

# GENERAL DISCUSSION

## Capability of Irrigation Works

Table 16 shows the areas which installed irrigation works were reported capable of supplying with water and irrigable areas reported, together with the excess of these areas over areas irrigated. The expansion possibilities from the standpoint of capacity of irrigation works are thus indicated. Of the 10,302,210 acres of irrigable land now in irrigation projects which were not irrigated in 1939, statistics indicate that 7,051,509 acres could be irrigated with the present systems, leaving 3,250,701 acres of irrigable land in operating enterprises for which works have not been constructed. Cali-

formia with constructed irrigation works capable of supplying water to 2,329,008 acres more than were irrigated in 1939. Texas with 728,588 acres, Colorado with 692,857 acres, and Montana with 632,981 acres, are the States with the greatest acreages under works but not irrigated. Similarly, the Sacramento and San Joaquin Valleys of California with works capable of supplying water to 1,738,715 acres more than were irrigated in 1939, the Missouri River with 1,532,573 acres, the Colorado River with 729,624 acres, and the Rio Grande with 656,129 acres, indicate the locations of largest areas by drainage basins under irrigation works but not irrigated in 1939.

TABLE 16.—AREA IRRIGATION WORKS WERE CAPABLE OF SUPPLYING WITH WATER, AND IRRIGABLE AREA, 1940, 1930, AND 1920; AND THE EXCESS OF THESE AREAS OVER AREAS IRRIGATED, 1939, 1929, AND 1919; BY STATES AND BY PRINCIPAL DRAINAGE BASINS

(For the 17 western States and Arkansas and Louisiana)

