

8.4.2 Sanitation

The conditions and assumptions are established for the different sanitation components to serve as guides in the implementation of projects.

(1) Household toilets

Three types of sanitary toilet facilities for individual houses are considered for Phase I; flush, pour-flush and VIP/sanitary pit privy (dry-type). While for Phase II, flush and pour-flush are planned considering the improvement of living standard.

The type of toilet facilities is dependent on the existing or planned service level of water supply in the community. In urban and rural areas with Level I or II water supply facilities, only pour-flush and/or VIP are considered, while in urban areas with Level III water supply systems, flush type toilets requiring a piped water connection are included. Isolated rural areas where there is dearth of water supply, sanitary pit privy (dry type) is taken into account.

(2) School toilets

Standard service level currently used by DECS (40 students per unit facility) is employed for both phases.

The standard toilet facility (1 building) with 5 units of toilet bowl to serve for 200 students is adopted for the planning purpose, which is modified from FW4SP design to provide a shallow well as a water source. Since DECS is currently promoting the "one classroom-one toilet" concept, the PW4SP also adopts this concept on a 50-50 basis, that is 50% of the school toilet requirements will be allocated using the JICA-RESP design and the other 50% will be adopting the new concept.

Such a standard design, however, may be modified in the actual implementation stage, in consideration of local condition (number of students, viable investment from LGUs, etc.)

(3) Public toilets

As a minimum requirement, at least 1 sanitary toilet facility is assumed to be provided for respective utilities: public market bus/jEEPney terminal and parks/playground.

The DOH standard design with 6-units of toilet bowl for the market is adopted. In this design, it is assumed that water supply will be tapped from the existing system, hence an elevated water tank is provided.

8.4.3 Urban Sewerage

The commencement of staged implementation of the sewerage program is planned in Phase II for the limited urban area (50% of urban population served by Level III system for the municipalities with urban population of more than 10,000). It is practical to start the program fully using the existing facilities to allow for lower initial investment cost than starting at once a conventional sewerage system (refer to Figure 8.4.2 Staged Improvement in Sewage Collection Method, Supporting Report).

Low cost off-site technologies such as small-bore sewer for collection of effluent from septic tank are to be adopted. Improvement of sewage collection method may be gradually achieved from combined sewer to separate sewerage system.

Sewage treatment facilities may range from community scale septic tank or Imhoff tank to aerated lagoon systems and to a more advanced treatment process such as oxidation ditch. For this PW4SP, aerated lagoons are assumed as a representative treatment facility for planning purpose. Daily average wastewater quantity is assumed at 100 liters per capita per day.

8.4.4 Solid Waste

In terms of facility requirements, this PW4SP only studied the number of refuse collection trucks required for the year 2005. A rated capacity of 5 cu.m truck/vehicle is considered for calculation of required units of truck. Disposal of solid waste shall be studied in detail through investigations, F/S and D/D. Unit solid waste generation for urban area is assumed to be 0.418 kg. per capita per day.

8.5 Service Coverage by Target Year

8.5.1 Water Supply

The service coverage in terms of population to be served by target year was estimated by urban and rural area by municipality. The service coverage in rural area was further subdivided by service level (Level I & Level II) to finally come up with physical requirements.

Base figures applied to estimate the future service coverage and the additional population to be served are:

- provincial sector targets;
- population projection by target year; and
- base year service coverage (served population) by existing facilities.

Future requirements in terms of additional population to be served were then estimated by urban (Level III) and rural (Level I & II) area by municipality as a shortfall to meet the population to be served in each target year. The population served in base year is adopted as the population served in target year, when the former population exceeds the population to be served in the target year/s. Manner of calculation is specifically presented by phase.

(1) Phase I requirements

Additional service coverage was estimated as a shortfall of the population to be served in Phase I comparing with the population served in base year. In this connection, existing facilities both in urban and rural areas are assumed to be utilized during the Phase I period.

The utilization of untapped springs for Level II systems was given priority during Phase I period for rural water supply. At the time of this plan preparation, a total of 16 untapped springs in 4 municipalities/cities were identified.

(2) Phase II requirements

Additional service coverage was estimated as a shortfall of the population to be served in Phase II comparing with the population served in Phase I. In this regard, existing facilities in rural area were assumed to be utilized through the two Phases, while urban population served by Level I and II facilities in base year was assumed to be absorbed by Level III service during Phase II period.

Table 8.5.1 presents the service coverage by target year and by level of service as well as the additional population to be served (details are referred to Supporting Report).

Through Phase I development, approximately 282,300 persons in the province will be served by additional water supply services, of which 99,500 persons or 35% of the total will be urban population and 182,800 persons or 65% will be rural population.

For Phase II period, a total of 878,900 persons, of which 589,500 persons or 67% in urban area and 289,400 persons or 33% in rural area, will be further benefited by water supply services. This additional service coverage in urban area includes the upgrade of service level for 429,300 persons served by Level I and II facilities in 1998.

Table 8.5.1 Population to be Served by Target Year (Water Supply)

| Name of Municipality/City | Area | Phase I Coverage (2005) | | | | | | Phase II Coverage (2010) | | | | | |
|---------------------------|-------|-------------------------|----------|---------|------------------------------------|----------|---------|--------------------------|----------|---------|------------------------------------|----------|---------|
| | | Total Population | | | Additional Population to be Served | | | Total Population | | | Additional Population to be Served | | |
| | | Level III | Level II | Level I | Level III | Level II | Level I | Level III | Level II | Level I | Level III | Level II | Level I |
| Bago City | Urban | 34,986 | 10,724 | 16,988 | 27,712 | 5,000 | 35,810 | 34,020 | 23,296 | 34,020 | 23,296 | 34,020 | 23,296 |
| | Rural | 120,155 | 1,224 | 87,017 | 95,413 | 1,572 | 16,019 | 17,591 | 132,963 | 1,224 | 7,172 | 115,260 | 123,656 |
| | Total | 155,141 | 11,948 | 104,005 | 123,125 | 5,000 | 16,019 | 22,591 | 168,773 | 35,244 | 7,172 | 115,260 | 157,676 |
| Binubagan | Urban | 27,034 | 11,544 | 13,577 | 25,121 | 3,864 | 4,968 | 4,968 | 34,301 | 5,214 | 75 | 26,611 | 31,900 |
| | Rural | 33,936 | 5,214 | 21,298 | 26,537 | 4,968 | 8,832 | 62,308 | 31,906 | 75 | 26,611 | 58,592 | 15,148 |
| | Total | 60,970 | 16,758 | 34,875 | 51,708 | 3,864 | 13,800 | 96,610 | 66,207 | 82,500 | 102,202 | 116,694 | 47,248 |
| Cadiz City | Urban | 38,026 | 32,767 | 550 | 1,350 | 34,667 | 98,436 | 3,000 | 1,300 | 87,292 | 91,592 | 1,300 | 87,292 |
| | Rural | 162,502 | 3,000 | 78,280 | 82,580 | 140,528 | 35,767 | 1,850 | 79,630 | 117,247 | 13,027 | 12,376 | 12,376 |
| | Total | 200,528 | 35,767 | 132,940 | 184,247 | 140,528 | 37,617 | 13,877 | 166,920 | 130,827 | 14,323 | 99,668 | 134,672 |
| Calarava | Urban | 12,341 | 10,269 | 578 | 10,847 | 4,18 | 63,730 | 2,346 | 2,500 | 54,423 | 59,269 | 2,107 | 6,807 |
| | Rural | 60,568 | 2,346 | 2,500 | 47,610 | 52,462 | 76,757 | 14,722 | 2,500 | 54,423 | 71,645 | 2,107 | 6,807 |
| | Total | 72,949 | 12,615 | 2,500 | 48,194 | 63,309 | 140,487 | 17,267 | 5,000 | 108,843 | 131,314 | 4,214 | 13,614 |
| Candani | Urban | 2,922 | 418 | 325 | 1,368 | 2,111 | 418 | 2,922 | 17,884 | 2,025 | 14,607 | 16,632 | 5,314 |
| | Rural | 15,181 | 9,295 | 11,318 | 13,429 | 418 | 20,822 | 2,791 | 2,025 | 14,607 | 19,423 | 2,373 | 7,687 |
| | Total | 18,103 | 10,661 | 12,693 | 14,797 | 418 | 21,804 | 2,791 | 2,025 | 17,614 | 21,816 | 4,746 | 12,371 |
| Cauayan | Urban | 23,984 | 3,438 | 8,268 | 16,146 | 3,428 | 25,237 | 23,975 | 7,364 | 57,876 | 66,140 | 15,467 | 15,467 |
| | Rural | 67,587 | 900 | 7,364 | 42,409 | 50,673 | 71,118 | 900 | 7,364 | 57,876 | 90,115 | 20,547 | 36,014 |
| | Total | 91,571 | 4,338 | 15,632 | 58,555 | 101,346 | 96,355 | 34,875 | 7,364 | 57,876 | 90,115 | 20,547 | 51,481 |
| Enrique B. Magalona | Urban | 35,413 | 8,561 | 75 | 20,240 | 28,876 | 5,061 | 37,503 | 35,628 | 31,840 | 32,190 | 8,066 | 8,066 |
| | Rural | 32,683 | 350 | 23,774 | 24,124 | 4,785 | 34,613 | 350 | 31,840 | 32,190 | 27,067 | 8,066 | 8,066 |
| | Total | 68,096 | 8,911 | 44,014 | 44,368 | 9,846 | 69,226 | 35,976 | 63,680 | 63,930 | 54,157 | 16,132 | 16,132 |
| Escalante | Urban | 42,537 | 11,603 | 125 | 28,683 | 40,411 | 6,080 | 8,038 | 8,038 | 48,943 | 49,317 | 10,244 | 10,244 |
| | Rural | 54,903 | 1,320 | 1,000 | 46,797 | 49,317 | 100,202 | 30,763 | 1,200 | 46,797 | 98,260 | 37,340 | 37,340 |
| | Total | 97,440 | 12,923 | 1,325 | 75,480 | 89,728 | 106,482 | 61,501 | 2,400 | 95,740 | 146,520 | 74,680 | 74,680 |
| Himamaylan | Urban | 33,518 | 4,936 | 550 | 22,920 | 28,456 | 57,958 | 4,782 | 4,600 | 44,519 | 53,901 | 28,330 | 28,330 |
| | Rural | 55,395 | 4,782 | 4,600 | 34,275 | 45,657 | 72,116 | 35,978 | 31,840 | 44,519 | 53,901 | 10,244 | 10,244 |
| | Total | 88,913 | 9,718 | 5,150 | 57,195 | 74,113 | 129,074 | 71,956 | 63,680 | 89,039 | 107,802 | 38,574 | 38,574 |
| Hinayran | Urban | 64,222 | 2,142 | 1,000 | 49,877 | 53,019 | 1,987 | 14,587 | 13,836 | 61,909 | 65,051 | 12,032 | 12,032 |
| | Rural | 78,123 | 5,077 | 1,000 | 56,599 | 62,676 | 11,389 | 84,534 | 16,000 | 61,909 | 78,909 | 10,923 | 10,923 |
| | Total | 142,345 | 7,219 | 2,000 | 106,476 | 115,695 | 126,466 | 98,118 | 21,936 | 123,818 | 143,960 | 22,955 | 22,955 |
| Huroban (Asia) | Urban | 24,819 | 2,347 | 1,750 | 19,500 | 21,250 | 2,347 | 16,421 | 15,600 | 17,500 | 21,332 | 18,832 | 18,832 |
| | Rural | 41,240 | 2,347 | 1,925 | 30,440 | 34,732 | 5,981 | 41,240 | 15,600 | 17,500 | 21,332 | 18,832 | 18,832 |
| | Total | 66,059 | 4,694 | 3,675 | 49,940 | 55,982 | 8,328 | 57,661 | 31,200 | 35,000 | 38,832 | 37,664 | 37,664 |
| Ilog | Urban | 16,782 | 5,077 | 625 | 9,306 | 9,931 | 2,457 | 2,457 | 625 | 15,449 | 16,074 | 6,143 | 6,143 |
| | Rural | 43,905 | 5,077 | 20,601 | 32,303 | 3,877 | 45,218 | 26,537 | 15,449 | 42,611 | 21,460 | 6,143 | 6,143 |
| | Total | 60,687 | 10,154 | 21,226 | 41,609 | 13,808 | 90,436 | 41,982 | 30,898 | 58,060 | 44,074 | 12,286 | 12,286 |
| Isabela | Urban | 41,925 | 5,930 | 31,176 | 38,819 | 1,693 | 6,138 | 6,138 | 44,733 | 5,930 | 35,652 | 11,496 | 11,496 |
| | Rural | 53,773 | 1,693 | 3,819 | 40,619 | 8,170 | 57,089 | 11,738 | 5,930 | 35,652 | 53,340 | 11,496 | 11,496 |
| | Total | 95,698 | 7,623 | 35,000 | 79,438 | 9,863 | 113,822 | 56,471 | 11,868 | 71,302 | 87,074 | 22,992 | 22,992 |
| Kababalan City | Urban | 57,100 | 8,350 | 3,750 | 31,894 | 40,619 | 16,405 | 17,283 | 13,782 | 5,800 | 98,791 | 118,573 | 51,538 |
| | Rural | 112,635 | 13,782 | 5,800 | 47,253 | 66,835 | 192,212 | 25,449 | 5,800 | 98,791 | 180,056 | 53,333 | 53,333 |
| | Total | 169,735 | 22,132 | 9,550 | 79,147 | 107,454 | 256,427 | 23,081 | 11,600 | 197,582 | 238,629 | 104,866 | 104,866 |
| La Carlota City | Urban | 23,000 | 16,620 | 50 | 5,070 | 21,740 | 4,995 | 4,995 | 36,958 | 9,300 | 1,500 | 3,141 | 3,141 |
| | Rural | 34,119 | 9,300 | 1,500 | 20,370 | 31,230 | 4,995 | 60,580 | 31,809 | 1,500 | 23,511 | 5,829 | 5,829 |
| | Total | 57,119 | 25,920 | 1,500 | 25,440 | 52,970 | 9,990 | 97,538 | 68,767 | 3,000 | 25,022 | 9,970 | 9,970 |
| La Castellana | Urban | 24,844 | 6,509 | 11,477 | 17,986 | 3,551 | 24,844 | 6,509 | 11,477 | 17,986 | 3,551 | 14,341 | 14,341 |
| | Rural | 47,671 | 1,325 | 30,375 | 31,700 | 1,325 | 44,756 | 46,081 | 1,325 | 44,756 | 46,081 | 14,341 | 14,341 |
| | Total | 72,515 | 7,834 | 42,852 | 49,686 | 4,876 | 69,600 | 74,167 | 2,654 | 56,542 | 93,167 | 28,682 | 28,682 |

