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Farm income cushions decline

Economic accomplishments of the year 1957 look good in retrospect for the Ninth district in spite of a mild recessionary trend at the end of the year. Thus far the decline which was in evidence earlier in 1957 for lumbering and mining centers has spread into some manufacturing areas. Unemployment claims have increased sharply in these areas and particularly in western Montana where mining and lumbering are especially important. Slow downs in activity during the year occurred in output of copper, zinc, lumber, and more recently in some types of private nonresidential construction. Further, several of the larger manufacturing concerns have been reporting a reduction in new orders.

In view of the current downtrend in the district's economy, the farm sector's contribution during 1957 was particularly significant as total crop production set a new record and livestock production and marketings were also at or near record proportions. Feed and range conditions for livestock during the latter part of 1957 and thus far in 1958 have continued to be unusually favorable. Livestock prices throughout 1957 and currently have generally averaged higher than in the previous year. This, together with high crop output, helped boost total farm income in 1957 about 3 percent over the previous year. For the country as a whole the increase was approximately 2 percent.

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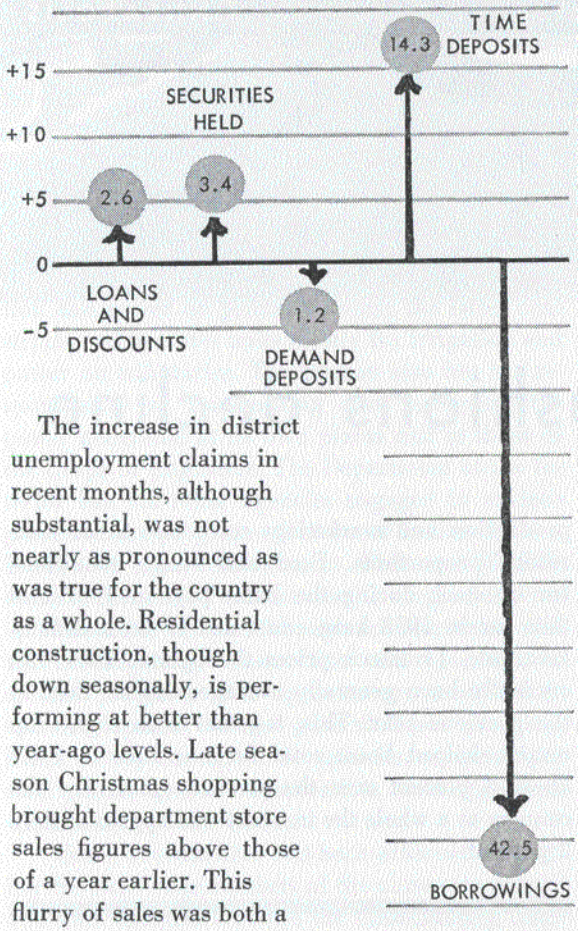
Strength in the always-important agricultural situation has given fundamental support to several district economic indicators such as bank deposits and bank debits, both of which were above year-ago levels at the end of 1957.

District member bank changes. December as percent of year earlier



The increase in district unemployment claims in recent months, although substantial, was not nearly as pronounced as was true for the country as a whole. Residential construction, though down seasonally, is performing at better than year-ago levels. Late season Christmas shopping brought department store sales figures above those of a year earlier. This flurry of sales was both a timely and a welcome achievement following disappointing statistics in November and in the early part of December. For the year 1957 as a whole, department store sales averaged slightly more than 2 percent above 1956 sales.

The district banking picture for 1957 continued to be relatively favorable, displaying a slight increase in total demand deposits and a substantial increase in time deposits. Based on preliminary estimates, bank earnings for 1957 are expected to be about the same as those of 1956. A moderate increase in loans and discounts stimulated earnings but higher gross earnings may have been largely offset by rising costs, especially higher interest paid on time deposits.

For the record, 1957 may go down as the top year in the economic experience of the Ninth district but because of the recessionary development at the year's end this fact may not seem so apparent. Yet, the momentum of the stronger sectors may tend to cushion against sharp downward adjustments in the economy in the immediate future. Farm spending during the next several months, for example, will be influenced by heavy sales of 1957's record farm production.

Nevertheless, the decline in business activity, downward adjustments in inventories and new orders, and growing unemployment are very real. Surprisingly, in spite of the several current recession symptoms, both consumer and wholesale price indexes have continued to show moderate strength. In view of the conflicting trends, the developing economy is being watched with unusual interest by the monetary authorities and with cautiousness on the part of businessmen.

The following selected topics describe particular aspects of the district's current economic scene:

UNEMPLOYMENT AND EARNINGS UP IN DECEMBER

Average weekly insured unemployment in the Ninth district reached 58,209 persons in December 1957, according to preliminary figures. This is an increase of 23,189 over the November average of 35,020 and 16,905 over December 1956.

