption loans. This need not be of major concern since one of the review functions of the proposed loan committee could be the review of applicants for such loans. Educational loans are periodic and emergency consumption loans are a Tribal welfare function. The loan committee could consider such loans, taking under advisement the evaluation of an educational coordinator and the opinions of relevant health and welfare personnel.

An Alternative Long and Short-Run Recommendation. An alternative to the credit funds would be the establishment of a joint credit fund similar to a credit union containing farm and non-farm loan divisions. While a credit union is generally considered to be owned by individuals participating in it, it would be a worthy variation to have the Tribes, through the Tribal Management Corporation, control fifty-one percent of a joint credit fund. In return the corporation would provide the advisory staff to service the users of the credit fund. In addition to providing the credit mechanisms, a joint credit fund could provide secondary investment funds for the Tribal Corporation.

^{1/} The conception of the longer-run implied here is that time when Tribal activities will be under Tribal management and control.

The type of persons required to manage a credit fund would not vary significantly from those outlined for a credit manager. This would, however, obviate the use of a loan committee in the current sense of the word. A credit fund would most probably utilize a subcommittee from its Board of Directors, or a staff committee for evaluating loan activities and doubtful risk loans. In owning fifty-one percent of the credit fund, the Tribal management corporation would control the Board of Directors. The loan policy could be coordinated with over-all Tribal objectives. The function of the inter-locking directorate would in no way be for purposes of exploiting the Tribal members, since the purpose of the entire development corporation and the credit fund would be to guide and finance Tribal resource development in the interest of both present and future generations.

One advantage of a joint credit fund is that it would probably be much easier to have a more complete range of credit operations. One disadvantage of a joint credit fund, given current knowledge of credit, would be that individual investors in the credit fund would most likely expect not only dividends, but the freedom to borrow any amount desired.

A joint credit fund can provide its basic credit service and a secondary source of investment funds for any resource development program if, and only if, it is properly controlled and managed.

A Summary. Credit should be used as an integral part of any development program if the Tribes want to bring about any significant change from current practices. The alternatives presented are tools to be utilized in conjunction with the other recommendations concerning corporate organization structure. The Tribes should recognize the disadvantages of not maintaining control over a credit program and the consequent inability to direct the program in the interest of an over-all development program.

Part C Capital Management Recommendations

A Tribal Investment Budget. A fundamental tool of any development program is an investment or capital budget. Capital budgeting involves capital expenditures. Capital expenditures are those funds spent on projects whose benefits are realized over a period longer than a year. Benefits from operating expenditures are generally realized within a year.

Capital budgeting is a control device for allocating scarce funds among competing alternatives. There is really no other area of decision making that is as important to the success of any operating firm as is capital budgeting. Since capital expenditures generally involve the commitment of large sums of money for relatively long periods of time, any error in the evaluation or control can yield serious consequences to the operating firm. As a consequence, capital budgeting generally involves specialized procedures and organization.

The nucleus of a capital budgeting process is already available in the existing accounting department. If this nucleus is developed and a structure built around it, the Tribes will have the ability to coordinate decisions as well as to evaluate and eliminate conflicting investment proposals.

Although the nucleus of a capital budget structure is available, this does not imply that staff personnel should be permitted to determine proposed expenditures. This decision should rest with the Tribal Council. The point is, there are personnel available who would be useful in the actual construction and planning of the budget by coordinating and arranging capital expenditure proposals for submission to the Tribal Council for study and evaluation. This training and experience provides the core of a comptroller's office in the proposed Tribal management corporation.

In the development of this nucleus, the Tribes should utilize consultant services of persons with a professional knowledge of the means of constructing capital budgets and setting up the necessary organizational mechanisms. However, some indication can be made here of what decisions are generally involved in capital budgeting. The investments selected for inclusion in a budget compete for available funds. In selecting investments to be put into a budget, the strict monetary comparison of costs and returns would most probably and probably should, be modified by non-monetary consideration. That is, even though a particular proposal may have an attractive money return in relation to the cost of the capital, it may also have intangible or non-monetary disadvantages.

On the other hand, there may be proposals which offer a money return which is not especially attractive in relation to the cost of the capital, but it may have intangible benefits which would be worthwhile having. For example, an incorporated village would most probably be decided upon on the basis of intangible benefits. On the one hand it may appear that investing of available funds in agricultural and forest development projects would yield an attractive net return. On the other hand, there may be a great intangible advantage from investing funds in the development of a modern up-to-date community area. These intangibles may be in the form of increased Tribal morale, greater industriousness and willingness to work for the success of a Reservation development project.

Section 5: A General Summary Statement

The programs presented in this chapter can, at the very least, be considered as major revisions in Tribal and Bureau operations on the Reservation. The manner in which the programs are constructed provides a phasing mechanism wherein the Tribes will be able to take over and manage their resources in a competent and professional manner. In the initial years of the proposed programs much of the management will come from existing staff or hired professional managers in respective technical fields. As well, evaluation and consultation with unbiased, experienced and competent persons must be used by the Tribes. This is the means by which the Tribes can purchase the time necessary to raise enough Tribal members to a level of competency wherein they can assume managerial roles.

There seems to be no real reason why the existing asset base of the Reservation should ever have to be dissolved. However, the ability to maintain assets will depend upon a dynamic positive leadership willing to make the necessary decisions concerning fundamental reorganization.