Table 8-S.1 Population to be Served by Target Year (Water Supply) (Cont'd)

| Name of Municipality/City | Area | Phase I Coverage (2005) | | | | | | Phase II Coverage (2010) | | | | | | |
|---------------------------|-------|-------------------------|----------|--------|------------------------------------|-----------|---------|--------------------------|-----------|-----------|------------------------------------|----------|---------|---------|
| | | Total Population | | | Additional Population to be Served | | | Total Population | | | Additional Population to be Served | | | |
| | | Level I | Level II | Total | Level III | Level II | Level I | Level III | Level II | Level I | Level III | Level II | Level I | Total |
| Manapla | Urban | 11,034 | 5,855 | 4,557 | 10,412 | 1,577 | 11,549 | 10,972 | 10,972 | 5,117 | 10,972 | 5,117 | 5,117 | 5,117 |
| | Rural | 43,484 | 2,230 | 36,480 | 38,710 | 1,080 | 6,366 | 44,032 | 2,230 | 38,720 | 40,950 | 2,240 | 2,240 | 2,240 |
| | Total | 54,518 | 8,085 | 41,037 | 49,122 | 2,657 | 7,943 | 55,581 | 10,972 | 38,720 | 51,922 | 2,240 | 2,240 | 7,357 |
| Moises Padilla | Urban | 11,149 | 2,443 | 6,744 | 9,489 | 1,080 | 12,249 | 11,637 | 11,637 | 1,637 | 11,637 | 1,637 | 1,637 | 1,637 |
| | Rural | 21,720 | 1,075 | 17,928 | 19,003 | 3,180 | 3,180 | 23,362 | 1,075 | 21,117 | 22,922 | 3,189 | 3,189 | 3,189 |
| | Total | 32,869 | 3,518 | 24,672 | 28,492 | 4,260 | 4,260 | 36,111 | 11,637 | 33,829 | 35,854 | 3,189 | 3,189 | 17,867 |
| Murcia | Urban | 20,162 | 9,804 | 125 | 18,815 | 2,882 | 29,212 | 27,751 | 27,751 | 17,887 | 27,751 | 17,887 | 17,887 | 17,887 |
| | Rural | 46,336 | 888 | 4,775 | 39,415 | 6,784 | 6,784 | 41,120 | 888 | 31,752 | 39,415 | 6,784 | 6,784 | 6,784 |
| | Total | 66,498 | 10,732 | 42,578 | 58,230 | 2,882 | 9,666 | 70,332 | 28,639 | 4,775 | 33,732 | 67,166 | 17,887 | 17,887 |
| Pontevedra | Urban | 21,185 | 10,863 | 9,272 | 20,137 | 3,028 | 26,411 | 25,090 | 25,090 | 14,225 | 25,090 | 14,225 | 14,225 | 14,225 |
| | Rural | 26,899 | 4,534 | 17,458 | 22,417 | 5,938 | 5,938 | 25,205 | 4,534 | 18,482 | 23,441 | 4,534 | 4,534 | 4,534 |
| | Total | 48,084 | 15,397 | 26,730 | 42,554 | 8,966 | 8,966 | 51,616 | 29,624 | 4,25 | 18,482 | 10,24 | 10,24 | 10,24 |
| Pulupandan | Urban | 18,286 | 3,898 | 12,088 | 15,986 | 2,014 | 16,286 | 17,372 | 17,372 | 13,474 | 17,372 | 13,474 | 13,474 | 13,474 |
| | Rural | 11,305 | 762 | 8,318 | 9,080 | 1,305 | 11,305 | 762 | 9,752 | 10,514 | 1,434 | 1,434 | 1,434 | 1,434 |
| | Total | 29,591 | 4,660 | 20,406 | 25,066 | 3,319 | 27,591 | 18,134 | 9,752 | 27,886 | 13,474 | 1,434 | 1,434 | 14,908 |
| Sagay City | Urban | 60,485 | 21,675 | 840 | 47,787 | 8,045 | 61,637 | 58,555 | 58,555 | 36,880 | 58,555 | 36,880 | 36,880 | 36,880 |
| | Rural | 107,572 | 7,697 | 4,338 | 73,568 | 3,503 | 12,186 | 119,656 | 7,697 | 4,338 | 99,245 | 11,280 | 11,280 | 11,280 |
| | Total | 168,057 | 29,372 | 5,178 | 86,805 | 11,548 | 111,293 | 178,211 | 66,252 | 4,338 | 99,245 | 109,835 | 36,880 | 36,880 |
| Salvador Benedicto | Urban | 20,794 | 4,400 | 12,327 | 16,727 | 2,576 | 22,576 | 20,996 | 20,996 | 4,269 | 20,996 | 4,269 | 4,269 | 4,269 |
| | Rural | 32,055 | 18,167 | 11,837 | 30,004 | 4,582 | 34,308 | 32,591 | 32,591 | 14,424 | 32,591 | 14,424 | 14,424 | 14,424 |
| | Total | 85,337 | 22,567 | 24,164 | 46,731 | 7,158 | 56,884 | 53,587 | 53,587 | 18,880 | 53,587 | 18,880 | 18,880 | 18,880 |
| San Carlos City | Urban | 112,892 | 18,927 | 56,256 | 94,048 | 4,582 | 12,567 | 17,149 | 120,692 | 33,361 | 18,855 | 60,714 | 80,336 | 16,295 |
| | Rural | 10,920 | 1,561 | 7,340 | 8,901 | 1,561 | 10,123 | 10,448 | 13,582 | 12,903 | 11,342 | 12,903 | 11,342 | 11,342 |
| | Total | 23,983 | 1,561 | 17,463 | 19,349 | 6,143 | 20,690 | 27,591 | 34,308 | 24,863 | 30,273 | 24,863 | 24,863 | 24,863 |
| San Enrique | Urban | 64,731 | 25,697 | 34,910 | 58,607 | 9,252 | 73,714 | 70,028 | 70,028 | 46,331 | 70,028 | 46,331 | 46,331 | 46,331 |
| | Rural | 80,005 | 2,917 | 55,526 | 62,968 | 11,713 | 74,351 | 2,917 | 4,525 | 61,704 | 69,146 | 6,178 | 6,178 | 6,178 |
| | Total | 144,736 | 26,614 | 90,436 | 121,575 | 20,965 | 148,065 | 72,945 | 75,545 | 131,732 | 139,174 | 72,804 | 72,804 | 72,804 |
| Silay City | Urban | 22,649 | 4,647 | 100 | 20,883 | 3,237 | 24,275 | 23,061 | 23,061 | 18,414 | 23,061 | 18,414 | 18,414 | 18,414 |
| | Rural | 46,349 | 294 | 1,025 | 40,532 | 3,237 | 43,769 | 294 | 1,025 | 44,470 | 45,789 | 3,938 | 3,938 | 3,938 |
| | Total | 68,998 | 4,941 | 1,125 | 61,415 | 6,474 | 68,544 | 24,275 | 24,275 | 68,544 | 69,783 | 3,938 | 3,938 | 3,938 |
| Talisay City | Urban | 37,139 | 13,528 | 500 | 22,248 | 5,308 | 27,556 | 26,248 | 26,248 | 23,858 | 26,248 | 23,858 | 23,858 | 23,858 |
| | Rural | 43,546 | 42 | 500 | 35,699 | 36,241 | 42 | 42 | 500 | 43,396 | 43,396 | 7,697 | 7,697 | 7,697 |
| | Total | 80,685 | 13,570 | 1,000 | 57,947 | 11,616 | 63,797 | 26,290 | 26,290 | 70,644 | 70,644 | 15,555 | 15,555 | 15,555 |
| Toboso | Urban | 39,975 | 956 | 1,725 | 29,213 | 3,187 | 32,345 | 32,345 | 32,345 | 37,521 | 37,521 | 5,647 | 5,647 | 5,647 |
| | Rural | 48,483 | 3,106 | 2,235 | 36,576 | 1,216 | 7,068 | 48,932 | 9,994 | 34,800 | 45,679 | 5,988 | 5,988 | 5,988 |
| | Total | 22,746 | 1,610 | 17,937 | 19,547 | 4,403 | 24,320 | 24,320 | 24,320 | 34,226 | 34,226 | 11,635 | 11,635 | 11,635 |
| Valladolid | Urban | 12,488 | 375 | 10,898 | 11,273 | 13,969 | 13,969 | 13,969 | 13,969 | 12,991 | 12,991 | 1,718 | 1,718 | 1,718 |
| | Rural | 35,284 | 1,610 | 375 | 28,835 | 10,159 | 39,470 | 24,226 | 24,226 | 37,217 | 22,616 | 1,718 | 1,718 | 1,718 |
| | Total | 71,072 | 24,589 | 30,664 | 61,225 | 24,128 | 73,739 | 74,737 | 74,737 | 50,178 | 50,178 | 3,436 | 3,436 | 3,436 |
| Victorias City | Urban | 28,103 | 3,480 | 18,040 | 21,520 | 5,480 | 31,000 | 31,000 | 31,000 | 25,448 | 25,448 | 7,408 | 7,408 | 7,408 |
| | Rural | 99,180 | 28,039 | 34,704 | 82,743 | 10,159 | 109,773 | 78,217 | 78,217 | 103,665 | 103,665 | 7,408 | 7,408 | 7,408 |
| | Total | 127,283 | 31,519 | 52,744 | 104,263 | 15,639 | 140,773 | 109,217 | 109,217 | 129,065 | 129,065 | 14,816 | 14,816 | 14,816 |
| Provincial Total | Urban | 837,524 | 282,572 | 9,050 | 420,263 | 99,537 | 917,763 | 871,896 | 871,896 | 589,524 | 871,896 | 589,524 | 589,524 | 589,524 |
| | Rural | 1,511,977 | 66,740 | 88,759 | 1,023,842 | 1,179,341 | 8,379 | 174,467 | 182,846 | 1,573,724 | 66,740 | 289,440 | 289,440 | 289,440 |
| | Total | 2,349,501 | 349,312 | 97,809 | 1,444,105 | 1,891,026 | 99,537 | 83,799 | 1,464,612 | 1,454,616 | 1,454,616 | 878,964 | 878,964 | 878,964 |

8.5.2 Sanitation

(1) Household toilets

The service coverage (number of households to be served) by different types of sanitary facility is estimated by urban and rural area by municipality for the years 2005 and 2010. The future service coverage and additional households to be served are estimated to meet the provincial targets using the number of household served in the base year and the number of households in target years.

Additional number of households to be served by different type of facility by urban and rural area by municipality is the shortfall of the number of households to be served in target years comparing with either that in base year or in Phase I (details are referred to Supporting Report). However, when the number of households to be served in target year/s is less than or equal to that in base year, no additional number of households to be served is counted.

In the determination of the number of households to be served by flush type toilet, when the number of households to be served in the target year is higher than in base year, the target coverage is applied with conditions. When the target coverage is higher than Level III water supply coverage, the latter coverage is adopted, while in the other case, the target coverage is applied. In cases where the target coverage is less than that in base year, the base year coverage is adopted.

For Phase I, any type of existing sanitary facilities both in urban and rural areas is to be utilized during Phase I period. For Phase II, water-sealed toilet facilities in Phase I both in urban and rural areas are to be utilized.

The projected number of served households at the end of the Phase I period is 360,323. Additional households to be served totaled to 54,551, of which 25% is urban households and 75% is rural households. While at the end of Phase II period, the number of served households are 567,480 with additional households to be served at 238,712. Table 8.5.2 provides the number of households to be served by target year for urban and rural areas by municipality.