Total non-agricultural employment in the Ninth district declined to 1,392,200 workers during December, from 1,412,600 in November, and was

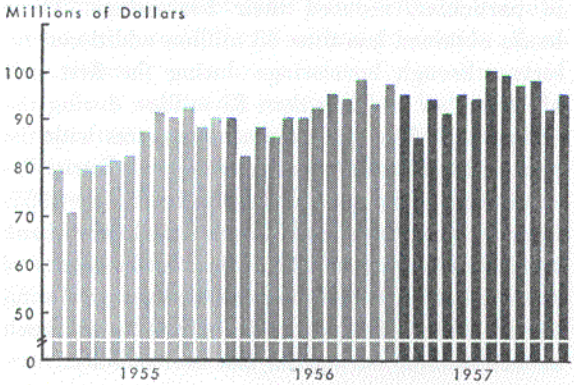
6,000 less than the 1,398,200 in December of 1956.

Manufacturing employment in the district was down to 269,600 in December from 280,100 in the same month of last year and 275,200 in November of 1957.

Even though manufacturing employment declined between November and December of this year, the increase in average weekly wages paid to production employees more than offset, in terms of total personal income, the decline in employment. The estimated total personal income derived from manufacturing wages in December was $96,053,000, compared with the November total of $93,224,000. Average weekly earnings in manufacturing in the Ninth district increased from $83.84 in December of 1956, and $83.62 in November of 1957 to $85.21 in December of 1957. This represents an increase of 1.6 percent from a year ago, and 1.9 percent from a month ago. These increases in manufacturing wages in the district are in marked contrast to the national situation. The average weekly wage for the United States was $82.92 in December which was the same as November, but down from $84.05 in December 1956.

Manufacturing wages paid in 1957 totaled about $1,147,000,000 for an increase of 3.6 percent over 1956 and of 12.4 percent over 1955.

Estimated personal income from district manufacturing wages, 1955-57



DEPARTMENT STORE SALES

The year-end figures for Ninth district department stores show December 1957 sales to be about equal to sales of the previous December—a month when sales, by any standards, were very good. Two facts should be borne in mind about this comparison, however. First, sales during November 1957 were rather disappointing—down 5 percent from November of the previous year. This weakness continued during the early days of December until a fairly strong upsurge of buying during the late pre-Christmas period compensated for the slow start.

Second, average figures for the district conceal the existence of weakness in sales in the more rural areas. Sales of stores in the largest metropolitan centers were 2 percent larger than during December 1956; sales of stores in other areas of the district averaged 2 percent lower.

Despite the less favorable December sales, Ninth district country department stores rang up sales for the year 1957 equal to those of 1956. Metropolitan department stores bettered their annual 1956 sales by 3 percent. For the district as a whole, annual department store sales averaged slightly more than 2 percent above 1956 sales.

December sales weigh heavily in determining the profit or loss figures of department stores for the year. During December they do about 14 percent of their year's business, almost twice the amount done in the average month.

BOND VALUES SKYROCKET

Bond values skyrocketed to their highs for the year while common stock values plummeted to their lows during the last quarter of 1957. The movement of stock market and bond market prices in opposite directions can be explained in terms of the current business downturn which has made fixed interest paying bonds more desirable and valuable, while the bearish economic outlook has tended to reduce the value of stocks.

The longest term Treasury bond is the 3 percent

bond due in 1995. This bond fell to a value of less than $87 per $100 of par value in June of 1957; but by December 31 its value had risen to over $95, a big 10 percent rise from the year's low. The 2½s due in November 1961, largest Treasury bond issue outstanding, shot up $5 from better than $93 on July 22 to better than $98 at the end of the year. Other 'governments' showed equally amazing advances from their recent lows in the late summer or early fall.

Yields on bonds, of course, fall when bond prices rise. And taxable Treasury bonds due or callable 10 years and after yielded 3.27 percent at the end of 1957 in contrast with the peak yield of 3.73 in October. Private issues got a similar response from the nation's bond buyers. Both corporate and municipal yields plummeted in the last weeks of 1957.

Short term yields showed even greater declines than those recorded by bonds. The longest term 91 day Treasury bills which had yielded as much as 3.67 percent in October yielded as little as 2.75 percent during the last week of the year.

The year end trend in bond prices and interest rates continued through mid-January. Bill yields extended their decline to nearly 2½ percent and long term securities continued to rise in price. The long term 3s of 1995 and 2½s of 1961, scored additional price gains over their 1957 highs. Not since 1953-54 has there been sustained upward movement in bond prices and seldom if ever has such a rapid advance occurred as that which has been witnessed in the past few months.

RANGE FEED AND LIVESTOCK CONDITIONS FAVORABLE

Grazing conditions in the district have seldom been more favorable than they are this winter. The winter thus far has been mild and the snow cover is light or non-existent. Therefore, supplemental feeding of hay and other roughages has been light, except in a few localized areas where grass has become very short, dry and unpalatable.