In the structural reorganization and subsequent management, the structure must be handled by hired non-Reservation personnel in no way connected with the Tribes at the present time. Such a fundamental recommendation is made for two basic reasons. First, the over-all level of professional managerial competency is currently inadequate on the Reservation, and second, internal or factional arguments about the motives of an individual connected with the Tribes can be avoided. In other words, the interests of the managers must be the interests of all of the persons in the Tribes. Factional difficulties lead to stagnation of programs. Persons who are thought to favor one group or another may avoid taking any positive action on development plans. A considerable amount of stability is given to the Tribal policy making process by the proposed constitutional amendments. A mechanism for orderly transition and slow but continuous change is created which make the eventual assumption of self-determination an opportunity rather than some fearful occurrence.

While numerous prescriptions for problems can be written the essential factor is for the Tribes to recognize the existence and extent of problems. In other words, growth, development, and change are, in part, a state of mind. This is well phrased in the statement:

"The nature of the binding agent which somewhat mysteriously is supposed to organize and achieve cooperation among the many factors, resources, and abilities needed for successful development, is now becoming clearer. It seems to consist in a growth perspective which comprises not only the desire for Economic Growth, but also the perception of the essential nature of the road leading toward it....."

".....If a growth perspective is needed for growth, we have also just pointed out that this perspective can only gradually be acquired in the course of growth. So it would seem that all we have achieved is to saddle ourselves with yet another vicious circle. But, to paraphrase Orwell, while all development circles are vicious, some are more vicious than others. All circles result from the two-way dependence between development and some other factor, be it capital or entrepreneurship, education, public administration, etc. But the circle to which our analysis has led us may perhaps lay claim to a privileged place in the hierarchy of these circles in as much as it alone places the difficulties of development back where all difficulties of human action begin and belong: In the mind." 1/

1/ Albert O. Hirschman, *The Strategy of Economic Development*, Yale University Press, New Haven, Connecticut, 1959, pp. 10-11.

CHAPTER IV

PROPOSED SOLUTIONS FOR ENTERPRISE PROBLEMS

Section 1: Introduction

This chapter discusses selected problems relating to individual farm enterprises. Solutions suggested are along lines which should permit an integrated development of both the agricultural and non-agricultural segments of the Reservation economy within the framework of the general mechanisms outlined in the previous chapter. An integrated approach will be necessary because employment opportunities will have to be created for persons who will have to leave agriculture if farm incomes are to rise.

Section 2: Land Use and Crop Practices

Basic Factors or Assumptions. There is no need to reiterate questionnaire expressions about uses and practices covering such factors as fall-spring planting, grasses and grains, fertilizer, irrigation, and persons qualified to help Reservation farmers. Earlier, certain conclusions were drawn which provided a foundation for the proposed alternative solutions to the specific agricultural enterprise problems. They were: (1) there is a desire for competent professional assistance; (2) people are receptive to new ideas if these ideas are explained thoroughly and in sufficient detail so that they can have an understanding of the ramification of these ideas; (3) people desire a change in current practices because they sense that there is a gap existing between the Reservation and adjacent areas; and (4) the Reservation is no longer an isolated society; it is being influenced constantly by powerful exterior forces which means that the Reservation must change in many important respects or it could well cease to exist as a functioning, producing entity.

Planting and Crops. Fundamentally, the Warm Springs Reservation is now oriented toward a livestock economy. Because of this, there is a need for supplemental winter feed and improved winter-spring-fall grazing areas. Summer range is adequate. To the extent that the emphasis remains on livestock, grain crops must be grown in proper rotations if the necessary winter feed supplies are to be provided. To attain the potential yields, which can be obtained, it will be necessary to undertake a program directed toward increasing the use and understanding of fertilizers and proper fertilizing methods. As well, it will be necessary to educate farm operators in the use of proper tillage practices. This involves proper seedbed preparation, planting techniques, and investment in the correct type of machinery. These factors are also discussed in the Crop Report (see Volume V). This is a straightforward problem since competent professional advice can delineate the machinery needs and seedbed preparation techniques as well as proper planting and fertilizing methods. The following programs which derive directly from the general programs, are proposed with a view toward accomplishing these objectives.

The first recommendation is that a short-term production credit program should be implemented. It should be used in conjunction with an adult education program in the area of crops and cropping practices. Under a revised credit program, short-term production credit should be utilized initially for feed, seed, and fertilizer purchases. A well-developed farm plan should definitely be a requirement for credit. A plan should be designed to accomplish, over time, the following objectives: (1) a shift to fall planting, with summer-fallow for dryland cash grain production, and (2) a transition to alfalfa-grass or grain in rotation for livestock operators. Summer-fallowing with fertilizer rather than continuous unfertilized cropping of dryland would permit attainment of yields comparable to those obtained on areas adjacent to the Reservation. The increase in grass and hay production could then be accompanied eventually by an increase in livestock numbers and the development of a Reservation hay market.

Along with the provision of credit for changes in production practices, it will also be necessary to provide technical advisory services to assist in the development of farm plans and the explanation of their potential results. In the initial stages these should be provided through the coordinated staff activities discussed earlier. As the Tribes move toward greater self-determination, these services would be provided by the Tribes' farm advisory staff. Educational programs in credit and explanation of the benefits to be derived from shifting production patterns should then be guided through an educational coordinator in an integrated adult education program.

The next recommendation is that an intensive in-the-field program of farm management evaluation be undertaken, testing soils to determine what soil treatment measures must be undertaken, and what fertilizer application rates should be used. Some of this can be accomplished with the help of the Agricultural Conservation Program. These things can be explained to farm operators through the coordinated activities of existing staff.

Where a shift in tillage practices requires investment in new kinds of machinery, the creation of custom operations or the expansion of cooperative ownership should be explored by the advisory staff personnel. Where new investment is necessary, the proposed intermediate-term credit facility would be useful. Where an increase in forage production is the objective, this may mean an increase in livestock numbers. The intermediate credit program could be utilized to purchase breeding stock or to provide operating capital so as to permit the retention of livestock to build herd numbers.