Table 8.5.2 Additional Number of Households to be Served by Target Year (Household Toilets) (Cont'd)

| Name of Municipality/City | Area | Phase I Coverage (2005) | | | | | | | | | | Phase II Coverage (2010) | | | | | | | | | |
|---------------------------|-------|--------------------------|--------|------------|---------|---------|---------------------------------------|------------|---------|--------|------------------|--------------------------|------------|---------|---------|---------|---------------------------------------|---------|---------|--|--|
| | | No. of Served Households | | | | | Add'l. No. of Households to be Served | | | | | No. of Served Households | | | | | Add'l. No. of Households to be Served | | | | |
| | | Total Households | Flush | Pour Flush | VIP/Dry | Total | Flush | Pour Flush | VIP/Dry | Total | Total Households | Flush | Pour Flush | VIP/Dry | Total | Flush | Pour Flush | VIP/Dry | Total | | |
| Manapla | Urban | 2,098 | 420 | 1,175 | 83 | 1,678 | 277 | 148 | | 425 | 2,867 | 1,343 | 1,259 | 83 | 2,685 | 923 | 84 | | 1,007 | | |
| | Rural | 8,053 | 481 | 4,852 | 1,129 | 6,462 | 1,679 | 1,679 | | 1,679 | 11,008 | 481 | 8,931 | 495 | 9,907 | 4,099 | | | 4,099 | | |
| | Total | 10,151 | 901 | 6,027 | 1,212 | 8,120 | 277 | 1,827 | | 3,511 | 13,895 | 1,824 | 10,190 | 578 | 12,592 | 923 | 4,183 | | 5,106 | | |
| Moises Padilla | Urban | 2,208 | 442 | 1,236 | 88 | 1,766 | 351 | | 351 | 3,062 | 1,424 | 1,336 | 88 | 2,848 | 982 | 100 | | | 1,082 | | |
| | Rural | 4,161 | 166 | 2,497 | 666 | 3,329 | 166 | 583 | | 749 | 5,966 | 166 | 4,935 | 268 | 5,369 | 2,438 | | | 2,438 | | |
| | Total | 6,369 | 608 | 3,733 | 754 | 5,095 | 517 | 583 | | 1,100 | 9,028 | 1,590 | 6,271 | 356 | 8,217 | 982 | 2,538 | | 3,520 | | |
| Murcia | Urban | 3,946 | 789 | 2,210 | 158 | 3,157 | 705 | 156 | | 861 | 7,103 | 3,396 | 3,238 | 158 | 6,607 | 2,607 | 1,028 | | 3,635 | | |
| | Rural | 8,843 | 354 | 5,306 | 1,414 | 7,074 | 280 | 1,848 | | 2,128 | 10,280 | 888 | 7,901 | 463 | 9,252 | 534 | 2,595 | | 3,129 | | |
| | Total | 12,789 | 1,143 | 7,516 | 1,572 | 10,231 | 985 | 2,004 | | 2,989 | 17,583 | 4,284 | 11,139 | 621 | 16,044 | 3,141 | 3,623 | | 6,764 | | |
| Pontevedra | Urban | 4,162 | 833 | 2,497 | 330 | 3,330 | 291 | | 291 | 6,603 | 3,071 | 3,071 | | 3,071 | 2,338 | 573 | | | 2,811 | | |
| | Rural | 5,133 | 205 | 3,080 | 821 | 4,106 | 183 | 468 | | 651 | 6,301 | 567 | 4,820 | 284 | 5,671 | 562 | 1,740 | | 2,102 | | |
| | Total | 9,295 | 1,038 | 5,577 | 1,151 | 7,436 | 474 | 468 | | 942 | 12,904 | 3,638 | 7,990 | 284 | 11,812 | 2,600 | 2,313 | | 4,913 | | |
| Pulupandan | Urban | 3,517 | 704 | 1,970 | 140 | 2,814 | 258 | | 258 | 4,572 | 2,126 | 1,986 | 140 | 4,252 | 1,422 | 16 | | | 1,438 | | |
| | Rural | 2,239 | 90 | 1,463 | 358 | 1,791 | 36 | | 36 | 2,826 | 254 | 2,162 | 127 | 2,543 | 164 | 819 | | | 983 | | |
| | Total | 5,756 | 794 | 3,433 | 498 | 4,605 | 294 | | 294 | 7,398 | 2,380 | 4,148 | 267 | 6,795 | 1,586 | 835 | | | 2,421 | | |
| Sagay City | Urban | 11,434 | 2,287 | 6,403 | 457 | 9,147 | 705 | 24 | | 729 | 15,409 | 7,165 | 6,708 | 457 | 14,330 | 4,878 | 705 | | 5,183 | | |
| | Rural | 21,134 | 845 | 12,680 | 3,382 | 16,907 | 225 | 3,066 | | 3,529 | 29,914 | 2,692 | 22,885 | 1,346 | 26,923 | 1,847 | 10,295 | | 12,052 | | |
| | Total | 32,568 | 3,132 | 19,083 | 3,839 | 26,054 | 930 | 3,090 | | 4,020 | 45,323 | 9,857 | 29,593 | 1,803 | 41,253 | 6,725 | 10,510 | | 17,235 | | |
| Salvador Benedicto | Urban | 3,968 | | 2,381 | 793 | 3,174 | | 22 | | 330 | 5,644 | | 4,826 | 254 | 5,080 | | | | 2,445 | | |
| | Rural | 3,968 | | 2,381 | 793 | 3,174 | | 22 | | 330 | 5,644 | | 4,826 | 254 | 5,080 | | | | 2,445 | | |
| | Total | 6,310 | 1,262 | 5,534 | 252 | 5,048 | 379 | | | 666 | 11,446 | 21,597 | 770 | 17,605 | 972 | 19,437 | 74 | | 2,929 | | |
| San Carlos City | Urban | 17,411 | 696 | 10,447 | 2,786 | 13,929 | 880 | 466 | | 1,525 | 30,174 | 4,759 | 21,451 | 1,224 | 27,414 | 2,801 | 7,450 | | 10,251 | | |
| | Rural | 23,721 | 1,958 | 13,981 | 3,038 | 18,977 | 1,059 | 466 | | 2,033 | 33,966 | 1,579 | 1,495 | 84 | 33,158 | 1,159 | 319 | | 1,478 | | |
| | Total | 2,100 | 420 | 1,176 | 84 | 1,680 | 203 | | | 5 | 339 | 3,236 | 163 | 2,620 | 147 | 2,930 | | | 1,147 | | |
| San Enrique | Urban | 2,455 | 163 | 1,473 | 328 | 1,964 | | 334 | | 542 | 6,032 | 1,742 | 4,115 | 251 | 6,088 | 1,159 | 1,466 | | 2,625 | | |
| | Rural | 4,555 | 593 | 2,649 | 412 | 3,644 | 203 | 334 | | 441 | 18,429 | 8,570 | 8,569 | | 17,139 | 6,168 | 1,364 | | 7,332 | | |
| | Total | 12,009 | 2,402 | 7,205 | 740 | 9,607 | 441 | | | 542 | 24,461 | 10,312 | 12,684 | 251 | 26,945 | 7,327 | 2,830 | | 10,251 | | |
| Sila City | Urban | 15,239 | 610 | 9,143 | 2,438 | 12,191 | 010 | 5,393 | | 410 | 6,413 | 18,588 | 1,673 | 14,220 | 836 | 16,729 | 1,063 | | 6,140 | | |
| | Rural | 27,248 | 3,012 | 16,348 | 2,438 | 21,798 | 1,051 | 5,393 | | 410 | 6,854 | 37,017 | 10,243 | 22,789 | 836 | 33,868 | 7,231 | | 13,672 | | |
| | Total | 4,347 | 456 | 1,518 | 1,597 | 3,571 | | | | | 6,069 | 2,822 | 1,225 | 1,597 | 5,644 | 2,368 | | | 2,366 | | |
| Sipalay | Urban | 8,762 | 822 | 5,258 | 930 | 7,010 | | 1,683 | | 1,683 | 12,399 | 294 | 10,230 | 554 | 11,078 | | | | 4,972 | | |
| | Rural | 13,109 | 1,278 | 6,776 | 2,527 | 10,581 | | 1,683 | | 1,683 | 18,378 | 3,116 | 11,455 | 2,151 | 16,722 | 2,366 | | | 7,338 | | |
| | Total | 7,282 | 1,457 | 4,078 | 291 | 5,826 | 385 | 376 | | 961 | 9,839 | 4,575 | 4,284 | 291 | 9,150 | 3,118 | 206 | | 3,324 | | |
| Talisay City | Urban | 8,439 | 338 | 5,063 | 1,350 | 6,751 | 338 | 1,495 | | 1,833 | 11,811 | 42 | 10,056 | 532 | 10,630 | | | | 4,993 | | |
| | Rural | 15,721 | 1,795 | 9,141 | 1,641 | 12,577 | 923 | 1,871 | | 2,794 | 21,650 | 4,617 | 14,340 | 823 | 19,780 | 3,118 | 5,199 | | 8,317 | | |
| | Total | 1,685 | 337 | 944 | 67 | 1,348 | 284 | | | 284 | 2,147 | 999 | 931 | 67 | 1,997 | 682 | | | 682 | | |
| Toboso | Urban | 7,571 | 303 | 4,543 | 1,211 | 6,057 | 261 | 1,065 | | 1,326 | 10,086 | 908 | 7,715 | 454 | 9,077 | 605 | 3,172 | | 3,777 | | |
| | Rural | 9,256 | 640 | 5,487 | 1,278 | 7,405 | 545 | 1,065 | | 1,610 | 12,733 | 1,907 | 8,640 | 521 | 11,074 | 1,267 | 3,172 | | 4,439 | | |
| | Total | 4,505 | 901 | 2,523 | 180 | 3,604 | 691 | | | 691 | 6,375 | 2,965 | 2,784 | 180 | 5,929 | 2,004 | 261 | | 2,325 | | |
| Valdavidia | Urban | 2,425 | 97 | 1,455 | 388 | 1,940 | 84 | 176 | | 214 | 4,474 | 3,492 | 2,389 | 157 | 3,143 | | | | 1,434 | | |
| | Rural | 6,930 | 988 | 3,978 | 568 | 5,544 | 775 | 176 | | 1,165 | 9,867 | 3,062 | 5,673 | 337 | 9,072 | 2,064 | 1,695 | | 3,759 | | |
| | Total | 13,564 | 2,713 | 7,596 | 542 | 10,851 | 1,222 | 634 | | 1,876 | 19,668 | 9,146 | 8,603 | 542 | 18,291 | 6,433 | 1,007 | | 7,440 | | |
| Victorias City | Urban | 5,343 | 210 | 3,146 | 838 | 4,194 | 95 | 661 | | 756 | 7,776 | 706 | 5,948 | 350 | 6,998 | 490 | 2,802 | | 3,292 | | |
| | Rural | 18,807 | 2,923 | 10,742 | 1,380 | 15,045 | 1,317 | 1,315 | | 2,632 | 27,444 | 9,846 | 14,551 | 892 | 25,289 | 6,923 | 3,809 | | 10,733 | | |
| | Total | 159,893 | 26,402 | 88,496 | 14,652 | 129,530 | 10,687 | 2,696 | | 13,383 | 229,451 | 106,701 | 92,036 | 14,652 | 215,889 | 80,299 | 8,731 | | 89,030 | | |
| Provincial Total | Urban | 287,853 | 13,695 | 175,122 | 41,976 | 230,793 | 6,548 | 33,661 | | 959 | 41,168 | 395,434 | 25,071 | 311,316 | 17,704 | 354,091 | 12,532 | | 149,682 | | |
| | Rural | 447,746 | 40,097 | 265,618 | 36,608 | 366,323 | 17,255 | 36,357 | | 299 | 54,551 | 622,885 | 131,772 | 401,372 | 32,336 | 367,440 | 92,831 | | 238,712 | | |
| | Total | | | | | | | | | | | | | | | | | | | | |

(2) School toilets

The service coverage or the number of public school students to be served is estimated by municipality for the years 2005 and 2010.

The future service coverage and additional number of students to be served are estimated using the number of students served in the base year, the number of students in target years and the provincial sector targets.

Additional number of students to be served by municipality is the shortfall of the number of students to be served in targets comparing with either that in base year or in Phase I (details are referred to Supporting Report). However, when the number of students to be served in target/s is less than or equal to the base year, no additional number of households to be served is considered.

The existing facilities are to be utilized during Phase I period, while the facilities in Phase I are to be utilized during Phase II period.

The projected number of served students at the end of Phase I period is 327,790. The additional students to be served are 138,700. While at the end of Phase II period, the projected number of served students are 541,865 with additional students to be served at 214,541. Table 8.5.3 summarizes the number of public school students to be served by target year.

(3) Public toilets

The service coverage of public utilities with sanitary toilet facility by municipality is estimated for the years 2005 and 2010.

The future service coverage and additional coverage are estimated using the existing number of public utilities with sanitary toilets in the base year, the number of public utilities in target years, and provincial sector targets.

The additional number of public utilities with sanitary toilets needed by municipality is the shortfall of the number of public utilities in target year comparing with either the existing coverage or Phase I coverage (details are referred to Supporting Report).

The existing sanitary facilities are to be utilized during Phase I period. The facilities in Phase I are to be utilized during Phase II period.