The supplies of hay and other roughages are above average in abundance throughout most of the district. With the large supplies of feed and the short feeding season, little difficulty should be encountered in wintering livestock. Shortages of feed, where encountered, will only be in localized areas and the surpluses of adjacent areas can be shifted at relatively low prices.

Cattle for herd buildup have been in good demand as ranchers are in a favorable position to winter cattle. Coupled with the good feed supplies, the favorable prices for feeder cattle are also a factor inducing herd expansion.

The condition of livestock on the range is good. Both cattle and sheep are in better than average condition for this time of the year. The mild winter has enabled livestock to maintain a good condition even though supplemental feeding has been less than normal. Also livestock death losses are reported to be light this winter.

In general, conditions are very favorable for livestock producers this year. In addition to the favorable feed and weather conditions, the prices of both cattle and sheep have been good.

DECEMBER BANKING DEVELOPMENTS

Reserve positions eased during December. Loans at district banks remained unchanged while deposits rose nearly $52 million. As a result, Ninth district banks had less occasion to borrow from the Federal Reserve Bank of Minneapolis than they had earlier in the year. Reserve city banks, in particular, reduced their borrowings. These banks obtained less than $3 million additional reserves through borrowings during the first half of December and less than $7 million during the second half. This performance compares with the peak $72 million borrowings average of district Reserve city banks for the last half of May 1957. Country banks also made less use of Reserve bank credit than earlier in 1957. These banks borrowed approximately $4½ million on the average during the month of December in contrast to as much as $19 million during the last half of May.

Monthly condition reports show that Ninth district Reserve city banks fared relatively better during December than did country banks. Reserve city banks gained $4 million in earning assets while country banks lost $1 million. The larger Reserve city banks increased holdings of investments and decreased loans; the opposite changes occurred at country banks.

Demand deposits rose by $50 million at weekly reporting city banks during December. Country bank demand deposits declined by $10 million during the same period. For the year, however, country bank demand deposits grew by $21 million while city bank demand deposits fell by $10 million. Furthermore, country banks continued to benefit from time deposit growth. Their time deposits increased by $131 million during the year and $9 million during December. The yearly increase was more than 3 times the comparable time deposit growth at weekly reporting city banks.

Quarterly changes in Ninth district time and demand deposits, 1957

(millions of dollars)

	Country banks		City banks	
	Time deposits	Demand deposits	Time deposits	Demand deposits
Jan.-Mar.	$+ 47	$— 98	$+ 16	$—156
Apr.-June	+ 32	— 15	+ 10	+ 61
July-Sept.	+ 25	+106	+ 10	+ 44
Oct.-Dec.	+ 27	+ 28	+ 3	+ 41
Total	+131	+ 21	+ 39	— 10

Interest rates and farm costs

Farmers have found that during the past three years credit has been generally available in adequate amounts for sound farming operations in spite of so-called tight money conditions. However, a gradual rise in interest rates has been experienced. The purpose of this article is to discuss the effect of higher interest rates on farm costs.

Increased interest rates have, without a doubt, added to the costs of agricultural production. However, interest costs are a relatively small part of cash farm operating expenses for farmers as a group. Interest expenses in 1956 amounted to 900 million dollars or only 4.1 percent of total farm expenses. (See table 1.) However, a large proportion of farmers (possibly half of all farmers) were not in debt and, therefore not paying interest. Thus, for an individual farmer in debt, the interest was a substantially more important part of total expenses than the 4.1 percent average indicates.

Between 1948 and 1956 the average interest expense for all farmers rose from 2.4 to 4.1 percent of total operating expenses. This has been the result of two forces. The first, and major factor influencing the rise in total interest cost during this period was the growth in total amount of farm debt outstanding—total farm debt doubled during the period. (See table 1.) *Real estate debt* increased from $5.1 billion in 1948 to $9 billion in 1956. This increase in real estate debt occurred largely as a result of a rise in land values which induced larger mortgages. The *non-real estate debt* rise from $4.2 billion in 1948 to $9.8 billion in 1956 reflects increased production costs. Total production costs in agriculture also increased somewhat during the period because of increases in prices paid by farmers, and because of numerous changes in production techniques which required added investments in new or improved equipment. Thus,

Table 1—Farm debt and operating expenses, 1948-1956

	Farm debt outstanding, January 1			Farm cash expenses	
Year	Real Estate	Non-real estate including CCC loans	Total	Interest expense	Other expenses
1948	$5.1	$4.2	$ 9.3	$ .5	$19.8
1949	5.3	6.1	11.4	.5	19.0
1950	5.6	6.9	12.5	.6	20.0
1951	6.1	7.0	13.1	.7	22.9
1952	6.6	7.9	14.5	.8	22.7
1953	7.2	8.8	16.0	.8	21.2
1954	7.7	9.4	17.1	.8	20.9
1955	8.2	9.5	17.7	.9	20.9
1956	9.0	9.8	18.8	.9	21.3

All figures billions of dollars.

a larger non-real estate debt was required to finance farm operations.