These proposed programs tend in the direction of meeting existing "needs" as the people see them. They also would provide for an increase in the level of management and technical skills.

Irrigation. It is recommended that irrigation personnel be included on a coordinated staff committee. Account should be taken of the status of unimproved or nonoperating units. Further, continuous evaluations should be made of the way in which irrigable land is being utilized.

Next, Article 8, Section 5, of the Constitution and Bylaws should be rigorously enforced. This reads:

"If any member of the Confederated Tribes holding a standard assignment of land shall, for a period of two years, abandon, or fail to put forth reasonable effort to improve and use beneficially the land so assigned, or shall use such land for any unlawful purpose, his assignment may be cancelled by the Tribal Council after he has had due notice and an opportunity to be heard, and the said land may be reassigned in accordance with the provisions of Section 4 of this article."

"Beneficially" should be interpreted to mean the use of proper soil and irrigation practices, and the meeting of livestock feed needs if the operator has livestock. This would provide the mechanism for accomplishing the next recommendation.

It is recommended that land currently assessed as irrigable be aggregated into units for operating of not less than 60 acres but not more than 240 acres,^{1/} preferably into 140 acre units. While initial aggregation should not be less than 60 acres, a definite policy should aim at minimal 140 acre units where physically feasible. The ultimate disposition of these lands will be dependent upon the general ownership alternative selected. In any case, the aggregation of land into meaningful operating units is a definite necessity.

It is strongly recommended that all irrigable land currently assessed be put under water immediately. That is, the existing system should be put in complete working order. To promote responsible operations it is suggested that a new schedule of operation and maintenance charges be set up. The operation and maintenance of a fully operative system should carry appropriate water charges. These should not consider the repayment of past debts on the system. Any extension of the existing system or development of new areas should carry appropriate construction charges. When the system is in full operation some form of metered water rates should be established wherein individuals are charged only for the water they utilize. In examples of potential operations on irrigated lands at the end of this chapter, North Unit rates are used. These may or may not be appropriate for the Reservation. However, they do illustrate one form of charge system which may be implemented.

If irrigation units are constructed in such areas as Schoolie Flat or the Island, or if the Mill Creek Unit is expanded, or the Tenino-Lower

^{1/} This upper limit of 240 acres is only a suggested limit. Such a limit may be practicable with only 1,286 acres of irrigable land currently available. However, it may be that the Tribes would not want any upper limit on the size of farm a person could operate. If irrigation is expanded to 8,443 acres there may, in fact, be larger irrigated operations.

Shitike project is built, it will definitely be necessary to assess realistic water and construction charges. The assessment of these charges presupposes intensive operation if water costs are to be covered. Without intensive management it is clear that new projects or the extension of existing projects would be a great waste of resources.

It is recommended that an irrigation training program be inaugurated initially under the direction of the coordinated staff committee and at a later time under the guidance of the Tribal farm advisory staff. For operators outside of gravity irrigation units, the coordinated staff committee should provide immediate, technical advice on planning sprinkler irrigation systems (where economically feasible) and training operators in their use. This should be a major program. The determination of the physical and economic feasibility of sprinkler irrigation should be one of the functions of irrigation service personnel in conjunction with consulting economists when necessary. The Bureau, in cooperation with the Tribes, should provide persons trained in the engineering and operation of both gravity irrigation and sprinkler irrigation systems.

It is probable that irrigation operators would also operate a livestock enterprise. This means that rotations should be utilized to generate necessary feed supplies. The integration of farming and livestock activities in a meaningful balance should be directed by the coordinated staff personnel in the initial stages and then be phased into the work of the range management and farm management advisors.

It is recommended that intermediate-term credit be used for the purchase of proper facilities and equipment for irrigation. Plans outlined to use credit as a tool of development should be set up in much the same way as those discussed in the recommendations for cropping practices. Recommendations for individual farm needs and desires should be outlined by consultation between staff personnel and the farm operator. When an individual operator invests in new equipment he should be able to obtain the training or advice which will lead to maximum, beneficial use from his investments. Any plans for expanded operations on an individual farm should be constructed on a general long-run basis so that the individual operator can have some idea of what his future is likely to be. This is a part of the educational process wherein individuals receive information about the influence of prices, management, and technical skills which are utilized in the production process.

Section 3: Livestock-Range-Feed

Part A Basic Factors

Livestock enterprise recommendations fall into two fundamental classes: (1) the number and quality of cattle, and (2) the availability of year around feed. Involved in (1) are recommendations regarding the availability and quality of breeding bulls and the establishment of systematic breeding patterns. Involved in (2) are recommendations for problems of closer herding between seasonal ranges, lessening the impact of horses, and increasing the supply of supplemental winter feed.

All recommendations contemplate the establishment of range units, either with or without associations. The manner of handling the situation, if associations cannot be established initially, was outlined earlier. Also, there are several assumptions underlying the alternatives to be presented. These are:

1. Livestock operators want to increase their livestock income.
2. The Tribes want to increase the flow of livestock from the Reservation and also the income from livestock.
3. Reservation agriculture will in the long run be a livestock-range-feed complex.

These assumptions are drawn from the production capabilities existing on the Reservation and from results obtained in the survey questionnaire.

Part B The Number and Quality of Cattle

Alternative I - Tribal Bull Service. Under a Tribal bull service, the Tribes would purchase bulls either for lease to associations or for direct servicing of the cattle of association members. Under a Tribal bull service the Tribes would obtain the majority of the fee income from servicing association stock. The rental fee could be based, for example, on the number of cows bred.