Table 8.5.3 Additional Number of Public School Student to be Served by Target Year (School Toilets)

| Name of Municipality/City | Phase I Coverage (2005) | | | Phase II Coverage (2010) | | |
|---------------------------|------------------------------------|---|--|------------------------------------|---|--|
| | Total No. of Public School Student | Std. No. of Public School Students to be Served | Add'l. No. of Public School Student to be Served | Total No. of Public School Student | Std. No. of Public School Students to be Served | Add'l. No. of Public School Student to be Served |
| Bago City | 37,500 | 24,271 | 10,671 | 43,062 | 38,756 | 14,485 |
| Binalbagan | 15,227 | 12,653 | 4,333 | 16,449 | 14,804 | 2,151 |
| Cadiz City | 33,043 | 17,003 | 9,403 | 34,987 | 31,488 | 14,485 |
| Calatrava | 16,618 | 12,689 | 4,729 | 19,670 | 17,703 | 5,014 |
| Candoni | 5,079 | 2,485 | 1,445 | 5,534 | 4,981 | 2,496 |
| Cauayan | 22,894 | 12,795 | 6,515 | 25,507 | 22,956 | 10,161 |
| Enrique B. Magalona | 9,907 | 5,139 | 2,819 | 11,445 | 10,301 | 5,162 |
| Escalante | 26,760 | 15,535 | 7,615 | 26,143 | 23,529 | 7,994 |
| Himamaylan | 23,206 | 16,884 | 6,604 | 25,628 | 23,065 | 6,181 |
| Hinigaran | 18,249 | 14,120 | | 20,908 | 18,817 | 4,697 |
| Hinoba-an (Asia) | 11,598 | 7,780 | 3,300 | 10,987 | 9,888 | 2,108 |
| Ilog | 10,662 | 5,674 | 3,034 | 10,980 | 9,882 | 4,208 |
| Isabela | 12,995 | 10,240 | | 14,608 | 13,147 | 2,907 |
| Kabankalan City | 41,409 | 18,624 | 11,784 | 47,037 | 42,333 | 23,709 |
| La Carlota City | 14,273 | 11,982 | 4,062 | 15,140 | 13,626 | 1,644 |
| La Castellana | 17,460 | 15,170 | | 20,114 | 18,103 | 2,933 |
| Manapla | 11,498 | 7,792 | 3,272 | 12,454 | 11,209 | 3,417 |
| Moises Padilla | 4,273 | 5,160 | | 5,216 | 4,694 | |
| Murcia | 20,702 | 9,251 | 5,891 | 18,910 | 17,019 | 7,768 |
| Pontevedra | 11,768 | 4,109 | 3,349 | 13,334 | 12,001 | 7,892 |
| Pulupandan | 5,932 | 4,800 | | 6,303 | 5,673 | 873 |
| Sagay City | 35,090 | 13,865 | 9,985 | 40,377 | 36,339 | 22,474 |
| Salvador Benedicto | 3,856 | 1,097 | 1,097 | 4,591 | 4,132 | 3,035 |
| San Carlos City | 28,882 | 14,059 | 8,219 | 31,210 | 28,089 | 14,030 |
| San Enrique | 4,982 | 3,058 | 1,418 | 5,873 | 5,286 | 2,228 |
| Silay City | 25,640 | 11,336 | 7,296 | 28,103 | 25,293 | 13,957 |
| Sipalay | 16,424 | 10,834 | 4,674 | 18,592 | 16,733 | 5,899 |
| Talisay City | 17,629 | 11,257 | 5,017 | 20,034 | 18,031 | 6,774 |
| Toboso | 12,219 | 6,917 | 3,477 | 13,018 | 11,716 | 4,799 |
| Valladolid | 7,033 | 2,481 | 2,001 | 8,391 | 7,552 | 5,071 |
| Victorias City | 23,508 | 18,730 | 6,690 | 27,465 | 24,719 | 5,989 |
| Provincial Total | 546,316 | 327,790 | 138,700 | 602,070 | 541,865 | 214,541 |

The number of served public utilities at the end of Phase I period is 494. The additional public utilities to be served are 62. While at the end of Phase II period, the number of served public utilities are 541 with additional public utilities to be served at 47. Table 8.5.4 summarizes the additional number of public utilities to be served by municipality by target year.

Table 8.5.4 Additional Number of Public Utilities with Sanitary Toilets by Target Year

| Name of Municipality/City | Type | Phase I Coverage (2005) | | Phase II Coverage (2010) | |
|---------------------------|----------------------|--|---|--|---|
| | | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utility with Sanitary Toilets | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utilities with Sanitary Toilets |
| Bago City | Public Market | 1 | 13 | | 13 |
| | Bus/Jeepney Terminal | | 2 | 1 | 3 |
| | Parks/Playground | 1 | 23 | | 23 |
| | Total | 2 | 38 | 1 | 39 |
| Binalbagan | Public Market | 1 | 5 | | 5 |
| | Bus/Jeepney Terminal | 1 | 4 | | 4 |
| | Parks/Playground | | 2 | 1 | 3 |
| | Total | 2 | 11 | 1 | 12 |
| Cádiz City | Public Market | | 30 | | 30 |
| | Bus/Jeepney Terminal | | 8 | 1 | 9 |
| | Parks/Playground | | 6 | 1 | 7 |
| | Total | | 44 | 2 | 46 |
| Calatrava | Public Market | 6 | 12 | | 12 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 16 | 1 | 17 |
| | Total | 7 | 29 | 1 | 30 |
| Candoni | Public Market | | 2 | 1 | 3 |
| | Bus/Jeepney Terminal | | 2 | 1 | 3 |
| | Parks/Playground | | 2 | | 2 |
| | Total | | 6 | 2 | 8 |
| Cauayan | Public Market | 3 | 17 | | 17 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | | 3 | 1 | 4 |
| | Total | 3 | 20 | 2 | 22 |
| Enrique B. Magalona | Public Market | | 2 | | 2 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | | | |
| | Total | 1 | 3 | | 3 |
| Escalante | Public Market | | 6 | 1 | 7 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | 1 | 3 | | 3 |
| | Total | 2 | 10 | 1 | 11 |
| Himamaylan | Public Market | 1 | 7 | | 7 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 6 | | 6 |
| | Total | 2 | 14 | | 14 |
| Hinigaran | Public Market | 1 | 2 | | 2 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 2 | 1 | 3 |
| | Total | 2 | 5 | 1 | 6 |
| Hinoba-an (Asia) | Public Market | 2 | 2 | | 2 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | | 1 | 1 |
| | Total | 3 | 3 | 1 | 4 |
| Ilog | Public Market | | 6 | 1 | 7 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | | 1 | 1 |
| | Total | 1 | 7 | 2 | 9 |
| Isabela | Public Market | | 2 | 1 | 3 |
| | Bus/Jeepney Terminal | | 2 | | 2 |
| | Parks/Playground | | 6 | 1 | 7 |
| | Total | | 10 | 2 | 12 |

Table 8.5.4 Additional Number of Public Utilities with Sanitary Toilets by Target Year

(Cont'd)

| Name of Municipality/City | Type | Phase I Coverage (2005) | | Phase II Coverage (2010) | |
|---------------------------|----------------------|--|---|--|---|
| | | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utility with Sanitary Toilets | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utilities with Sanitary Toilets |
| Kabankalan City | Public Market | 14 | 28 | | 28 |
| | Bus/Jeepney Terminal | | 12 | 2 | 14 |
| | Parks/Playground | 1 | 3 | | 3 |
| | Total | 15 | 43 | 2 | 45 |
| La Carlota City | Public Market | | 10 | | 10 |
| | Bus/Jeepney Terminal | | 8 | | 8 |
| | Parks/Playground | | 2 | 1 | 3 |
| | Total | | 20 | 1 | 21 |
| La Castellana | Public Market | | 6 | | 6 |
| | Bus/Jeepney Terminal | | 4 | 1 | 5 |
| | Parks/Playground | | 5 | 1 | 6 |
| | Total | | 15 | 2 | 17 |
| Manapla | Public Market | 2 | 4 | | 4 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 4 | 1 | 5 |
| | Total | 3 | 9 | 1 | 10 |
| Moises Padilla | Public Market | | 2 | 1 | 3 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | | 6 | 1 | 7 |
| | Total | | 8 | 3 | 11 |
| Murcia | Public Market | | 4 | 1 | 5 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 2 | 1 | 3 |
| | Total | 1 | 7 | 2 | 9 |
| Pontevedra | Public Market | | 2 | 1 | 3 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | | 4 | 1 | 5 |
| | Total | | 6 | 3 | 9 |
| Pulupandan | Public Market | | 4 | | 4 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | | 4 | 1 | 5 |
| | Total | | 8 | 2 | 10 |
| Sagay City | Public Market | 10 | 22 | | 22 |
| | Bus/Jeepney Terminal | | 2 | 1 | 3 |
| | Parks/Playground | | 10 | 1 | 11 |
| | Total | 10 | 34 | 2 | 36 |
| Salvador Benedicto | Public Market | | | 1 | 1 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | 1 | 1 | | 1 |
| | Total | 1 | 1 | 2 | 3 |
| San Carlos City | Public Market | | 9 | 1 | 10 |
| | Bus/Jeepney Terminal | 1 | 7 | | 7 |
| | Parks/Playground | | 30 | 1 | 31 |
| | Total | 1 | 46 | 2 | 48 |
| San Enrique | Public Market | | 2 | | 2 |
| | Bus/Jeepney Terminal | | | 1 | 1 |
| | Parks/Playground | | 2 | | 2 |
| | Total | | 4 | 1 | 5 |
| Silay City | Public Market | | 28 | 1 | 29 |
| | Bus/Jeepney Terminal | 1 | 3 | | 3 |
| | Parks/Playground | 1 | 5 | 1 | 6 |
| | Total | 2 | 36 | 2 | 38 |

Table 8.5.4 Additional Number of Public Utilities with Sanitary Toilets by Target Year

(Cont'd)

| Name of Municipality/City | Type | Phase I Coverage (2005) | | Phase II Coverage (2010) | |
|---------------------------|----------------------|--|---|--|---|
| | | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utility with Sanitary Toilets | Add'l. No. of Public Utility with Sanitary Toilets | No. of Public Utilities with Sanitary Toilets |
| Sipalay | Public Market | | 8 | 1 | 9 |
| | Bus/Jeepney Terminal | | 4 | 1 | 5 |
| | Parks/Playground | | 2 | 1 | 3 |
| | Total | | 14 | 3 | 17 |
| Ialig City | Public Market | 1 | 4 | | 4 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 2 | | 2 |
| | Total | 2 | 7 | | 7 |
| Toboso | Public Market | | 2 | | 2 |
| | Bus/Jeepney Terminal | | | | |
| | Parks/Playground | 1 | 3 | | 3 |
| | Total | 1 | 5 | | 5 |
| Valladolid | Public Market | | 2 | | 2 |
| | Bus/Jeepney Terminal | 1 | 1 | | 1 |
| | Parks/Playground | | 6 | | 6 |
| | Total | 1 | 9 | | 9 |
| Victorias City | Public Market | | 2 | 1 | 3 |
| | Bus/Jeepney Terminal | | 4 | 1 | 5 |
| | Parks/Playground | | 16 | 1 | 17 |
| | Total | | 22 | 3 | 25 |
| Provincial Total | Public Market | 42 | 245 | 12 | 257 |
| | Bus/Jeepney Terminal | 14 | 73 | 15 | 88 |
| | Parks/Playground | 6 | 176 | 20 | 196 |
| | Total | 62 | 494 | 47 | 541 |

8.5.3 Urban Sewerage

The service coverage in 2010 (Phase II) is estimated for the municipalities with population of more than 10,000 in urban area provided by Level III water supply. It is assumed that half of the population in the area/s is to be served by the sewerage systems. Table 8.5.5 shows the population to be served in Phase II.

Table 8.5.5 Population to be Served by Urban Sewerage in Phase II

| Name of Municipality/City | Urban Population in 2010 | Level III Water Supply Coverage | Population to be Served |
|---------------------------|--------------------------|---------------------------------|-------------------------|
| Bago City | 35,810 | 34,020 | 17,905 |
| Binalbagan | 28,097 | 26,692 | 14,049 |
| Cadiz City | 42,042 | 39,940 | 21,021 |
| Calatrava | 13,027 | 12,376 | 6,514 |
| Cauayan | 25,237 | 23,975 | 12,619 |
| Enrique B. Magalona | 37,503 | 35,628 | 18,752 |
| Escalante | 51,519 | 48,943 | 25,760 |
| Himamaylan | 35,069 | 33,316 | 17,535 |
| Hinigaran | 14,587 | 13,858 | 7,294 |
| Hinoba-an (Asia) | 16,421 | 15,600 | 8,211 |

Table 8.5.5 Population to be Served by Urban Sewerage in Phase II

(Cont'd)

| Name of Municipality/City | Urban Population in 2010 | Level III Water Supply Coverage | Population to be Served |
|---------------------------|--------------------------|---------------------------------|-------------------------|
| Ilog | 27,934 | 26,537 | 13,967 |
| Isabela | 12,356 | 11,738 | 6,178 |
| Kabankalan City | 64,929 | 61,683 | 32,465 |
| La Carlota City | 23,631 | 22,449 | 11,816 |
| La Castellana | 29,350 | 27,883 | 14,675 |
| Manapla | 11,549 | 10,972 | 5,775 |
| Moises Padilla | 12,249 | 11,637 | 6,125 |
| Murcia | 29,212 | 27,751 | 14,606 |
| Pontevedra | 26,411 | 25,090 | 13,206 |
| Pulupandan | 18,286 | 17,372 | 9,143 |
| Sagay City | 61,637 | 58,555 | 30,819 |
| San Carlos City | 34,306 | 32,591 | 17,153 |
| San Enrique | 13,582 | 12,903 | 6,791 |
| Silay City | 73,714 | 70,028 | 36,857 |
| Sipalay | 24,275 | 23,061 | 12,138 |
| Talisay City | 39,354 | 37,386 | 19,677 |
| Valladolid | 25,501 | 24,226 | 12,751 |
| Victorias City | 78,670 | 74,737 | 39,335 |
| Provincial Total | 917,783 | 871,896 | 453,137 |

8.5.4 Solid Waste

Future requirements in the sub-sector are studied giving priority to urban area for the Phase I. Staged improvement for the rural area shall be studied in the future.