The second factor driving up total interest cost —interest rate increases—has contributed some part of the increased interest expense documented in table 1. The average interest rates on outstanding real estate and non-real estate loans are shown in table 2.

Average rates are calculated from the total debt outstanding and total interest payments. Increases in the average rates occur as new debt is financed at a higher rate or old debt is refinanced at a higher rate. The actual interest rates on new loans would be somewhat above the average rates indicated in table 2, because each year there is a carry-over of some part of the interest bill which was incurred earlier and mostly at lower rates.

What then is the effect of higher interest rates alone on the average farmer in debt? Available evidence suggests that a substantial share of farmers have no debt. The 1956 Agricultural Loan Survey made by the Federal Reserve System showed that nearly one-half of the operating farmers in the U. S. had some bank debt as of mid-1956. In addition to these farmers with bank debt, many other farmers were in debt to life insurance companies, private lenders, production credit associations, national farm loan associations and other lenders. An estimate indicating that 50 percent of all farmers are in debt would seem to be conservative in view of this evidence but this figure may be used as a basis of comparison.

Are the farm units operated by farmers in debt substantially the same as the farm units operated without debt? Probably not. A classification of agricultural borrowers at commercial banks according to net worth indicated that 45 percent of the borrowers had a 'net worth' of less than $10,000 and accounted for only 20 percent of the total loans outstanding. (See table 3.)

Those farmers with the larger 'net worth' accounted for most (nearly 80 percent) of the total value of bank loans made to agriculture. Thus, the average size of farming operation for farmers in debt is mostly likely larger than the average farm operation of farmers not in debt. And, if this is the case it would be logical to assume that the fraction of farmers in debt account for more than their numerical share of total operating expenditures of all farmers.

Using the two preceding assumptions, the impact of interest rate changes on farmers in debt may be estimated. For this comparison consider the 1954 and 1956 data on indebtedness in table 1

Table 2—Average interest rates on outstanding loans to farmers

	Real estate loans		Non-real estate loans[1]		
Year	Federal land banks	Life ins. cos.	Banks	PCAs	Banks
1948	4.00	4.3	5.1	5.56	6.2
1949	4.02	4.3	5.0	5.96	6.4
1950	4.04	4.3	5.0	6.01	6.4
1951	4.04	4.3	5.1	6.08	6.4
1952	4.05	4.3	5.2	6.33	6.5
1953	4.06	4.4	5.2	6.35	6.6
1954	4.07	4.4	5.3	6.36	6.4
1955	4.08	4.5	5.4	5.92	6.4
1956	4.11	4.5	5.4	6.20	6.5

[1] Includes any service charges.
All figures percent per annum.

Table 3—Proportion of agricultural borrowers and of total bank loans according to net worth of these borrowers

Net worth	Percent of borrowers	Percent of total loans
Under $3,000	13.1	3.1
$3,000 - 9,999	32.3	16.6
$10,000 - 24,999	30.5	28.3
$25,000 - 99,999	16.7	31.7
$100,000 and over	2.4	18.0
Not ascertained	5.1	2.3

Source: Farm loans at commercial banks, Board of Governors of the Federal Reserve System, Washington, D. C., June 30, 1956.

and prevailing interest rates during the two periods.[1] *Real estate debt* amounted to $7.7 billion in 1954 and $9 billion in 1956. At an interest rate of 4.5 percent in 1954 and an interest rate of 5.5 percent in 1956, the interest costs on real estate debt would have amounted to $350 million in 1954 and $500 million in 1956. The increase of $150 million was due to two factors: (1) $60 million was due to the increased debt, and (2) $90 million was due to an increased average interest rate.

Non-real estate debt increased from $9.4 billion in 1954 to $9.8 billion in 1956. At an interest rate of 5.5 percent in 1954 and a rate of 6.5 percent in 1956, the interest cost on non-real estate debt would amount to $520 million in 1954 and $640 million in 1956. The increase of $120 million results from both increased debt ($30 million) and from increased interest rates ($90 million).