If the Tribes lease bulls to an association, the association should assess the owner of the bred cows. The assessment would be a pre-stated rate per head which could be collected at the end of the breeding season. Where the association and the Tribes have a leasing agreement, the association can retain any differential between the lease fee and its own assessment rate. These funds should be used for the construction and maintenance of bull pastures as well as the maintenance and care of the bulls.

Where associations are established within fenced range units, bulls should be rotated between associations, say every two years. This would provide a means of injecting new blood into the herds in each unit and would preclude the necessity for continuous purchasing of new bulls. Bulls should be leased only under the condition that a planned breeding program is established with assurance of adequate pastures and care of the bulls.

If the Tribes retain ownership of the bulls and simply turn them into the breeding areas in each range unit, the association members could be assessed in much the same manner as when bulls are leased. The main difference would be that the Tribes would have to construct adequate bull holding regions, provide for the maintenance and care of the bulls, and take responsibility for general management of the bulls. Under either of these variations, the central feature is that the Tribes would retain ownership of the bulls. This provides a means for minimizing malpractice either through lethargy or neglect in caring for bulls and setting up breeding programs in the associations.

Alternative II - Tribal Financing of Association Bull Service. This is a variation of Alternative I but there is a significant difference. Under this alternative the Tribes would simply finance the purchase of bulls by associations. The associations would pay off the purchase over say a two-year period, with the money from fees assessed the owners of bred stock. The fees could be assessed in the manner suggested in Alternative I. With the Tribes financing an association bull service, they should furnish technical assistance in bull selection. In this manner the Tribes have a mechanism for influencing the quality of bulls brought onto the Reservation as well as for providing enough bulls to breed the number of cows and heifers grazed by association members.

Under this alternative the associations could interchange bulls every two years as under Alternative I. The association should have the full responsibility for bulls, however, proper bull management should be made a prerequisite to obtaining the financing for purchasing high quality bulls.

Alternative III - Private Ownership of Bulls. This alternative could be utilized either in the range units where associations were formed or if stockmen in a range unit would not form an association and did not want Tribal bull service. The right to graze stock in a unit could carry with it the mandatory requirements of proper bull-cow ratios, a planned breeding program, and proper bull pastures. The Tribes should finance bull purchases through the intermediate-term credit arrangements. In extending credit for bulls, the Tribes should automatically furnish technical assistance in the selection of the bulls.

A program for educating stockmen in the selection and care of bulls should be started. The program would, in the short period, be handled under the coordinated staff service activities, and in the long period under the livestock and range management person.

Alternative IV - The Status Quo. The implications of the status quo are a gradual decline in cattle quality and numbers with a resultant lower income. If individuals are not able to maintain enough bulls under the current arrangements it will not be possible to raise incomes except through periodic rises in cattle prices. This means that as existing bulls are sold, the lower income will not permit repurchasing of high quality bulls in adequate numbers. This will result in a decline in the quality of calves and a continued low income. In other words, the maintenance of the status quo will assure ranchers, in general, that calf crop and livestock number potentials will not be attained. This, of course, does not include the few stockmen who now have both large enough herds and enough money to maintain adequate bull-cow ratios. However, being in the minority, these individuals have the most to lose by permitting the existing situation to continue. A continuance of the status quo means a declining earning stake for the majority of individuals and an increasing pressure to dissolve Reservation assets before they deteriorate excessively in value.

Part C Availability of Year Around Feed

At the very least, the results of the survey questionnaire indicate that individuals are seeking some solution to the lack of seasonal grazing. Whether or not their thinking is in the direction of associations, the formation of range units, with or without association, is the only long-run solution to the problem.

All alternatives for attacking the problem of closer herding are bound up with the land alternatives discussed in the previous chapter. In support of the Range Report it is recommended that range units be defined and immediate steps be undertaken to fence these units. The manner in which this can be accomplished best is discussed in the Range Report.

Since most range is now and will remain Tribal property, rules should be established immediately to insure that all cattle are pushed to summer ranges and held there until fall. If this requires riders they should be employed by the Tribes until the time that range units become operative. To cover at least part of this cost prior to the establishment of range units and/or associations, the Tribes should deduct a small fee per head of livestock removed from the Reservation.

Alternative I - Associations. In order to maintain Tribal properties intact and yield an income to all Tribal members, it is recommended the range lands be leased to associations on a long-term basis with the lessee repaying charges for construction of the range units. Following the payment of construction charges there should be a small fee assessed the association per head of stock grazed in the unit. Through the use of a lease the Tribes have a mechanism for enforcing rules regarding management practices in utilizing range lands. Such a mechanism provides a definite stake for other Tribal members in the functioning of range units under proper management conditions.

The associations to be set up within the range units should follow the pattern outlined in the Range Report. Associations with a set of rules and regulations guiding the herding and ranging of livestock within its grazing unit would work toward improving the balance between cattle numbers and seasonal feed availabilities. An association is a form of cooperation, but cooperation with some insurance. In other words, the members of an association would give up a certain amount of freedom in order to obtain some insurance that grazing will continue to be available for their cattle. The use of association range riders will help to insure a proper seasonal distribution of cattle.

Alternative II - Grazing Units Without Association. Rules and regulations for the use of the range within a unit should be comparable to those for range units with associations. As well, fees charged the users of the range unit must be comparable to those charged in units with associations. This would preclude attempts to avoid fees - and grazing regulations - by not forming associations. Also, comparable fees would discourage excessive dependence upon the Tribes to handle all problems. Were the Tribes to

undertake the creation and operation of grazing units, there would be little incentive for persons owning livestock to learn or to do much about the imbalance between livestock numbers and feeding facilities.