Service coverage in Phase I was assumed at 80% with reference to the present service coverage of 70% in urban area. Additional service coverage in Phase I is calculated as a shortfall of target coverage in Phase I comparing with current service coverage. Table 8.5.6 presents additional service coverage for Phase I in the urban area.

Table 8.5.6 Additional Number of Urban Households to be Served by Municipal Solid Waste System in Phase I

| Name of Municipality/City | No. of Urban Households Served in the Base Year | Phase I Coverage (2005) | | |
|---------------------------|---|-------------------------|---------------------------|---|
| | | No. of Urban Households | Urban Households Coverage | Add'l. No. of Urban Households to be Served |
| Bago City | 1,894 | 6,702 | 5,362 | 3,468 |
| Binalbagan | 1,930 | 5,091 | 4,073 | 2,143 |
| Cadiz City | 10,622 | 7,605 | 10,622 | |
| Calatrava | 759 | 2,574 | 2,060 | 1,301 |
| Candoni | 935 | 553 | 935 | |
| Cauayan | 500 | 4,542 | 3,634 | 3,134 |
| Enrique B. Magalona | 1,036 | 6,745 | 5,396 | 4,360 |
| Escalante | 1,507 | 8,292 | 6,634 | 5,127 |
| Himamaylan | 4,800 | 6,094 | 4,876 | 76 |
| Hinigaran | 2,178 | 2,518 | 2,178 | |
| Hinoba-an (Asia) | 288 | 3,158 | 2,527 | 2,239 |

**Table 8.5.6 Additional Number of Urban Households to be Served by
Municipal Solid Waste System in Phase I**

(Cont'd)

| Name of Municipality/City | No. of Urban Households Served in the Base Year | Phase I Coverage (2005) | | |
|---------------------------|---|-------------------------|---------------------------|---|
| | | No. of Urban Households | Urban Households Coverage | Add'l. No. of Urban Households to be Served |
| Ilog | | 5,156 | 4,125 | 4,125 |
| Isabela | 1,843 | 2,332 | 1,866 | 23 |
| Kabankalan City | 3,550 | 10,374 | 8,300 | 4,750 |
| La Carlota City | 5,914 | 4,267 | 5,914 | |
| La Castellana | 3,229 | 4,723 | 3,779 | 550 |
| Manapla | 1,447 | 2,098 | 1,679 | 232 |
| Moises Padilla | 767 | 2,208 | 1,767 | 1,000 |
| Murcia | 1,300 | 3,946 | 3,157 | 1,857 |
| Pontevedra | 1,006 | 4,162 | 3,330 | 2,324 |
| Pulupandan | 1,980 | 3,517 | 2,814 | 834 |
| Sagay City | 9,950 | 11,434 | 9,950 | |
| Salvador Benedicto | | | | |
| San Carlos City | 8,149 | 6,310 | 8,149 | |
| San Enrique | | 2,100 | 1,680 | 1,680 |
| Silay City | 17,000 | 12,009 | 17,000 | |
| Sipalay | 226 | 4,347 | 3,478 | 3,252 |
| Talisay City | 5,662 | 7,282 | 5,826 | 164 |
| Toboso | 600 | 1,685 | 1,348 | 748 |
| Valladolid | 2,209 | 4,505 | 3,604 | 1,395 |
| Victorias City | 9,939 | 13,564 | 10,852 | 913 |
| Provincial Total | 101,220 | 159,893 | 146,915 | 45,695 |

8.6 Facilities, Equipment and Rehabilitation to Meet the Target Services

8.6.1 Water Supply

(1) Required facilities

Water supply facilities required by service level were estimated by urban and rural area by municipality based on the additional service coverage by target year and summarized in Table 8.6.1 (details are referred to Supporting Report).

Urban water supply:

Physical requirements of Level III systems were estimated as the number of required house connections. Mode of project indicates whether future urban water supply will be implemented as expansion of existing system or construction of a new system. The number of water sources was also estimated based on the water source evaluation results in Chapter 7.

Table 8.6.1 Water Supply Facilities Required by Target Year

| Name of Municipality/City | Phase I (2005) Requirements | | | | | | | | | | Phase I (2010) Requirements | | | | | | | | | |
|---------------------------|--------------------------------|----------------------------|-----------------------|---------------|------------------------|--------------------|------------|------------|----------------------|--------------------|-----------------------------|-----------------------|--------------|--------------|--------------|----------------------|--------------------|------|------|-------|
| | Urban Water Supply (Level III) | | | | | Rural Water Supply | | | | | Urban WS (Level III) | | | | | Rural Water Supply | | | | |
| | Mode of Project | No. of Add'l. Water Source | No. of HHs Connection | No. of System | No. of Communal Fauces | Level I | | | No. of Shallow Wells | Total No. of Wells | No. of Add'l. Water Source | No. of HHs Connection | Level I | | | No. of Shallow Wells | Total No. of Wells | | | |
| | | | | | | 40 m | 80 m | 120 m | | | | | 40 m | 80 m | 120 m | | | 40 m | 80 m | 120 m |
| Bago City | Expansion | 1 | 958 | 3 | 60 | 123 | 123 | 81 | 204 | 4 | 5,824 | 283 | 283 | 188 | 471 | | | | | |
| Binalbagan | Expansion | 1 | 728 | | | 62 | 62 | | 62 | 2 | 3,787 | 89 | 89 | 60 | 151 | | | | | |
| Cadiz City | N/A | | | 4 | | | | | | 1 | 1,793 | 91 | 91 | 92 | 114 | | | | | |
| Calatrava | N/A | | | 5 | | | | | | 1 | 527 | | | 27 | 80 | | | | | |
| Candoni | New | 1 | 79 | | | 9 | 9 | 18 | 27 | 1 | 993 | | | 104 | 258 | | | | | |
| Cauayan | Expansion | 1 | 649 | 4 | 80 | 38 | 38 | 57 | 95 | 3 | 5,137 | 104 | 104 | 154 | 258 | | | | | |
| Enrique B. Magalona | Expansion | 1 | 964 | | | 40 | 40 | 17 | 57 | 4 | 6,707 | 95 | 95 | 40 | 135 | | | | | |
| Escalante | Expansion | 1 | 1,185 | | | 95 | 95 | 10 | 105 | 5 | 9,335 | | | | | | | | | |
| Himamaylan | N/A | | | | | | | | | 4 | 7,083 | 171 | 171 | | 171 | | | | | |
| Hinigaran | Expansion | 1 | 360 | | | 116 | 116 | | 116 | 2 | 2,731 | 201 | 201 | 201 | 201 | | | | | |
| Hinobasan (Asia) | New | 1 | 451 | | | 20 | 20 | 12 | 32 | 2 | 3,313 | 62 | 62 | 31 | 31 | | | | | |
| Ilog | Expansion | 1 | 737 | | | 78 | 78 | 19 | 97 | 2 | 2,511 | 192 | 192 | 192 | 192 | | | | | |
| Isabela | New | 1 | 333 | | | 178 | 178 | 31 | 209 | 7 | 13,333 | 774 | 774 | 85 | 859 | | | | | |
| Kabankalan City | Expansion | 2 | 1,483 | | | 32 | 32 | 10 | 42 | 1 | 1,487 | 24 | 24 | 26 | 53 | | | | | |
| La Carlota City | N/A | | | | | 10 | 10 | 81 | 91 | 3 | 5,344 | 23 | 23 | 15 | 240 | | | | | |
| La Castellana | Expansion | 1 | 675 | | | 39 | 39 | 26 | 65 | 1 | 1,279 | 38 | 38 | 16 | 54 | | | | | |
| Manapla | Expansion | 1 | 300 | 2 | 40 | 29 | 29 | 12 | 41 | 2 | 2,298 | | | | | | | | | |
| Moises Padilla | N/A | | | | | 9 | 9 | 77 | 86 | 3 | 4,472 | | | | | | | | | |
| Murcia | Expansion | 1 | 564 | | | 50 | 50 | 50 | 100 | 2 | 3,556 | 18 | 18 | 18 | 18 | | | | | |
| Pontevedra | Expansion | 1 | 595 | | | | | | | 2 | 3,369 | 135 | 135 | 135 | 135 | | | | | |
| Pulupandan | Expansion | 1 | 503 | | | 144 | 144 | 16 | 160 | 5 | 9,220 | 567 | 567 | 62 | 629 | | | | | |
| Sagay City | Expansion | 2 | 1,634 | 7 | 140 | | | | | | | | | 72 | 72 | | | | | |
| Salvador Benedicto | N/A | | | | | 136 | 136 | 34 | 170 | 2 | 3,606 | 218 | 218 | 54 | 272 | | | | | |
| San Carlos City | Expansion | 1 | 902 | | | 24 | 24 | 28 | 52 | 2 | 2,836 | 28 | 28 | 28 | 28 | | | | | |
| San Enrique | New | 1 | 300 | | | 45 | 45 | 104 | 149 | 7 | 11,583 | 31 | 31 | 72 | 103 | | | | | |
| Silay City | Expansion | 2 | 1,717 | | | 43 | 43 | 43 | 86 | 3 | 4,604 | 33 | 33 | 33 | 66 | | | | | |
| Sipalay | Expansion | 1 | 621 | | | 17 | 17 | 65 | 82 | 4 | 5,965 | 26 | 26 | 103 | 129 | | | | | |
| Talisay City | Expansion | 1 | 1,041 | | | 67 | 67 | 7 | 74 | 1 | 1,497 | 86 | 86 | 9 | 95 | | | | | |
| Toboso | Expansion | 1 | 241 | | | 26 | 26 | 25 | 51 | 7 | 5,654 | 29 | 29 | 29 | 29 | | | | | |
| Valladolid | N/A | | | | | | | | | | 12,545 | 62 | 62 | 62 | 124 | | | | | |
| Victorias City | Expansion | 2 | 1,939 | | | 721 | 721 | 709 | 1,430 | 89 | 147,384 | 1,455 | 2,071 | 1,423 | 4,949 | | | | | |
| Provincial Total | Exp-20 New-4 | 28 | 18,959 | 25 | 320 | 721 | 709 | 780 | 2,210 | 89 | 147,384 | 1,455 | 2,071 | 1,423 | 4,949 | | | | | |

Rural water supply:

Physical requirements of Level II systems were estimated as the number of systems and number of communal faucets, while that of Level I facilities were first estimated as the number of wells with classification of deep and shallow wells. Deep wells were further subdivided in terms of three different standard depths based on the water source evaluation results.

Furthermore, as for Level I facilities, in this PW4SP, 50% of the total required facilities will be implemented by public (LGUs) and 10% of these public Level I facilities will be allocated to spring development.

(2) Rehabilitation

Rehabilitation requirements were estimated as 10% of the total number of deep wells to be constructed under PW4SP. Rehabilitation work will be mainly redevelopment of wells by means of air surging, while minor repair of concrete apron and hand-pump will be undertaken by respective beneficiary organizations.

(3) Equipment

Logistic support:

For rural water supply development, 1 unit each or set of the following equipment was considered necessary for the provincial government to conduct various activities of PW4SP implementation;

Transportation- service vehicle

Office equipment- computer with printer, typewriter, mimeo machine, scanning machine and copier

Field equipment- sound system, tape recorder and tools for maintenance

For urban water supply, no hardware was considered.

Well drilling and rehabilitation equipment:

As a reference information, necessary types and number of well drilling and rehabilitation equipment were studied considering the existing equipment of sector agencies in the province.

During Phase I, a total of 652 Level I deep wells shall be newly constructed by public (LGUs) and 10% of these deep wells shall be rehabilitated annually (details are referred to Supporting Report). Presently, the DEOs-DPWH have only one unit of operational rotary type drilling rig which is capable for 6" bore hole diameter and 60 m deep well.

Therefore, a total of 14 sets of drilling rigs (medium size percussion type) together with 2 sets of well rehabilitation equipment, 2 units of support vehicle for well rehabilitation and 14 units of service truck for deep well construction shall be mobilized/procured either by the private sector or LGUs (details are referred to Supporting Report).

Selection of well drilling machine

An appropriate type of well drilling machine with its specifications shall be selected after comprehensive study on the technical requirements, local capability in O&M of the machine and cost effectiveness.

From the technical viewpoint, geological conditions in the province allow for the use of either rotary or percussion type drilling machine (no rock drilling is expected). While, in view of economical and O&M experience on the machine in the local area, a percussion type is recommendable. Although, the rotary type machine is quite effective to reduce construction period under soft soil condition, special training on mud-circulation, handling manner, etc. are required together with additional equipment and materials as compared with percussion type. The drilling speed of the percussion type is rather slow, but has advantages in drilling boulder and cobble formations.

One unit of truck mounted percussion drilling machine was considered to be procured in the long-term development period.

(4) Laboratory

Instrument/Equipment and Other Laboratory Accessory:

The provincial government will need at least three (3) sets of instruments/equipment in order to ensure regular water quality monitoring and surveillance activities for the entire province. Water samples have to be examined on time to avoid unpredictable changes of the quality due to long storage.

The distribution would be in 3 strategic municipalities where district hospitals are located. These are in the existing hospitals of Escalante, Kabankalan City and La Carlota City to efficiently cover the northern, central and southern municipalities, respectively.