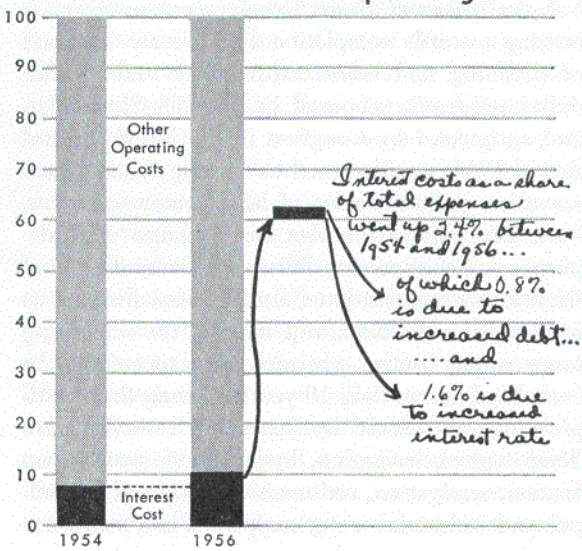
According to foregoing analysis, then, the interest cost in 1954 of both real estate and non-real estate debt combined amounted to 8.2 percent of total operating expenses for that year. In 1956, total interest cost accounted for 10.6 percent of the total operating costs for farmers in debt. For all farmers taken as a whole, interest cost amounted to 4.1 percent of total operating costs.

The added interest *cost* to an 'average farmer in debt' due to increased interest *rates* is estimated therefore to be less than 2 percent of average annual operating outlays over the two-year period—or approximately 1 percent per year. This increase applies to the farmer carrying an average debt load. There are, of course, wide variations from this average or norm. (See chart below.)

Inflationary pressures during the period in question were strong. In spite of the credit restrictions imposed to dampen inflation, costs continued to increase. (See table 4.) The index of all prices paid by farmers including interest, taxes and wages increased about 5 percent from 1954 to 1957.

If the money supply had been allowed to expand freely in response to the heavy demand for credit for non-agricultural purposes from 1954 to late 1957, it seems reasonably certain that production costs might have risen more than they did. To assume otherwise would be to say that monetary policy in this period was ineffective. In addition to production cost increases there might also have been greater increases in the costs of marketing farm products. There is, however, no way to measure precisely the extent to which the inflation was abated by the credit restraint policies of the Federal Reserve System.

Interest costs vs. total operating costs



[1] The interest rates applied were averaged from rates reported in the **Agriculture Finance Review**, United States Department of Agriculture, Agriculture Research Service, Volume 19, October 1957 and Volume 18, November 1955.

Table 4—Indexes of selected farm production costs, 1954 and 1957

(1910-14 = 100)

	1954	1957[1]
Motor supplies	162	172
Motor vehicles	356	403
Farm machinery	313	347
Farm supplies	274	286
Building and fencing materials	350	388
Fertilizer	155	151
Wages	510	557
Overall index of prices paid, interest, taxes, wage rates	**281**	**295**

[1] January-October average, agricultural prices, December 30, 1957, Agricultural Marketing Service, USDA.

In the current situation the control of inflation is probably as important to the farmer as to any other single group in the economy. This is true because the prices of the farmer's products have not risen along with other prices; the farmer has been supplying his markets too abundantly—surpluses have built up in several lines.

Thus, the farmer has been placed at a disadvantage by the rise of production and marketing costs in recent years as well as by increases in interest cost. The increase in interest rates is, however, one of the necessary costs of inflation control, and inflation control is to the farmer's advantage.

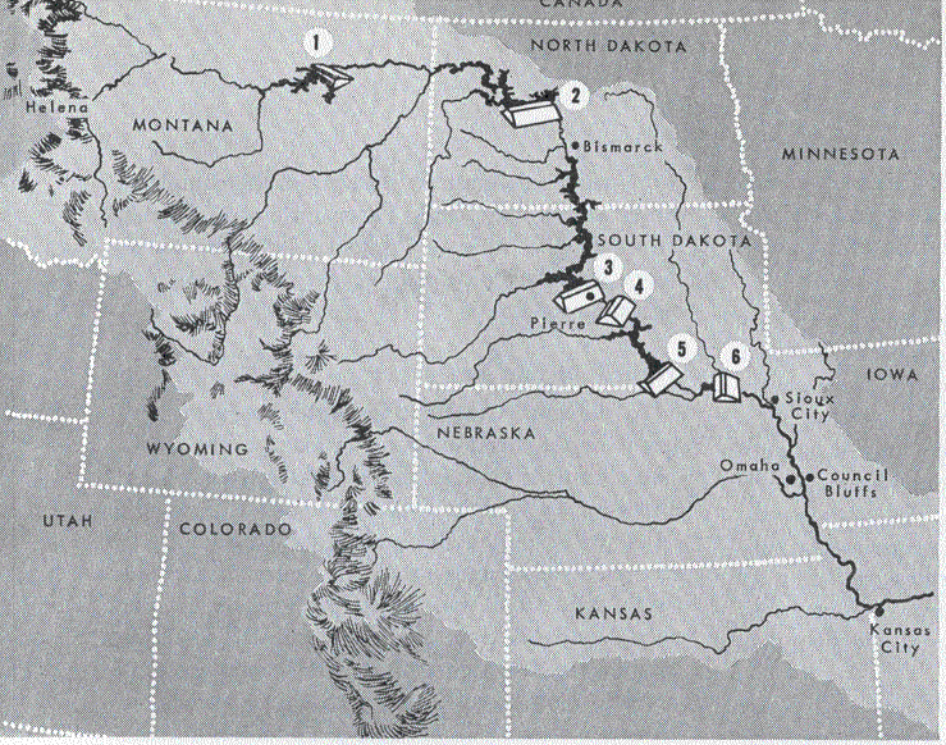
►The following article is abstracted from the forthcoming Minneapolis Federal Reserve Bank publication, "The Missouri Basin Development Program," to be issued March 1958.