The Horse Question. Horses have a direct bearing upon the amount of grazing which is available for cattle.

The essential question which must be put to operators is whether or not they desire to move in the direction of a cattle operation yielding a ninety percent calf crop with balanced seasonal range and winter feed, or whether they desire current cattle operations and a "hit-and-miss" horse enterprise.

Horses and cattle are competitive enterprises. An increase in the number of horses means a reduction in potential cattle numbers. This is not a direct one to one ratio since one horse is 1.25 animal units and a cow with calf is only 1.0 animal unit. It is recommended that free-ranging horses be eliminated and that horse numbers be limited to those needed for efficient range management.

It is recommended that the Tribes hire the riders necessary to round up the wild horses and that the money from their sale be used for investment in range improvements.

An alternative to this could be that the lease between the Tribes and an association would carry a clause stipulating the elimination of wild horses within the unit. The association could then utilize the funds obtained from horse sales to help finance their operations.

Feed and Related Questions. While the basic requirement for insuring the seasonal availability of graze is a simultaneous attack upon both closer herding and the horse problem, there is the additional requirement that supplemental winter feed be provided. Much was outlined previously under the Land Use and Practice sections. The discussion there was primarily in terms of the production side of the feed question. Distribution also must be considered.

Improved livestock management will require increased quantities of hay. Realization of irrigation potentials will result in a need for marketing services for such crops as hay, grain and potatoes. Under these circumstances the Tribes might well consider the development of a Tribal elevator service. Such an operation would function to aggregate grain supplies and provide farm supply services in feed, seed and fertilizer. To the extent that a number of non-livestock hay and grain or potato producers developed, an elevator could function as the purchaser of local production for sale to Reservation livestockmen and non-Reservation commercial outlets.

The survey questionnaire indicated that there is a desire to purchase hay locally. In the face of this desire, the development of such a market should take advantage of complementary activities providing other marketing services and production input supplies.

Hay purchases should be encouraged to take place through grazing associations. This would remove such a secondary function from the Tribal corporation and would place responsibility on the association, thus providing an incentive for operators to work through associations. As well, where hay purchases are funneled through an association, purchases can be made in large lots reducing the price per ton. The development of a Tribal feed and seed elevator service could make it possible to aggregate purchases even further. An elevator could act as purchaser for all associations and their members until local hay production developed to a point where off-Reservation hay purchases were no longer necessary.

The relationship of the elevator service to the Tribes should be such that the Tribes simply provide the initial capital for construction. It should then be turned over to competent management personnel. An opportunity should be provided Tribal members to obtain what employment such a service could offer. It could also be a training ground in business management for Tribal members.

Section 4: Miscellaneous Enterprise Recommendations

It is recommended that the coordinated staff committee, and later the Tribal advisory personnel, train individual operators in the keeping of adequate farm accounts. While such a proposal should be implemented through the development of long-range farm plans, it should be spelled out specifically. The ability to manage or operate a farm business adequately depends, at least in part, upon a knowledge of what assets are involved in the business. Adequate records are a primary factor in providing proper assessment of enterprise assets which will permit a fuller functioning of credit as a productive tool.

Section 5: A General Summary

If implemented, many recommendations should raise per-farm income directly. However, it must be kept in mind that programs should be put into practice in such a way that they will be consistent with the general organizational recommendations presented in Chapter III, and consistent with each other.

The success of any program will depend basically upon how well farm operators can be educated in the techniques of modern agricultural management.

Therefore, the implementation of the various recommendations in this report should be carefully planned and gradually done. Any new step must be made only if it is relatively certain that it will not interfere with other programs and, especially, only in conjunction with the education of farm operators.

At best, the several programs which have been discussed can raise agricultural income considerably. Also, from an over-all viewpoint they

can add up to the development of a highly efficient organization. The value of their end-states for the Reservation is great enough to warrant careful planning and efficient execution.

Section 6: Sample Farming Operations

It has been pointed out that the core of the agricultural "problem" on the Reservation is the gap between what is now being accomplished and what can be achieved with the resources at hand under a planned program of development. The gap exists because of a span of problems associated with land, capital and credit, administration and organization, cattle, crops, range, irrigation, and technical assistance. Some of these problems are general in nature, others are specific to farming enterprises.

There are two fundamental directions in which Reservation farming may be oriented in the future. These are dryland and irrigation farming. Live-stock enterprises may exist in conjunction with either. In some Reservation areas these are, in fact, alternatives, while in other areas on the Reservation only dryland operations will have any meaning in the future. The purpose of this section is to indicate in a general manner several farming operations which can be instituted on the Reservation if the development programs discussed in this and in previous chapters are put into effect. In fact, individual farming will have to approach the magnitude of operation outlined below if Reservation agriculture is to generate income at the levels indicated in Chapter II.

Dryland. Three different types of operations are outlined to illustrate what can and needs to be achieved in dryland farming. These yield net farm incomes ranging between \$8,400 and \$11,000 with a return to the operator's labor and management of between \$1,800 and \$4,500.

The three types of operations are: (1) a moldboard or black fallow cash grain operation, (2) a five-year cash grain-alfalfa and grass rotation with livestock, and (3) a straight livestock-hay-pasture operation. The dryland yields assumed in the various operations are presented in Table 237 and the prices in Table 238. They are the same as those which are used to develop gross income potentials in Chapter II.

The moldboard or black fallow operation (see Tables 233 and 234) is based on 700 acres of cropland available in the farm for planting. There are 350 acres planted to grain and 350 acres summer-fallowed each year. The 350 acres planted would break down into 228 acres of winter wheat, 69 acres of winter barley, and 53 acres of spring barley. The total investment required for this particular operation would be about \$120,000. The investment in machinery and equipment is approximately \$17,000, or about \$24 per cropland acre.