The following are the requirements:

| Item | Unit | New Laboratories | | |
|------------------------------------|------|------------------|-----------------|-----------------|
| | | Escalante | Kabankalan City | La Carlota City |
| 1. Instrument/Equipment | | | | |
| Turbidity meter | set | 1 | 1 | 1 |
| Color meter | set | 1 | 1 | 1 |
| pH/Residual chlorine checker | set | 1 | 1 | 1 |
| Incubator | set | 1 | 1 | 1 |
| Refrigerator | set | 1 | 1 | 1 |
| Sterilizer | set | 1 | 1 | 1 |
| Portable water quality testing kit | set | 1 | 1 | 1 |
| Electric stove | set | 1 | 1 | 1 |
| Range hood | set | 1 | 1 | 1 |
| 2. Glassware/Chemical | set | 1 | 1 | 1 |
| 3. Accessory | | | | |
| Sink | set | 1 | 1 | 1 |
| Working table | set | 1 | 1 | 1 |
| Shelf | set | 1 | 1 | 1 |
| Office desk | set | 1 | 1 | 1 |
| Chair | set | 1 | 1 | 1 |

8.6.2 Sanitation

This sub-section refers to physical requirements by target year covering household, school and public toilet facilities. Table 8.6.2 presents the required sanitation facilities by target year. Rehabilitation for the sanitation facilities is considered as part of recurrent cost.

(1) Household toilets

Future requirements in the number of household toilets by different type for urban and rural areas were estimated based on the additional households to be served by type of facility both for urban and rural areas by target year (details are referred to Supporting Report).

(2) School toilets

The future requirements in the number of toilet facilities were estimated based on the standard number of students to be served by a 5-unit standard facility or a toilet in every classroom (50-50 sharing) and the additional students to be served by target (details are referred to Supporting Report).

Total required facilities were further broken down into urban and rural areas by applying the percentage share of urban and rural population. However, the number of school toilet facilities to be constructed may be modified in consideration of modification of standard design to meet local conditions (number of students, viable investment from LGUs, etc.)

Table 8.6.2 Sanitation Facilities Required by Target Year

| Name of Municipality/City | Phase I (2005) Requirements | | | | | | | | | | | | Phase II (2010) Requirements | | | | | | | | | | | | | | |
|---------------------------|-----------------------------|------------|----------|-----------------------|---------------|------------------|-------------------|--------|------------|-----------------------|--------|-------------|------------------------------|-------|------------|-----------------------|-------|---------------|-------------------|------------------|--------|-----------------------|----------|-------|-------------|----------------|--|
| | Urban Sanitation | | | | | | Rural Sanitation | | | | | | Urban Sanitation | | | | | | Rural Sanitation | | | | | | | | |
| | No. of Households | | | No. of Public Toilets | | | No. of Households | | | No. of Public Toilets | | | No. of Households | | | No. of Public Toilets | | | No. of Households | | | No. of Public Toilets | | | | | |
| | Flush | Pour Flush | VIP/ Dry | Total | Public Market | Jeepney Terminal | Park/ Playground | Flush | Pour Flush | VIP/ Dry | Total | Public Sch. | Public Toilets | Flush | Pour Flush | VIP/ Dry | Total | Public Market | Jeepney Terminal | Park/ Playground | Flush | Pour Flush | VIP/ Dry | Total | Public Sch. | Public Toilets | |
| Baro City | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Binalbagan | 563 | 38 | | 591 | 10 | | 100 | 1,112 | | | 385 | 41 | 3,801 | | | | 2,448 | 2,111 | | | 5,177 | 13,439 | | | 3,259 | 41 | |
| Cardiz City | 41 | 756 | | 797 | 13 | | 5,005 | 3,344 | | | 3,691 | 22 | 1,000 | | | | 3,062 | 3,944 | | | 7,084 | 4,362 | | | 2,808 | 21 | |
| Calaraca | 165 | | | 165 | 4 | | 470 | 666 | | | 113 | 37 | 1,000 | | | | 1,136 | 29 | | | 1,066 | 4,362 | | | 2,019 | 21 | |
| Compostela | 13 | | | 13 | | | 113 | 37 | | | 252 | 2 | 581 | | | | 467 | 6,806 | | | 7,393 | 7,366 | | | 95 | | |
| Cauayan | 1,260 | | | 1,260 | 9 | | 332 | 50 | | | 2,231 | 13 | 3,011 | | | | 114 | 3,516 | | | 665 | 2,865 | | | 3,000 | 25 | |
| Enrique B. Magalona | 1,340 | 461 | | 1,801 | 7 | | 235 | 1,445 | | | 3,324 | 13 | 3,011 | | | | 4,330 | 1,014 | | | 5,344 | 21 | | | 3,530 | 37 | |
| Escalante | 255 | | | 255 | 17 | | 430 | 761 | | | 1,191 | 21 | 4,330 | | | | 2,458 | 420 | | | 3,278 | 12 | | | 3,041 | 22 | |
| Himamaylan | 797 | | | 797 | 12 | | 142 | 1,362 | | | 1,509 | 21 | 2,458 | | | | 1,192 | 186 | | | 1,378 | 4 | | | 6,465 | 76 | |
| Hinunangan | 156 | 45 | | 201 | | | | 1,222 | | | 1,901 | 10 | 1,901 | | | | 3,248 | 13 | | | 3,198 | 503 | | | 3,701 | 52 | |
| Hinunangan (Asap) | | | | | 9 | | | 3,248 | | | 3,248 | 13 | 3,248 | | | | 2,267 | 40 | | | 2,038 | 12,251 | | | 14,309 | 140 | |
| Iloilo | | | | | | | 253 | 303 | | | 536 | | 1,306 | | | | 7,267 | 3 | | | 7,267 | 2,298 | | | 2,761 | 42 | |
| Iloilo | | | | | | | 742 | 1,092 | | | 1,834 | 39 | 7,267 | | | | 2,267 | 40 | | | 2,267 | 2,298 | | | 2,761 | 42 | |
| Kabankalan City | | | | | 20 | | | | | | | | | | | | | | | | | | | | | | |
| Kabankalan City | | | | | 8 | | | | | | | | | | | | | | | | | | | | | | |
| La Carlota City | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| La Carlota City | 645 | 481 | | 1,126 | | | 387 | 1,662 | | | 2,059 | 13 | 923 | | | | 84 | 579 | | | 1,007 | 4 | | | 4,621 | 57 | |
| Manila | 277 | 148 | | 425 | 3 | | 166 | 553 | | | 749 | | 982 | | | | 100 | 1,038 | | | 1,138 | 1 | | | 2,438 | 16 | |
| Mones Pedraza | 351 | | | 351 | | | 200 | 1,448 | | | 2,128 | 21 | 3,407 | | | | 1,058 | 1,616 | | | 2,674 | 16 | | | 3,129 | 50 | |
| Murcia | 705 | 156 | | 861 | 9 | | 193 | 468 | | | 651 | 9 | 2,298 | | | | 273 | 2,571 | | | 2,844 | 20 | | | 1,602 | 29 | |
| Ponseevra | 291 | | | 291 | 7 | | 36 | | | | 36 | | 1,422 | | | | 16 | 1,438 | | | 1,454 | 3 | | | 963 | 11 | |
| Pulandian | 258 | | | 258 | | | | | | | | | | | | | | | | | | | | | | | |
| Sagay City | 705 | 24 | | 729 | 18 | | 225 | 3,066 | | | 3,291 | 32 | 4,578 | | | | 305 | 4,883 | | | 5,188 | 38 | | | 12,052 | 120 | |
| Salvador Benedicto | | | | | 22 | | | | | | 330 | 352 | 5 | | | | | | | | | | | | | | |
| Salvador Benedicto | 379 | | | 379 | 11 | | 680 | 466 | | | 1,146 | 30 | 2,227 | | | | 202 | 2,929 | | | 3,131 | 20 | | | 7,248 | 21 | |
| San Carlos City | 203 | | | 203 | 3 | | 334 | 5 | | | 339 | 4 | 1,159 | | | | 319 | 1,478 | | | 1,797 | 6 | | | 1,147 | 13 | |
| San Enrique | 441 | | | 441 | 16 | | 610 | 5,393 | | | 6,013 | 70 | 6,183 | | | | 1,564 | 7,747 | | | 1,004 | 5,072 | | | 6,140 | 64 | |
| Silgo City | | | | | | | | 1,003 | | | 1,683 | 16 | 2,366 | | | | | 3,566 | | | 3,566 | 10 | | | 4,972 | 56 | |
| Spralay | 585 | 376 | | 961 | 12 | | 318 | 1,495 | | | 1,813 | 14 | 3,118 | | | | 296 | 4,114 | | | 4,410 | 4 | | | 4,993 | 49 | |
| Toboso | 284 | | | 284 | 3 | | 261 | 1,065 | | | 1,326 | 14 | 662 | | | | | 662 | | | 662 | 4 | | | 3,172 | 48 | |
| Valencia | 691 | | | 691 | 6 | | 35 | 661 | | | 736 | 9 | 2,064 | | | | 261 | 2,325 | | | 2,486 | 16 | | | 1,434 | 13 | |
| Valencia | 1,222 | 604 | | 1,826 | 24 | | 35 | 661 | | | 736 | 9 | 2,064 | | | | 261 | 2,325 | | | 2,486 | 16 | | | 1,434 | 13 | |
| Victorias City | 10,887 | 2,040 | | 12,927 | 248 | | 6,248 | 33,661 | | | 40,909 | 444 | 80,909 | | | | 8,711 | 89,620 | | | 98,331 | 382 | | | 3,792 | 35 | |
| Provincial Total | 108,877 | 20,640 | | 129,517 | 2,488 | | 62,448 | 33,661 | | | 40,909 | 444 | 80,909 | | | | 8,711 | 89,620 | | | 98,331 | 382 | | | 3,792 | 35 | |

8.6.3 Urban Sewerage and Solid Waste

Physical requirements for the sewerage facilities are not discussed in this sub-section. Further study shall be conducted in the future.

As reference information, the number of refuse collection trucks is estimated for the urban area in Phase I. Twenty three (23) additional units of truck are required to meet assumed service coverage as reflected in Table 8.6.3.

Table 8.6.3 Number of Refuse Collection Trucks Required in Phase I

| Name of Municipality/City | Additional Urban Households to be Served | Estimated Daily Amount of Refuse to beGenerated, (Kg) | Number of Collection Truck Required |
|---------------------------|--|---|-------------------------------------|
| Bago City | 3,468 | 1,450 | 1 |
| Binalbagan | 2,143 | 896 | 1 |
| Cadiz City | | | |
| Calatrava | 1,301 | 544 | 1 |
| Candoni | | | |
| Cauayan | 3,134 | 1,311 | 1 |
| Enrique B. Magalona | 4,360 | 1,823 | 1 |
| Escalante | 5,127 | 2,144 | 1 |
| Himamaylan | 76 | 32 | 1 |
| Hinigaran | | | |
| Hinoba-an (Asia) | 2,239 | 936 | 1 |
| Ilog | 4,125 | 1,725 | 1 |
| Isabela | 23 | 10 | 1 |
| Kabankalan City | 4,750 | 1,986 | 1 |
| La Carlota City | | | |
| La Castellana | 550 | 230 | 1 |
| Manapla | 232 | 97 | 1 |
| Moises Padilla | 1,000 | 418 | 1 |
| Murcia | 1,857 | 777 | 1 |
| Pontevedra | 2,324 | 972 | 1 |
| Pulupandan | 834 | 349 | 1 |
| Sagay City | | | |
| Salvador Benedicto | | | |
| San Carlos City | | | |
| San Enrique | 1,680 | 703 | 1 |
| Silay City | | | |
| Sipalay | 3,252 | 1,360 | 1 |
| Talisay City | 164 | 69 | 1 |
| Toboso | 748 | 313 | 1 |
| Valladolid | 1,395 | 584 | 1 |
| Victorias City | 913 | 382 | 1 |
| Provincial Total | 45,695 | 19,111 | 23 |

8.7 Identification of Priority Projects for Medium-Term Development Plan

In general, the present service coverage by municipality with reference to the target coverage indicates the direction of development effort for implementing PW4SP with municipal priorities.

Specific projects shall be selected subject to detailed studies and will not be discussed in the provincial master plan. In addition, pertinent information to identify priority projects is not available both at provincial and municipal level during this PW4SP preparation, except some future expansion work for WDs.

The general criteria for identifying priority projects as guide for implementing the PW4SP are summarized below.