Public development in Missouri basin

The Missouri Basin Development program is moving towards completion after nearly 14 years of planning and construction. This multi-billion dollar program, proposed in the Pick-Sloan plan and authorized by Congress in the Flood Control Act of 1944, was designed to develop control, conservation and utilization of basin water resources.

At the heart of the plan are six huge 'multiple-purpose' dams on the Missouri river. Three of these key structures have already been finished as indicated on the map, and most of the remaining large water control projects are expected to be completed in less than 10 years. Among the 'multiple purposes' served by dams and reservoirs are flood control, irrigation, hydroelectric power generation, navigation, sediment control, and municipal and industrial water supply. While some water development was done earlier, extensive work in the Missouri basin was begun only after World War II.

Total cost of the Missouri Basin Development program may reach over $5.5 billion when all projects have been completed. About 65 percent of this sum is considered reimbursable and will be repaid by those who receive the benefits of irrigation, electric power and municipal water supplies made available through the program. The remaining $2 billion will have to be borne by taxpayers throughout the country as a whole. This non-reimbursable portion includes expenditures for flood control, navigation, recreation and preservation of fish and wildlife. As of June 30, 1956, $1.8 billion had already been expended on the development program.



1 FORT PECK (begun 1933)
Existing generator capacity: 85,000 KW
Ultimate generator capacity: 165,000 KW
Ultimate cost: $160 million

2 GARRISON (begun 1946)
Existing generator capacity: 240,000 KW
Ultimate generator capacity: 400,000 KW
Ultimate cost: $294 million

3 OAHE (begun 1948)
Ultimate generator capacity: 595,000 KW
Ultimate cost: $380 million

4 BIG BEND (not started)
Ultimate generator capacity: 217,000 KW
Ultimate cost: $76 million

5 FORT RANDALL (begun 1946)
Existing generator capacity: 320,000 KW
Ultimate generator capacity: 320,000 KW
Ultimate cost: $186 million

6 GAVINS POINT (begun 1952)
Existing generator capacity: 100,000 KW
Ultimate generator capacity: 100,000 KW
Ultimate cost: $48 million

Mainstem dams of the Missouri river development program

Flood control

A major objective of the Basin program is the control of floods. The principal method used to control floods under the program is construction of multiple-purpose reservoirs on the upper reaches of major rivers and principal tributaries and of levees on the lower parts. Also employed, but to a much smaller extent, is watershed management, which includes reforestation, soil conservation and retention dams on small streams.

These large multipurpose structures are economically justifiable for flood control only through the practice of dividing the cost of a dam and of the land inundated among all of the purposes served by the reservoir. The cost is allocated in proportion to the expected benefits for each purpose. Thus, the cost assigned to each use is less than that of a single-purpose project designed to serve only that one use. The economy of huge multipurpose dams in place of smaller single-purpose structures lies in the fact that doubling the height of a dam increases the storage capacity by four to six times while it increases cost of the structure less than proportionally.

In the multiple-purpose projects a part of the capacity in each reservoir has been assigned to flood control. These allotments are adequate to prevent most floods experienced in the past, but there is no assurance that all future floods can be controlled completely.

In combination with the reservoir system, agricultural levees are needed to prevent inundation of flood plains. The Flood Control Act authorized 1,500 miles of levees from the river mouth near St. Louis to Sioux City, Iowa to afford flood protection to almost 1.5 million acres of highly productive agricultural land, as well as to a number of small communities.

Under the Flood Control Act, 11 small watershed units throughout the country were authorized, only one of which is in the Missouri basin. Another 14 experimental watershed projects in the basin have since been authorized by the federal government. They are scheduled for completion by the end of the 1958 construction season. In 1956, watershed management and control were made responsibilities of local authorities, with some financial aid available from the federal government. At the pres-

ent rate of applications under 1956 legislation, approximately 68 additional watershed projects will be authorized for construction during 1958.

Irrigation

When the Pick-Sloan plan was drawn up, authorities believed irrigation to be the most economical method of increasing food production for an ever-growing population. Irrigation projects were justified as means of stabilizing the economy of farmers in the semi-arid areas of the Missouri basin, as well as increasing farm production. Today, however, modern technology coupled with governmental support practices have made surplus rather than shortage the current agricultural problem, and therefore the irrigation portion of the plan has become less important.