The cash grain-alfalfa and grass-livestock operation (see Table 235) is based on 400 acres of cropland which would be used in a five-year rotation of grain-grain-hay-hay-hay. In any one year, therefore, 160 acres would be planted to grain and 240 acres in hay and pasture. Further, the

operation has a basic 100-cow herd and obtains a 90 percent calf crop. The operator would sell the 45 steer calves plus 22 of the heifer calves at 400 pounds each. The other 23 heifer calves would be maintained for herd replacement. A death loss of 2.5 percent and replacement of 20 percent are assumed so the operator would make a total replacement of 23 bred heifers. With a 2.5 percent death loss and 20 percent replacement the operation could sell 20 cows at 900 pounds each.

The 160 acres of grain would be divided between wheat - 80 acres, winter barley - 60 acres, and spring barley - 20 acres. The other 240 acres produce one ton of hay per acre. Cattle are fed over the winter in feed lots, i.e., taken completely off of range and pasture. No hay is purchased. Total investment is approximately \$95,000, of which \$20,000 is invested in machinery and equipment and approximately \$18,000 in the 100 cows and 23 replacement heifers. Cows are valued at \$160 each and bred heifers at \$100 each. The income derived from this type of operation is virtually the same as the first operation.

The livestock-hay-pasture operation is still based on 400 acres of cropland, but it would all be devoted to hay (see Table 236). This operation has a basic 200 cow herd obtaining a 90 percent calf crop. The operator would sell 90 steer calves plus 45 of the heifer calves at 400 pounds each, utilizing the remaining 45 heifer calves as herd replacements. With a 2.5 percent death loss and 20 percent replacement there would be a total replacement of 45 heifers. The operator would also sell 40 cows at 900 pounds each. This operation has an investment of approximately \$41,000 in the breeding herd and \$10,000 in machinery and equipment, with a total investment of approximately \$108,000.

In all of these operations no real or personal property taxes are paid by the operators. Further, by including livestock it has been assumed that grazing units and associations would be set up and that they would charge grazing fees and provide bull service at a fee.

In pointing out the level of resources involved in these operations, a step is made toward indicating the number of families which Reservation agriculture can support on a dryland basis.

Irrigated. Operations with irrigation are based on the acreage of land which can, in fact, be irrigated; that is, land to which water can feasibly be delivered. The estimated potential extent of irrigable land is 8,443 acres, an increase of 7,157 acres over the currently assessed acreage (see Table 239).

Probably 8,443 acres is not the greatest extent of irrigation potentials on the Reservation. Much Class IV land may have irrigation potential depending, of course, upon the soil characteristics and whether it is adjacent to an irrigation development or other water source.

The sample irrigation operations show costs and returns which would yield an individual operator a net farm income between \$12,600 and \$15,000, and a return for his labor and management ranging between \$9,000 and \$11,500. The basic example is a straight 140 acre irrigated operation using a six-

year rotation (see Tables 240 and 241). This has been modified for various areas of the Reservation. The second sample operation is for a 140 acre irrigated operation using a six-year rotation with a 100 cow herd also modified for several areas of the Reservation. In the former case, the range in net farm income is from \$12,600 to \$13,600 with a return to the operator for his labor and management between \$9,000 and \$11,000, and in the latter case the range in net farm income is from \$14,000 to \$15,000 with a return to the operator's labor and management between \$9,400 and \$11,500.

The six-year rotation is comprised of three years of alfalfa, one year of potatoes, and two years of grain. The grain would be wheat and barley with wheat being limited to 15 acres annually. North Unit - Agency Plain costs, returns and yields are assumed since the irrigated and potentially irrigable land on the Reservation is comparable to that on the Agency Plains (see Table 244). As in the case of dryland operations it is assumed that no taxes are paid.

The water use-rates for the commodities in the rotation are in Table 242. These were obtained from a study of the North Unit by Frank Conklin of Oregon State College. These are average use-rates for the North Unit and should not be considered as upper limits on the amount of water applied per acre. The minimum charge of \$2.25 per acre for the first two-acre feet exceeds the current assessment on the Reservation. Basically, these figures are operation and maintenance charges since there is no pumping cost involved in delivering water to the farms through a strictly gravity system. The construction charges and maintenance debt on the existing Reservation system are assumed to be zero. There would, however, be construction charges for improvements or extensions and new developments. Since such charges will differ by areas, the basic costs and returns are adjusted to the different area. In areas where improvements but no further development will take place, or where development would be undertaken by the operator such as in the Central and Lower Warm Springs, or by pumping from the Deschutes River, the basic budget would be applicable.

The basic budget assumes a repayment of construction charges of \$3.20 per acre for 78 years totaling \$250 per acre, or \$3.20 per acre for 40 years totaling \$128 per acre. The latter figure may not be unreasonable as a cost of improving and enlarging existing units on the Central and Lower Warm Springs or for constructing units along the Deschutes River. For example, indications are that the cost of establishing individual pumping operations will range between \$100 and \$130 per acre.^{1/} The Tenino and Lower Shitike uses \$300 per acre development cost which is assumed to be repayed over a 78-year period, or \$3.85 per acre per year. The Mill Creek example assumes a repayment of \$175 per acre development and improvement charges which is assumed to be repayed over a 40-year period, or \$4.37 per acre per year. The Island-Schoolie-Simmasho example assumes a repayment of \$405 per acre development cost over a 78-year period, or \$5.20 per acre per year (see Table 243).

^{1/} Cost figures suggested by Elmon Yoder, Oregon State College. (See Volume IV: Water Resources, Part 1, Chapter XI.)