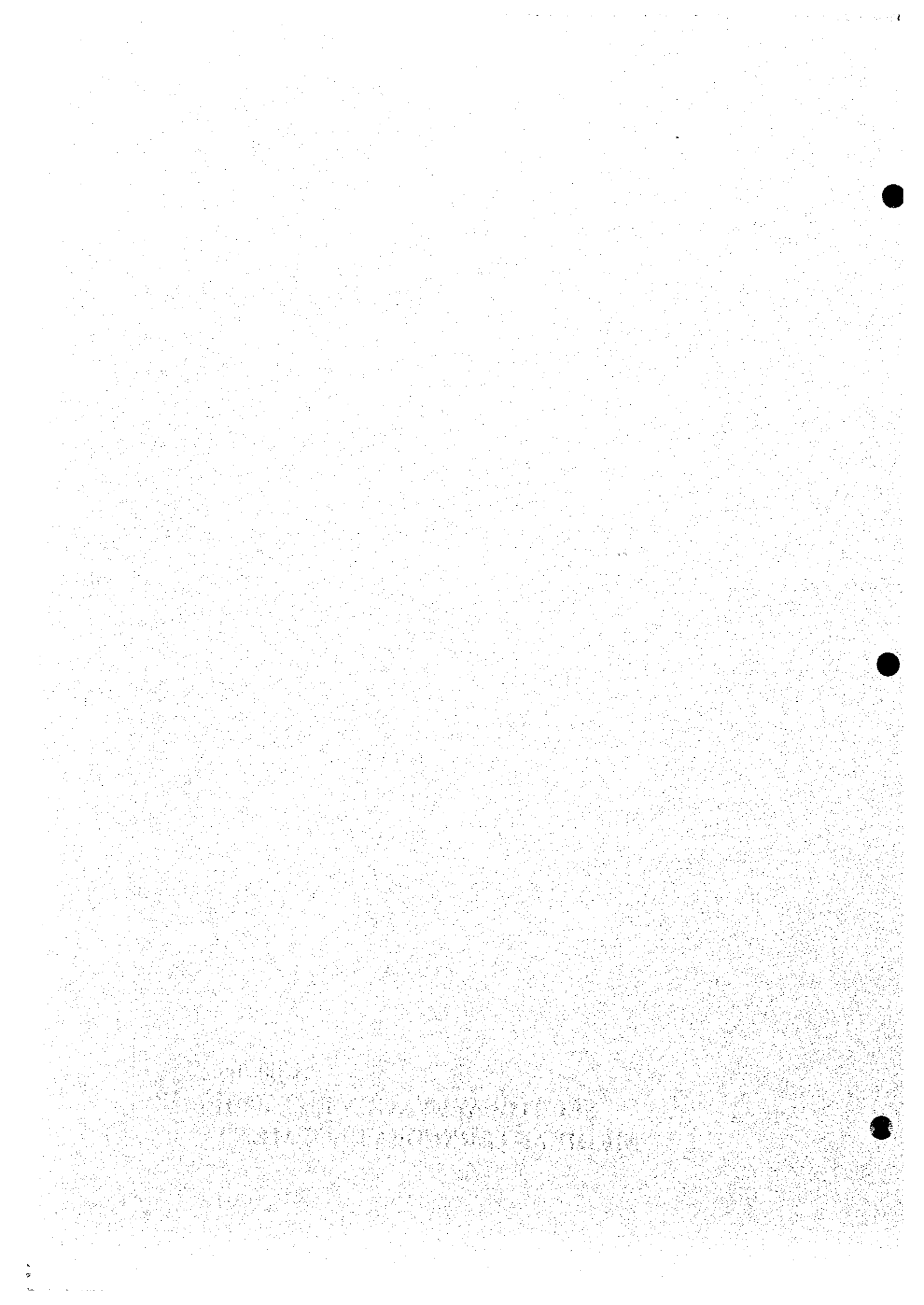
The first level of priority should be given to projects with positive feasibility studies and identified funding. Next level of priority should be given to projects with positive feasibility studies, although no funding source has been identified. The third level should be for which feasibility study has been conducted. Within each level, if funds were insufficient, a ranking could be carried out applying some factors, such as willingness to pay, water-related diseases status and per capita cost. Under the above-mentioned conditions, the implementors should prepare a list of projects.

Due attention shall be paid on the importance of integrated development of relevant sub-sectors to maximize the effects and benefits through simultaneous implementation of water supply and sanitation projects. On a municipal level priority, synthetic evaluation of sector components for concerned municipalities (which is studied in the financial arrangements, Chapter 11) may be used for implementation arrangements.

Chapter

9

**SECTOR MANAGEMENT FOR
MEDIUM-TERM DEVELOPMENT**



9. Sector Management for Medium-Term Development

9.1 General

In order to manage the water and sanitation sector effectively, the provincial and municipal governments of Negros Occidental will have to make some adjustments in their current policies and structures.

9.1.1 Purpose of Policy and Structural Adjustment

The adjustments should be aimed at coordinating these local policies and structures more closely with the overall policies, institutional and regulatory frameworks, and resource-sharing systems of the water sector, so that the Province and its municipalities would be in the best position to realize available opportunities to improve water services; specifically:

- (1) to effect immediate improvements in the physical infrastructure for water, sanitation, and related environmental services; and
- (2) to acquire permanent capabilities to (a) plan, manage and institutionalize gains in sector services, (b) to nurture constructive partnerships with the private sector, and (c) to set in place and maintain the mechanisms for sustainability.

To the extent that additional resources are provided by programs like the World Bank-assisted LGU Urban Water and Sanitation Sector Project; and to the extent that the national government has instituted facilitative mechanisms to improve the sector, the provincial and municipal governments must seize the opportunities that, for the present, are available in order to achieve and expand current sectoral targets, and to ensure the long-term sustainability of sectoral gains.

9.1.2 Perspectives

In making the needed adjustments, the LGUs will do well to keep the following realities in clear perspective:

- (1) That the nature of public accountability dictates certain rigidities and procedural constraints in all governmental systems. Thus, while government must fulfill its mandate as the necessary and enabling institution for the provision of basic services, it is not always the most responsive, efficient, and cost-effective agent for directly implementing these services. For this reason, local governments must clearly define their role in the investment, operation, and maintenance of water service utilities;

- (2) That the public – and even some local officials – still lack a deep realization of the importance of institutionalizing water services. This lack of realization reflects the transitional stage of much of Philippine society, to which the pervasive effects of urbanization (effects that extend even to the rural areas) and their demands on social participation in sustaining basic services are very recent and unfamiliar experiences. For this reason, the sector's social marketing endeavor must include a primary thrust of helping the community and all LGU officials understand the fundamental role of safe water and sanitation in the actualization of their most cherished of aspirations – that is, to secure a better future for their children.
- (3) That large sectors in many communities, as well as some entire communities, do not have the capacity to shoulder the full cost of institutionalized water and sanitation services. LGUs are especially challenged to devise ways and means to ensure their disadvantaged constituents basic access to safe water and related services -- even as they seek fair participation from those who can afford to pay, and as they continue to exert efforts to establish these services on a permanent, self-sustaining basis.

This Chapter proposes the mechanisms, processes and structures needed in the medium-term to achieve the coverage targets with sustainability. Not all recommendations can be laid out with the same level of detail at this time as some are dependent on further policy guidelines being formulated at the national level. These include the on-going study on access of LGUs to external financing assistance and the sector devolution process.

9.2 Sector Management

9.2.1 Development of the Vision

One glaring institutional need at the local level is a common vision that could focus and mobilize the water sector's resources and the efforts of the different shareholders within a practical structure that delivers the desired services effectively in a sustainable manner. Such a common, shared vision can only be achieved if all the shareholders realize the importance of managing water as a basic economic commodity and place value on their family's access to safe water within the framework of their own needs and aspiration.

Both the policy makers and the officials at all levels of governance and public service and a critical mass of the consumers themselves must internalize and share in the vision so that their efforts and resources could be mobilized for project implementation. Local planners and development workers need to focus on the long-term requirements i.e., beyond the technical requirements of forming users' associations, drilling wells, distributing bowls, etc. They need to

work as "change agents" to prepare themselves and their constituents to participate in ensuring that basic services like water and sanitation become available and are placed on a sustainable basis in their respective communities. With these considerations, and based on a realistic assessment of constraints, opportunities and demand, the province has set its vision and mission for the sector.

Initial vision statement: The province will adopt a two-phased plan which will dramatically improve the provision of water supply and sanitation. In the medium-term (2001-2005) plan, the province seeks to increase potable water supply coverage in urban areas to 85% and in rural areas to 78%. On the other hand, household toilets will be made available to 80% of the urban population and 80% of the rural population; 60% of the students in public schools will have adequate sanitary toilet facilities; 100% of public utilities will have sanitary toilets; and 80% of the urban population will be covered by solid waste collection services. For its long-term (2006-2010) plan, the province will pursue a more vigorous program to increase water supply coverage in urban areas to 95% and in rural areas to 93%. For the sanitation sub-sector, individual household toilets will increase up to 93% in urban areas and 93% in rural areas; public school toilets will rise up to 90%; public utilities will have 100% sanitary toilet coverage; while sewerage service will cover 50% of the urban population.

9.2.2 Sector Management

Figure 9.2.1 presents a model for sector management and project development. It is envisaged that this PW4SP will be used as a basis for the Annual Sector Plan and/or as input into Loan or Grant Negotiations in the future. The Annual Sector Plan, together with the budgets, will be reviewed by the Provincial Development Council and passed upon by the legislature as part of the provincial budget approval process.

The sector level implementation activities consist principally of three broad areas: social marketing; technical assistance; and monitoring. Project selection follows from a self-selection process. The identification of a responsible community-based association and technical studies, as needed, will be done. Construction or rehabilitation will take place only after the institutional, financial and technical studies have been done. Operation and maintenance, including arrangements for finances of the system, will be the responsibility of the community organizations. The Monitoring Function, on the other hand, will be augmented with water quality surveillance by the Provincial Health Office (PHO) and operational audits done by the LGU.

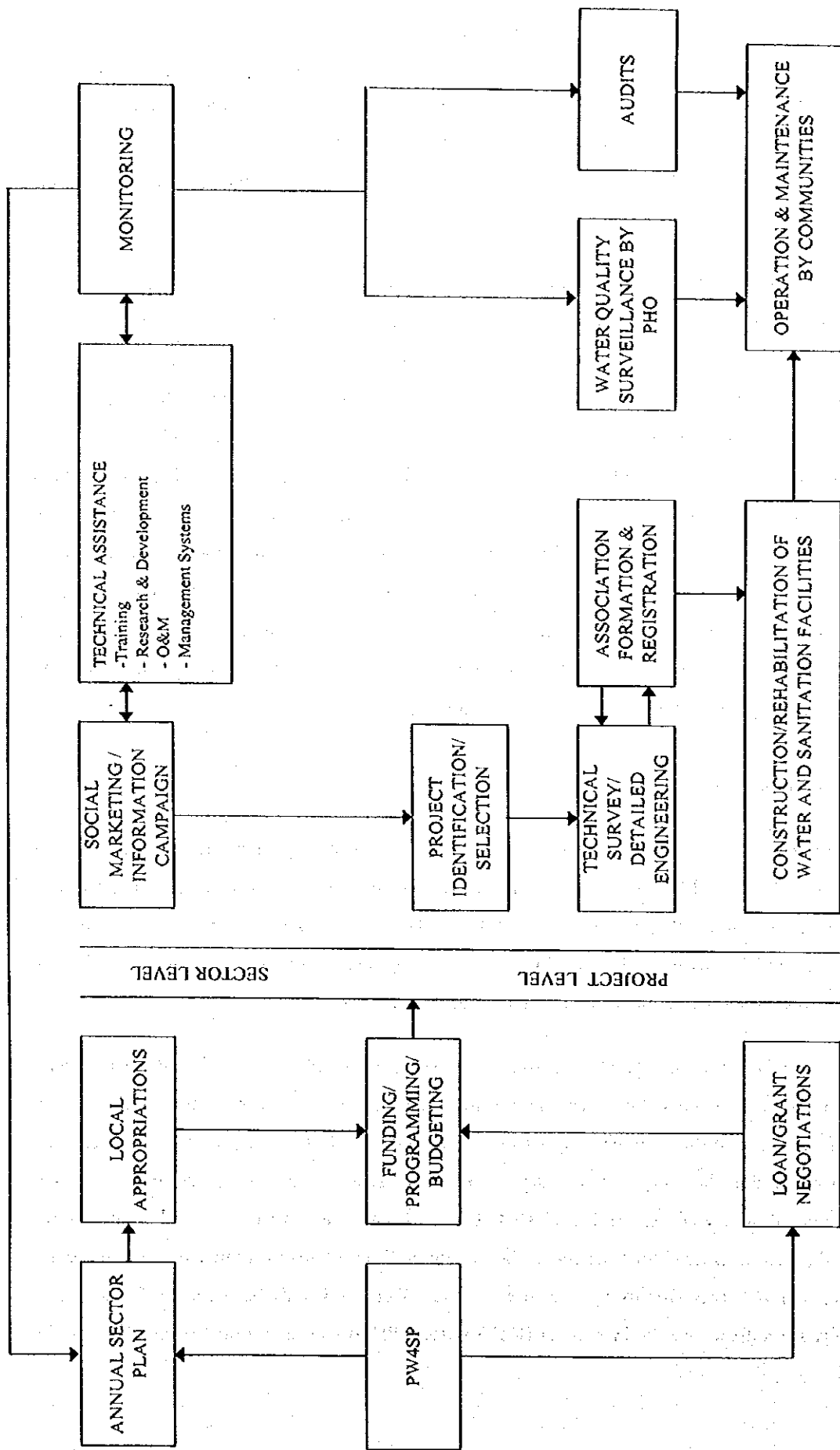


Figure 9.2.1 Sector Management Model

9.2.3 Service Provision Policies and Objectives

The LGU seeks to provide an adequate level of water and sanitation facilities defined as follows:

- Level I facilities serve at most 15 (fifteen) households per source; Level II public taps serve 5 (five) households per faucet; and Level III systems provide individual household connections.
- Water supply provision will be at least 20 lpcd for Level I; 60 lpcd for Level II; and 100 lpcd for Level III.
- A critical mass of 90% of the individual households in every barangay has sanitary toilet facilities.
- All schools shall have adequate water supply and should endeavor to approximate the minimum one sanitary toilet facility for every 40 students which is the national standard.

9.2.4 Operating Policies

The following policy and strategy statements are adopted by the Provincial Government. These may be reviewed and revised from time to time by the Provincial Government. The key policy statements include the following:

- (1) Sustainability shall be promoted by increasing community responsibility for management of facilities. Unless potential users demonstrate initiative and commitment (beyond making request for assistance) to maintain the systems, no support shall be provided by the LGUs. To the extent possible, the LGUs should utilize existing local resources to promote self-reliance.
- (2) Selection and prioritization of projects shall be based on demonstrated commitment of the beneficiaries to participate in the project and their willingness to pay; the current water, sanitation and overall health conditions; potentials for growth; and cost implications.
- (3) Technology to be used for the projects shall be appropriate to the local conditions and resources. However, construction of economical facilities shall be pursued not necessarily insisting on low-cost. Phased upward integration and future upgrading of systems and facilities shall also be promoted utilizing to the extent possible previously constructed facilities. In urban centers, a range of technologies may be adopted for wastewater collection and treatment, as well as for drainage.