| ITEM                                                                                                                                            | AREA WORKS WERE CAPABLE OF SUPPLYING WITH WATER |                                    |            |                                    |            |                                    |                                                                  | IRRIGABLE AREA |                                    |            |                                    |            |                                    |                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------|------------|------------------------------------|------------|------------------------------------|------------------------------------------------------------------|----------------|------------------------------------|------------|------------------------------------|------------|------------------------------------|------------------------------------------------------------------|
|                                                                                                                                                 | 1940                                            |                                    | 1930       |                                    | 1920       |                                    | Increase or decrease (-) of excess over area irrigated 1930-1940 | 1940           |                                    | 1930       |                                    | 1920       |                                    | Increase or decrease (-) of excess over area irrigated 1930-1940 |
|                                                                                                                                                 | Area                                            | Excess over area irrigated in 1939 | Area       | Excess over area irrigated in 1929 | Area       | Excess over area irrigated in 1919 |                                                                  | Area           | Excess over area irrigated in 1939 | Area       | Excess over area irrigated in 1929 | Area       | Excess over area irrigated in 1919 |                                                                  |
|                                                                                                                                                 | Acres                                           | Acres                              | Acres      | Acres                              | Acres      | Acres                              | Percent                                                          | Acres          | Acres                              | Acres      | Acres                              | Acres      | Acres                              | Percent                                                          |
| Total (19 States)                                                                                                                               | 28,055,248                                      | 7,051,509                          | 26,101,890 | 6,554,346                          | 26,020,477 | 6,828,761                          | 7.6                                                              | 31,305,949     | 10,302,210                         | 30,599,470 | 11,051,926                         | 55,890,821 | 16,699,105                         | -6.8                                                             |
| STATE                                                                                                                                           | BY STATES                                       |                                    |            |                                    |            |                                    |                                                                  |                |                                    |            |                                    |            |                                    |                                                                  |
| Arizona                                                                                                                                         | 844,212                                         | 190,949                            | 824,152    | 248,562                            | 627,303    | 159,738                            | -23.2                                                            | 1,104,645      | 451,382                            | 1,085,627  | 510,037                            | 813,153    | 345,588                            | -11.5                                                            |
| Arkansas                                                                                                                                        | 287,765                                         | 126,164                            | 209,942    | 58,155                             | 179,013    | 35,087                             | 116.9                                                            | 314,929        | 153,328                            | 225,992    | 74,205                             | 246,480    | 102,554                            | 106.6                                                            |
| California                                                                                                                                      | 7,398,576                                       | 2,329,008                          | 6,815,250  | 2,068,618                          | 5,894,466  | 1,675,426                          | 12.6                                                             | 8,039,175      | 2,969,607                          | 8,075,895  | 3,329,263                          | 7,805,207  | 3,586,187                          | -10.8                                                            |
| Colorado                                                                                                                                        | 3,913,544                                       | 692,857                            | 4,078,712  | 685,093                            | 3,855,348  | 506,963                            | 1.1                                                              | 4,283,250      | 1,062,565                          | 4,528,251  | 1,134,632                          | 5,220,588  | 1,872,203                          | -6.4                                                             |
| Idaho                                                                                                                                           | 2,593,532                                       | 315,677                            | 2,617,021  | 435,771                            | 3,092,810  | 604,004                            | -27.6                                                            | 2,870,023      | 592,166                            | 2,814,048  | 632,798                            | 3,780,048  | 1,291,242                          | -6.4                                                             |
| Kansas                                                                                                                                          | 142,409                                         | 42,429                             | 85,583     | 12,295                             | 67,853     | 20,541                             | 245.1                                                            | 147,226        | 47,246                             | 95,719     | 24,429                             | 102,562    | 55,250                             | 93.4                                                             |
| Louisiana                                                                                                                                       | 759,915                                         | 312,820                            | 795,165    | 344,264                            | 728,742    | 273,860                            | -9.1                                                             | 793,674        | 346,579                            | 850,401    | 399,500                            | 851,211    | 396,329                            | -13.2                                                            |
| Montana                                                                                                                                         | 2,344,390                                       | 632,981                            | 2,276,000  | 681,088                            | 2,753,498  | 1,071,769                          | -7.1                                                             | 2,588,214      | 876,805                            | 2,622,423  | 1,027,511                          | 4,329,148  | 2,647,419                          | -14.7                                                            |
| Nebraska                                                                                                                                        | 982,957                                         | 382,578                            | 705,641    | 171,024                            | 562,468    | 119,778                            | 123.7                                                            | 1,095,567      | 495,188                            | 250,422    | 768,768                            | 324,078    | 110.6                              |                                                                  |
| Nevada                                                                                                                                          | 841,304                                         | 101,441                            | 736,249    | 249,601                            | 704,708    | 143,261                            | -59.4                                                            | 915,689        | 175,826                            | 983,717    | 497,069                            | 1,382,056  | 820,589                            | -64.6                                                            |
| New Mexico                                                                                                                                      | 731,990                                         | 177,951                            | 656,689    | 129,636                            | 696,119    | 157,742                            | 37.3                                                             | 807,656        | 253,617                            | 741,245    | 214,212                            | 961,979    | 423,502                            | 18.4                                                             |
| North Dakota                                                                                                                                    | 36,522                                          | 14,907                             | 24,006     | 14,614                             | 34,235     | 22,165                             | 0.2                                                              | 39,558         | 17,943                             | 24,860     | 15,468                             | 57,476     | 45,404                             | 16.0                                                             |
| Oklahoma                                                                                                                                        | 8,624                                           | 4,464                              | 7,331      | 5,758                              | 9,672      | 6,703                              | -22.5                                                            | 13,494         | 9,334                              | 7,344      | 5,771                              | 11,742     | 8,775                              | 61.7                                                             |