Depending upon the value of the land, the total capital investment involved in these operations would range between \$50,000 and \$70,000.

An annual breakdown of the acreage planted in the rotation would be 70 acres of alfalfa, 23 acres of potatoes, 15 acres of wheat, and 32 acres of barley.

The second general operation simply adds a 100-cow herd to the irrigated operation (see Table 245). Except for the livestock expenses and returns now included, the reasoning and assumptions behind these examples are the same as those in the first operation. The livestock enterprise of 100 cows assumes a 90 percent calf crop. The operator is assumed to sell the 45 steer calves plus 22 heifer calves at 400 pounds each, retaining 23 heifer calves for herd replacement. A death loss of 2.5 percent and replacement rate of 20 percent are assumed, so the operator would make a total replacement of 23 bred heifers and a sale of 20 cows at 900 pounds each. The addition of a herd would increase the capital investment of the operator. Cows are valued at \$160 each and bred heifers at \$100 each. This would then increase the capital investment by \$18,000 to \$20,000.

These examples describe a very general picture of what might be obtained under proper management and resource arrangements on irrigated land. The yield figures along with the gross investment estimates are realistic for the types of operations outlined, although they are considerably above what is currently being attained.

Implications for the Number of Persons in Agriculture. The operations outlined all have significant implications for the number of families that can be supported by Reservation agriculture. The sample 700 acre cropland moldboard fallow operation would mean that a maximum of 25 families could be supported by dryland farming. The 1,286 acres of irrigable land would mean, at a minimum 140 acre operation, another nine families. This is a total of 34 families under this alternative. So long as no further irrigation development takes place, the nine families will remain unchanged and so need not be mentioned further. The implications of the 700 acre fallow operation for areas like Schoolie Flat, the Island, or the Metolius Bench are, respectively, eight operators, one operator, and three operators.

The sample 400 acre cropland and 100 cow herd operation would mean that the available tillable dryland would allow a maximum of 45 operators. With a 100 cow herd, the number of cattle would exceed slightly the available spring-fall grazing.

The 400 acre cropland and 200 cow herd operation on the basis of cropland alone would still allow the same 45 operators. However, the cattle involved in 200 cow herd operations for 45 operators would exceed greatly the amount of spring-fall grazing available. The grazing available for 200 cow herds would become the limiting factor, restricting the number of operators to about 20.

On the basis of the sample dryland operations with no further irrigation development, the number of family farm operators which could be supported in

agriculture would range from 20 to 54. This is one-fourth to one-half of the number of families currently involved in agriculture.

Given the development of irrigated land to 8,443 acres with 140 acres of irrigated land per farm, the maximum number of farm operators that the irrigation could support would be 60. By areas there would be a significant impact upon the distribution of farmers compared to the current distribution. For example, at 140 acres per farm there would be 11 farms in the Mill Creek unit, three farms in the Tenino and Lower Shitike unit, and two farms in the Central and Lower Warm Springs unit. Given the full development of irrigation, the amount of remaining dryland would support only 17 farm operators at the 700 acre rate or 29 operators at the 400 acre rate. However, with the development of irrigation, the ability to maintain a 100 cow herd would again be limited by available range. The range in the number of families would be from 77 to 89, depending upon whether dryland units were 700 acres or 400 acres, respectively. If each of the operators maintained a 100 cow herd, the amount of spring-fall as well as summer range available would be exceeded.

In summary, without the development of irrigation to the extent outlined, the outlook for the number of farm operators in Reservation agriculture would range between 29 and 54. Given the irrigation development, the outlook would be for between 77 and 89 operators, but with a limitation on livestock to approximately 4,000 animal units in the foreseeable future. In any case, the direct implication is that the number of persons in farming must decline since the current number of farms stands between 97 and 128. It cannot be assumed that the number of farms would not continue to decline as has been the case in the North unit (see Table 246).

The significance of the relationship of the current number of farms to potential number of farms goes beyond a simple decline in numbers. Not only would there be fewer farms, but the type of farming operation in terms of organization and practices would be entirely changed. For example, the 77 to 89 farms possible with fully developed irrigation are less than the current 97 to 128 farms, but only by a small number. However, the 67 to 89 farms would be organized for intensive production, utilizing all available cropland and producing an income capable of supporting an operator and his family.

CHAPTER V

SUMMARY OF THE REPORT AND INTEGRATION OF BASIC RECOMMENDATIONS

This chapter outlines advantages and disadvantages of the changes which have been proposed. Also an illustration of how a development program might be fashioned is presented.

At the Tribal level the creation of an organizational structure along the lines developed in this report would permit the Tribes to hold their land and timber assets in a form which would yield income indefinitely. Further, such a structure would permit individual Tribal members who wanted to do so to take the value of their share of Tribal assets and migrate without dissolving the entire asset base. Undoubtedly there are a number of persons now who would like to take the value of their share and move regardless of any changes on the Reservation. There are probably many individuals who would like to stay, but who would rather have their share before the asset structure is deteriorated or diluted further, either through population increases or abuse of the resources. Likely, the number in each category will increase with time. The creation of appropriate mechanisms could provide incentive to a number of people to remain who would otherwise choose to leave.

Appropriate organizational mechanisms would permit the Tribes to maintain a degree of control over the disposition of various resources on the Reservation. This implies the concept of limited rights which is a form of ownership adequate to prevent current heirship problems from recurring. As well, this concept would permit the establishment of a series of broad general rules regarding land use and possible disposition.