Many farmers today irrigate from wells. The cost per acre of such irrigation is small compared with the cost of irrigating with surface water. But wells as a source of water for irrigation do have serious limitation. The water table has receded as much as 17 feet in some areas in the last few years. And increased use of irrigation wells aggravates the water supply problem.

Suitable soil and terrain are essential for an irrigation project with surface water. The subsoil may cause drainage or alkali problems, or the topography may hamper the flow of water by gravity from its source to the tracts. When a unit has been approved for irrigation, repayment contracts based on ability to pay are negotiated with the irrigators. In recent years they have been charged approximately 10 percent of the increase in the value of their crops attributable to irrigation.

The irrigation program in the Basin has not progressed as much as that for flood control and hydroelectric power. New tracts have not been developed for irrigation as fast as the water has become available, due to the reluctance of farmers to sign repayment contracts.

By June 30, 1956 eight irrigation units had been placed in operation under the Missouri basin program. Distribution facilities had been completed to deliver water to 89,747 acres, but only 51,829 acres were actively being irrigated. Six of the completed units are in the Ninth Federal Reserve district. However, the other two units in Nebraska are so large that they comprise 92 percent of the total acreage capacity.

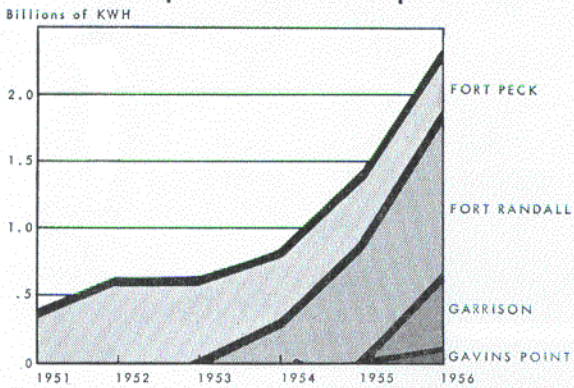
Hydroelectric power

At the same time that the water resources program in the Basin was undertaken, there was a phenomenal growth in the use of electrical power. Prior to World War II, the use of electricity in the Missouri basin had still been in its early stages. In the years following the war, large quantities of federally generated hydroelectric power have been made available from Basin program hydro-plants, enabling utility systems in the area to expand their service. Cooperative and municipal power systems are considered preference customers for this power. Out of the federal power program has grown the objective of integrating private and public systems to serve the power needs of this region. Many 'wheeling' agreements have already been arranged to allow power from federal hydro-plants to be transmitted over private utility systems to preference customers.

In the fall of 1956, the U. S. Bureau of Reclamation allotted power to some 260 preference customers. The ultimate installed capacity of the federal power plants in the Basin will eventually total 2,218,950 kilowatts. The installed capacity in 1957 was about one-half of the goal or 1,090,450 kilowatts. The peak demand for power in 1960 has been estimated to be 8,100,000 kilowatts for the Missouri river region. The dependable federal hydropower available that year will be about 1,080,000 kilowatts, or approximately 13 percent of the needed power load.

The sale of power from the federal system is the major direct source of cash return to the U. S. Treasury from the investment made in the Missouri Basin Development program. In fiscal year 1957 the revenue from federal power sales totaled about $17,169,000 and almost 3.8 billion kilowatt hours of energy were generated.

Power production of major dams



Navigation

Shippers and industrialists of the Missouri valley sought improvements for the Missouri river to make possible a low-cost transportation system. When it became apparent that channel improvements would serve both purposes, people advocating control of bank erosion and river flooding joined forces with the navigation interests. As early as 1912 Congress approved extension of a navigable channel from the river mouth to Kansas City. Subsequent legislation has authorized further extensions, and a substantial proportion is now complete.

The tonnage of freight hauled on the Missouri has increased, but still remains at a relatively low figure. In 1953, when the Inland Waterways Corporation, an agency of the U. S. Department of Commerce, was still the sole operator, 2½ million tons of freight were carried on the river. In 1956, with two privately owned barge lines operating on the river, and several other companies engaging in charter hauling, the total tonnage carried was slightly over 4 million tons, 75 percent of which was material used in channel improvement work. When channel improvements and more terminal facilities are completed, the U. S. Army Corps of Engineers estimates that commercial tonnage may be built up from 1 million tons annually, to 5 million tons over a period of 20 years. In addition, the completion of channel improvements will prevent the annual destruction by erosion of over 9,000 acres of farm land and will open an additional 188,000 acres of new land to agriculture.

Recreation

Although flood control, irrigation, power generation and navigation remain the primary objectives of the Basin program, water uses such as recreation have become increasingly important. Completion of dams and the filling of reservoirs on the Missouri river and principal tributaries have created man-made lakes. The development of recreational facilities at some reservoirs has grown to such proportions that they are important tourist attractions.

The recreational development at reservoir sites is planned in cooperation with the Fish and Wildlife service, National Park service, Forest service and Soil Conservation service, as well as with interested local, state and federal agencies.