| Oregon                                                                                                                                          | 1,261,081                                       | 211,905                            | 1,158,210  | 259,497                            | 1,344,046  | 357,894                            | -18.3                                                            | 1,441,417      | 392,241                            | 1,478,128  | 579,115                            | 1,925,987  | 939,825                            | -32.3                                                            |
| South Dakota                                                                                                                                    | 121,847                                         | 61,649                             | 109,550    | 42,443                             | 150,914    | 50,232                             | 45.3                                                             | 123,961        | 63,763                             | 122,510    | 55,403                             | 188,382    | 87,700                             | 15.1                                                             |
| Texas                                                                                                                                           | 1,773,812                                       | 728,588                            | 1,177,415  | 378,498                            | 1,150,542  | 564,422                            | 92.5                                                             | 2,180,796      | 1,566,876                          | 1,566,876  | 767,959                            | 1,687,447  | 1,101,327                          | 47.9                                                             |
| Utah                                                                                                                                            | 1,357,714                                       | 181,598                            | 1,542,475  | 218,350                            | 1,700,550  | 328,899                            | -16.8                                                            | 1,432,533      | 256,417                            | 1,739,869  | 415,744                            | 2,559,244  | 987,593                            | -38.3                                                            |
| Washington                                                                                                                                      | 731,527                                         | 116,514                            | 631,511    | 132,228                            | 637,151    | 107,252                            | -11.9                                                            | 837,096        | 222,083                            | 915,379    | 416,096                            | 836,795    | 306,896                            | -46.6                                                            |
| Wyoming                                                                                                                                         | 1,913,527                                       | 427,029                            | 1,655,008  | 418,853                            | 1,831,039  | 623,057                            | 2.0                                                              | 2,277,046      | 790,548                            | 1,958,147  | 721,992                            | 2,564,668  | 1,356,686                          | 9.5                                                              |
| DRAINAGE BASIN                                                                                                                                  | BY PRINCIPAL DRAINAGE BASINS                    |                                    |            |                                    |            |                                    |                                                                  |                |                                    |            |                                    |            |                                    |                                                                  |
| Red River (of the North)                                                                                                                        | 7,980                                           | 3,487                              | 2,099      |                                    |            |                                    |                                                                  | 8,100          | 3,607                              | 2,409      | 310                                |            |                                    | (1)                                                              |
| Missouri River                                                                                                                                  | 5,942,958                                       | 1,532,573                          | 5,472,012  | 1,286,832                          | 5,805,630  | 1,658,352                          | 19.1                                                             | 6,542,576      | 2,132,191                          | 6,231,873  | 2,046,693                          | 8,483,171  | 4,335,893                          | 4.2                                                              |
| Mississippi River, exclusive of Mississippi River                                                                                               | 1,350,911                                       | 423,317                            | 1,170,583  | 268,023                            | 1,152,261  | 193,768                            | 57.9                                                             | 1,458,502      | 530,908                            | 1,280,730  | 378,170                            | 1,543,064  | 584,571                            | 40.4                                                             |
| Gulf of Mexico streams, other than Mississippi River and Rio Grande                                                                             | 1,520,796                                       | 618,404                            | 1,221,997  | 559,039                            | 1,157,529  | 459,452                            | 10.6                                                             | 1,874,654      | 972,262                            | 1,536,404  | 873,446                            | 1,602,169  | 904,092                            | 11.3                                                             |
| Rio Grande                                                                                                                                      | 2,177,705                                       | 656,127                            | 1,914,781  | 550,056                            | 1,914,285  | 601,430                            | 87.4                                                             | 2,378,063      | 856,485                            | 2,177,664  | 612,939                            | 2,628,153  | 1,315,298                          | 39.7                                                             |
| Colorado River                                                                                                                                  | 3,567,744                                       | 729,624                            | 3,335,914  | 798,790                            | 3,009,219  | 682,529                            | -8.7                                                             | 4,017,757      | 1,379,637                          | 4,435,529  | 1,898,405                          | 4,102,096  | 1,775,406                          | -27.3                                                            |
| Whitewater Draw and Vamori Wash <sup>2</sup>                                                                                                    | 13,462                                          | 4,964                              | 4,753      | 1,452                              | 9,950      | 4,079                              | 241.9                                                            | 14,261         | 5,763                              | 5,570      | 2,269                              | 16,623     | 10,752                             | 154.0                                                            |
| Great Basin                                                                                                                                     | 2,381,171                                       | 307,444                            | 2,536,492  | 500,459                            | 2,825,313  | 547,662                            | -38.6                                                            | 2,504,611      | 430,884                            | 3,004,651  | 968,618                            | 4,165,450  | 1,887,799                          | -55.5                                                            |
| Columbia River                                                                                                                                  | 4,426,367                                       | 606,629                            | 4,241,244  | 847,604                            | 4,968,518  | 1,095,273                          | -28.4                                                            | 5,001,483      | 1,181,745                          | 4,992,131  | 1,596,491                          | 6,336,801  | 2,463,556                          | -26.1                                                            |
| Klamath River                                                                                                                                   | 310,560                                         | 39,522                             | 264,949    | 76,958                             | 205,374    | 52,269                             | -46.6                                                            | 384,003        | 112,965                            | 316,239    | 128,248                            | 362,793    | 209,688                            | -11.9                                                            |
| Sacramento-San Joaquin Delta and tributary streams                                                                                              | 5,132,597                                       | 1,738,715                          | 4,795,836  | 1,638,704                          | 4,113,524  | 1,368,880                          | 6.1                                                              | 5,680,337      | 2,266,455                          | 5,595,666  | 2,236,534                          | 5,499,735  | 2,755,091                          | 1.3                                                              |
| Pacific Ocean streams, excl. of Gulf of California streams, Columbia and Klamath Rivers, and Sacramento-San Joaquin Delta and tributary streams | 1,422,997                                       | 390,705                            | 1,141,250  | 226,429                            | 858,874    | 165,067                            | 72.5                                                             | 1,461,602      | 429,308                            | 1,222,604  | 307,803                            | 1,150,766  | 456,959                            | 39.5                                                             |

<sup>1</sup> Percent not shown when more than 1,000.

<sup>2</sup> Data for Censuses of 1930 and 1920 are for Whitewater Draw and unidentified tributaries, and do not include the independent basin, Vamori Wash.