The establishment of adequate organizational mechanisms would relieve the individual operator of much uncertainty about the future of the Reservation. Such uncertainty tends to generate inaction or unwillingness to invest time and money in operational changes even though these changes would be of direct benefit to the operator. One of the most important results of a well-rounded development program would be the individual incentive which adequate organizational mechanisms could generate. A further benefit would come from the implementation of programs to increase the participation of the younger age groups in the policy-making process. This would forestall at least some pressure on their part to divide up the assets of the Reservation.

In sum, there are advantages to the proposed changes which should be considered by all age groups. For the older individuals there is some assurance that they will be able to live their lives with a continued, comfortable income from their stock in the proposed organization. For the middle-age groups there is some assurance that they will be able to either expand their operations or to take employment in jobs created by non-agricultural investments. For the younger age group a future is provided in the sense that they would have the opportunity to attain economically sound agricultural units or employment in non-agricultural endeavors at wages comparable

to those elsewhere if they choose to stay on the Reservation. For all groups there is the opportunity to keep the Reservation assets producing indefinitely, if desired. As well, there could be created a modern community comparable to any community adjacent to the Reservation.

In terms of current living patterns the changes which have been proposed may be considered disadvantageous by some people. The main disadvantage is probably the submission of individuals to rules which increase the amount of order existing in the community. Individuals would be asked to give up a certain amount of freedom in order that the Reservation's potential may be attained. In exchange for this they receive some assurance of a more productive future at higher income levels and higher living standards. Given the proposed mechanisms, the submission by any individual to such rules is entirely voluntary. Those who desire to leave can sell out their share. The proper balance between freedom and order is dependent upon both the group of individuals involved and the objectives which these individuals seek collectively.

Individualism in the extreme is essentially a form of anarchy. As such it precludes the creation of collective goods which can function to expand the possible opportunities for attainment of private goods. In other words, it is necessary to maintain a degree of order in the community, if the community, as well as the individuals in the community, are to maximize benefits from the resources they have available to them.

One of the most significant factors in accomplishing such changes is leadership. A dynamic leadership, willing to commit itself to a development program, is required. The data from the survey and discussions with individuals on the Reservation suggest that persons in agriculture, at least, have real desire to change the existing situation.

Since the individuals who will eventually be participating in agriculture will be a minority, non-agricultural families will have to be given a physical stake in all Tribal assets. Too, they must recognize the existence of this stake and recognize the benefits which will accrue to them if the Tribal assets are maintained as an integral, functioning unit. Without such a realization on their part it is doubtful that pressures for dissolution of the asset base can be effectively curbed in the future.

It may seem that the many recommendations presented in this report are so varied and complex as to preclude the creation of a well rounded development program for the Reservation. This is not the case. To illustrate, an example can be outlined briefly. The land exchange alternative is selected primarily because it appears to offer more benefits for more people.

Thus, the Tribes would put land records in suitable order and undertake a full and realistic appraisal of all of the Reservation's assets to set the basis for a creation of a Tribal management corporation. They would select the land ownership pattern desired, make appropriate changes in the Constitution and Bylaws, and seek, in cooperation with the Bureau, the legislation necessary to aggregate all land under Tribal control. They would develop plans to lay out and construct the proposed community and put the grazing

and farming lands into an appropriate operating state. They would develop plans for management of the forest upon completion of the existing long-term sale contract.

When asset values were determined, the Tribes then would set the point in time at which stock would be distributed to living Tribal members. These are objectives to be worked toward over a period of several years. A number of steps would have to be undertaken immediately to start the improvement in agricultural conditions. The Tribes would start coordinating existing agricultural service personnel. The Council would appoint a liaison member to serve as co-chairman of the staff committee. Staff responsibilities should be delineated in a manner such that they could be phased into Tribal staff positions. Plans would be developed for revising credit activities in order to make it a functional development tool. A budgetary process would be set up to provide the mechanism for controlling and evaluating investments. Upon delineation of range units the Tribes would decide upon the particular type of bull program desired.

As the newly developed operations required more decision-making power, the Tribes would begin requesting that powers reserved to the Federal Government be turned over step by step to the Tribal organizations. As lands were acquired and arranged in selected ownership patterns, the proposed community would be taking shape. When the corporate form began to take shape, the Tribes would seek out the management talent necessary to organize the corporate business in a formal manner. With development of potential irrigation projects the replacement of existing Bureau and Extension personnel would require the addition of three men as an agricultural advisory staff. These men would replace the existing advisory staff.

The formal departure of the Government from the scene could be accompanied by formal application for the status of county. This would be the final step in solidifying the Reservation assets in Tribal ownership. In this manner the departure of the Government from the scene would become a mere formality, the last step in a long, gradually accomplished process.

The main requirement is the willingness of Tribal members to see a situation through to completion. It is necessary that the Tribes recognize that when management and advisory services are not available on the Reservation they should be purchased when needed. This slow evolution of change will cost both time and money, but disastrous and precipitous change which will otherwise occur will be costly both in terms of money and in terms of the disruption or destruction of the future prospects of individuals and their families.

This report may be summarized by returning to a point made in Chapter III. It was indicated there that a prime requisite for growth was a "growth perspective." In other words, growth and change are matters of the human mind. While one can look at a given situation and recommend various things to make growth and change possible, most of the recommendations fall by the wayside if some cohesive or binding agent is not present. Cohesive or binding agents are intangible. They are felt rather than seen. A desire and a will to move forward puts the mind in motion which in turn imparts

motion to the body. The idea of voluntary submission to control and deliberate action aimed at improving ones situation, may be summed up by a quote from the book, Economic Planning in Underdeveloped Areas, by Edward S. Mason:

"If both control and deliberate action are characteristic of planning, the planning unit must consist of more than one person. It needs to be an organization of individuals, each of whose activities is, in some sense, limited and directed by the interest of the organization."