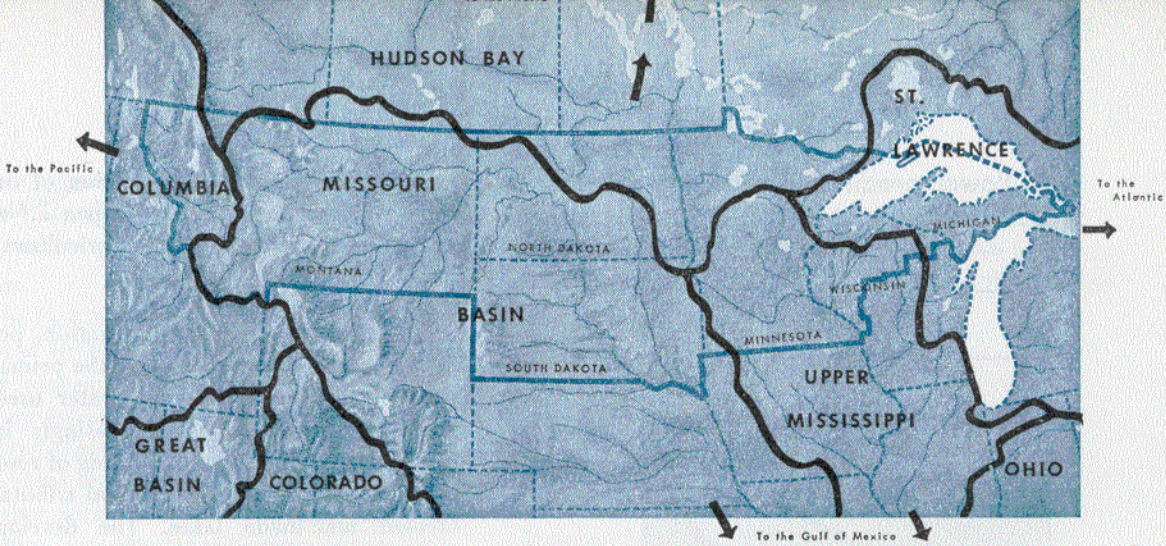
Pollution control

Since cities along the Missouri are dependent upon the river for a water supply, as well as to carry away wastes, pollution has interfered with a safe water supply. The first step taken was to treat water already polluted, but in recent years the bacteria pollution has risen to a point where it has become difficult to treat the polluted water satisfactorily.

The federal Water Pollution Act of 1948 greatly stimulated pollution abatement in the Missouri Basin. This act as amended in 1956 authorized grants of up to $50 million per year for 10 years to municipalities for the construction of sewage treatment plants. At the multiple-purpose reservoirs, flow requirements for dilution of pollution now have a priority comparable to that for flood control, navigation or generation of electric energy.

Administration

Authority for the development work in the Missouri Basin has been centered in the U. S. Army Corps of Engineers and the U. S. Bureau of Reclamation. The former constructs and operates



The sprawling Missouri basin drains most of the Ninth district's land area

units primarily designed for flood control, navigation and power on primary rivers; the latter constructs and operates units mostly for irrigation and power on tributaries. The Bureau also has the responsibility of transmitting and marketing the power generated at its own plants and at those of the Corps of Engineers. The Department of the Interior has six other agencies engaged in various phases of the program—Bureau of Indian Affairs, Bureau of Land Management, Fish and Wildlife service, National Park service, Geological Survey and Bureau of Mines. Although not associated with the investigation, construction and operation of specific projects, other agencies are consulted in the development of the general Basin program. Basin states, through their agencies, cooperate on such phases as soil conservation, state highways, wildlife and public health.

Some coordination has been achieved in meeting the water requirements of the numerous federal and state agencies through the Coordinating Committee for Missouri River Main Stem Reservoir Operations. The Reservoir Control Center in Omaha, Nebraska prepares specific plans for the operation of the Missouri river mainstem reservoirs, and these plans are reviewed and approved by the Coordinating Committee. Two other committees which aid in the integration and coordination of the various Basin program activities are the Missouri Basin Inter-Agency committee and the Missouri River States committee.

Economic effects of the program

The economic impact of the Missouri Basin Development program is of a long range nature. The reduction in flood damage clears the way for development of otherwise unproductive land resources. New supplies of water are now available for irrigation, power generation, industrial, municipal and recreational uses.

The expenditures made for the construction of projects have been a direct source of employment and income to people in the Basin states. The manufacture and transportation of construction equipment and materials produced outside of the Basin provide employment for many more people.

While there may remain some question about the justification of the tremendous expenditures involved in the Missouri Basin Development program, largely because of the local nature of the benefits to be produced, this has almost become a remote issue today. The program is a reality. Construction work, now well advanced, will likely be carried to completion within the coming decade.