- (4) An integrated approach to the provision of potable water supply, sanitation and hygiene education shall be promoted. All projects to be developed by the LGU must involve these three elements.
- (5) As part of the overall social marketing efforts for the sector, the Province shall implement an "Information, Education and Communication Program" with the primary thrust of promoting safe water and sanitation values. A nationwide IEC Program to Create "Safe Water" Value among communities is described in the Supporting Report. At the provincial level, the IEC Program shall start with the orientation of all local government officials down to the barangay level, and be coordinated with and draw the participation of other agencies, NGOs, and civic groups throughout the province, particularly those involved in community development, social projects, and health and education services. The program shall include, among others, a component to train individuals selected from the LGUs, participating agencies and organizations, and volunteers from the communities themselves as communicators/change agents for safe water values. Figure 9.2.2 shows the schematic design of the IEC Program.

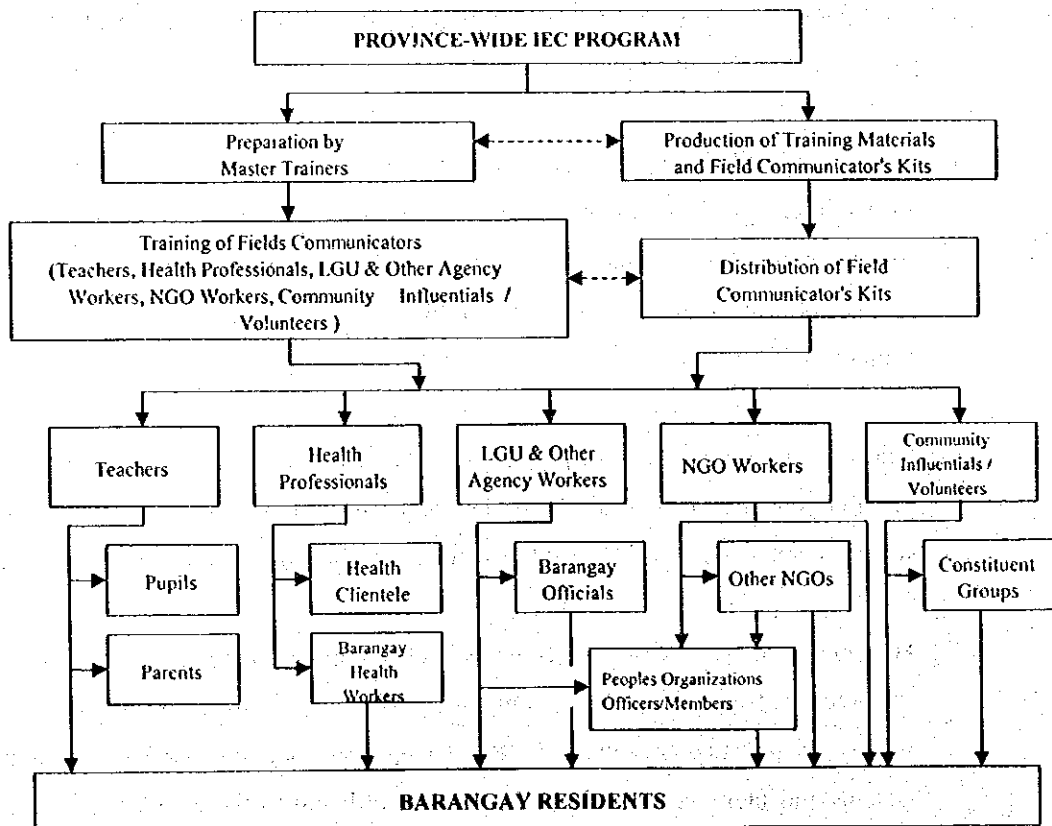


Figure 9.2.2 IEC Program Implementation Flow (Provincial Level)

- (6) The LGU shall seek to provide water and sanitation services in an equitable manner between rural or urban areas, and between better off and depressed areas.
- (7) Cost Recovery and Cost Sharing (Subsidy Policies): The LGU shall enforce a rational and consistent policy on the application of subsidies and loans for water supply and sanitation.

In May 1996, the Investment Coordination Committee (ICC) of the NEDA adopted a policy "to support the financing of devolved activities with social and/or environmental objectives" based on three considerations, namely: Equity, Externalities and Economics of Scale. Accordingly, NEDA advised DILG of the revised cost-sharing arrangement which clearly limited the national government subsidy to Level I water supply systems for 5th and 6th class municipalities up to a maximum 50% of the total project cost. No subsidy from GOP will be provided for Level II and III. For sanitation facilities, the national government subsidy for the 3rd to 6th class municipalities shall be from 50% to 70% of the total project cost.

- (8) Private Sector Participation: The government shall give the private sector a substantial and preferential role in the attainment of the PW4SP objectives. In harnessing their participation, less government intervention shall be exercised in areas where the private sector is or can be a key player. An environment designed to empower them to absorb new social responsibilities and proactively convey to the government their aspirations and interests shall be established. The formation of private sector groups, NGOs, community organizations, cooperatives and people's organizations shall be encouraged. The implementation of programs to develop their capabilities in the sector development programs shall be promoted.

- (9) The province's fiscal management, in terms of capital funds generation capability, budget and disbursement, shall be improved. The assistance of the legislative branch in the enactment of the proposed revenue-generating measures shall be sought. Financing through the private sector will also be encouraged.

- (10) Sector development shall be consistent with broader concerns for environmental protection and management. Pollution control, conservation and proper utilization of water and land resources are critical issues to be considered in development plans at all levels, including municipal land use plans. Among the specific concerns in relation to water resources that the LGUs shall address through a proactive, environmentally responsive management approach to resource use, are the preservation and enhancement

of watersheds, the prevention of pollution of streams and groundwater resources, and the protection of riverbanks and natural hydro-geological formations.

- (11) Disaster Response and Emergency Coordination: The LGU shall formulate, as part of its contingency plans, a program to address emergency conditions. The program shall include maintenance of stocks of chlorine, organization and training of local communities on restoration of water supplies, and provision of emergency sanitary facilities. The LGU should coordinate closely and regularly with the local officials of the Regional Disaster Coordinating Council (RDCC).

9.2.5 Regulatory Policies

In coordination with appropriate national and local agencies, the LGU shall endeavor to set up an effective regulatory framework considering the following:

- (1) Water allocation and water rights policies: These are within the mandate of the National Water Resources Board. The LGUs or the concerned water utility shall apply for water rights from the Board, prior to implementing a project that would require extraction of water.
- (2) Water Rate Review: While the rate setting and approval functions largely remain a concern of the associations or the Water Districts (and LWUA), a vehicle for resolving grievances against unrealistic tariffs (or other practices) can be instituted by the LGUs. The court system, of course, remains as the final arbiter in conflicts.
- (3) Association Registration: The LGUs shall likewise adopt a registration and franchising system for associations responsible for water supply facilities outside the WD franchise areas. Annual reporting requirements will have to be established for monitoring and possibly, auditing purposes.
- (4) Water Quality: The National Drinking Water Standards have been established. The LGUs will have to establish a viable mechanism, including water testing and standards enforcement, to ensure that water delivered meets the potability standards. The DOH currently has the responsibility and the regulatory power to stop the operations of water systems not delivering potable water.

9.2.6 Financing System

(1) Water supply investment financing

In financing water supply investments, the LGUs may tap their Internal Revenue Allotment (or IRA) and/or locally generated revenues, or leverage these resources to borrow from government and private financial institutions. Overall, it is the LGU's responsibility to raise funds to support capital development sector projects and to ensure that adequate O&M reserves are raised by the beneficiary communities.

In the medium-term, the primary sources of funds are envisaged to be provincial and local taxes, allocation from the IRA 20% Development Funds, and the DOF Municipal Development Fund. Also, in the medium-term, it is envisaged that national and external funds will continue to be channeled through local offices of central agencies.

Studies are underway to look into the feasibility of direct access of LGUs to external funds. The LGU will continue to monitor the developments and policy decisions to be established, as these will invariably affect local financing mechanisms. (For reference, "Accessing the ODA Funds" is presented in the Supporting Report.)

(2) Financing for sanitation activities

To support sanitation activities, housing improvement loans for installing in-house sanitary facilities should be studied and instituted by the LGU. Such a mechanism can be organized with the rural banks or the existing credit cooperatives. Seed funding for this revolving fund also needs to be raised. Upon agreement by the parties, the enabling local legislation establishing the sanitation revolving fund will have to be enacted.

The total resources for the above purpose could be augmented by establishing formal linkages with the home improvement loan facilities available through the Social Security Service (SSS), the Government Service Insurance System (GSIS), and the Pag Ibig Fund.

(3) Project owners should be fully responsible for providing sufficient funds for the sewerage, waste treatment and disposal, and sanitation requirements of their projects. Through their Municipal Engineering Office (MEO) and Health Office (MHO), and in coordination with the DENR, municipalities should strictly enforce the sanitation and sewerage requirements of the Building Code and environmental laws in issuing building permits, approving subdivision plans, and inspecting buildings and constructions.

9.2.7 Other Available Financial Arrangements

As previously mentioned, provincial and municipal leaders should monitor developments relative to the studies that are underway on the feasibility of giving LGUs direct access to external funds. Policy decisions on this would provide additional opportunities to accelerate improvements in the water sector.

In the meantime, LGUs should consider tapping existing programs that support the sector, particularly two major programs that are underway.

(1) ADB-assisted Rural Water Supply and Sanitation Sector Project

The RW3SP is a 5-year project that supports the provision of Level I facilities in rural communities. It covers 20 provinces, including Antique in Region VI, and is expected to phase out in the Year 2001.

1) Eligible Communities

The project is aimed at communities that:

- are deficient in water supply and have poor sanitation conditions;
- are willing to establish a BWSA; and,
- demonstrate willingness to be responsible for operation and maintenance costs, including depreciation, and to contribute labor for the construction of the facilities.

2) Implementing Agencies

The lead implementing agency is the DPWH, which manages and coordinates the project with other national agencies, particularly the DILG and the DOH.

The DILG coordinates and implements capacity building and community management training programs and, through NGOs, initiates community and LGU participation. DILG also carries out the socioeconomic surveys and community participation activities for the water projects, through its own and NGO resources and with the assistance of consultants.

The DOH, with technical assistance from the DPWH, assists the LGUs and the communities in the construction of public and household toilet facilities. It also implements training for health, hygiene education, and water quality control and surveillance programs. The DOH is also involved in the establishment and operation under the project of 50 Water Analysis Laboratories in the 20 provinces covered.

4) LGU participation

The mayor, as chief executive of the municipal LGU, will be responsible for initiating projects with the assistance of the DILG. He/she will manage project activities at the municipal level, particularly the selection and formulation of water project proposals, project implementation, and training, in coordination with the DEO, the DOH office, and the DILG and NGOs.

At the provincial level, the governor will have overall responsibility for a provincial board which will appraise (through the PPDO) and approve project proposals submitted by the mayors.

5) Project opportunities for LGUs

This ADB-assisted project opens up for eligible LGUs a very wide range of opportunities that include the following, among others:

- Funding of up to 90% of the total cost of water and sanitation facilities (with labor contributions being eligible for the 10% counterpart).
- Technical assistance for overall community education, organization, skills training, and other types of capability development.
- Development of specific capabilities in relation to rural water projects, such as organizing BWSAs, community-based operation and maintenance, carrying out sanitary inspection of WSS facilities, collection and analysis of water samples, and implementing water projects.

(2) World Bank Assisted LGU-Urban Water Supply and Sanitation Project

The Local Government Unit -- Urban Water Supply and Sanitation Project (LGU-UWSSP) is a World Bank-assisted lending facility administered by the DILG with the Development Bank of the Philippines (DBP) as the depository institution, that local governments can tap to provide, expand or rehabilitate Level III water systems, as well as sanitation, drainage and other environmental services for their urban populations. This facility is most practical for municipalities whose urban population have expanded to create a demand level of at least 1,000 households. Where the water source is more than 7 km from the distribution area, a larger base of household users would be needed to make the project viable.

1) Eligible municipalities/cities

The lending facility is intended to support small and medium sized municipalities/cities, regardless of income class, which:

- have not formed a water district;
- have a water district but are not in LWUA's current program of assistance.

2) Basic Project Rules

- a) The project promotes full cost recovery; that is, the tariff to be paid by the consumers should cover the cost of operation and maintenance and the repayment of the LGU DBP loan, and to the extent possible, the reimbursement of LGU equity; and
- b) The system shall be operated by a private operator under long-term lease contract with the LGU.

3) Description of loan facility

- a) Debt/equity: The LGUWSP can finance from 75%-90% of the project cost, with the municipality/ city putting up from 25% to as little as 10% of the equity.
- b) Eligible cost:
 - Feasibility study
 - Technical design
 - Construction of the water facility
- c) Interest, project duration: 15% per annum, 15 years (with 3-year grace period)

4) Availment procedures

- a) Submission to the WSS-PMO-DILG of the following:
 - Letter of Intent/Interest to participate in the project (duly signed by the Mayor)
 - Supporting Sangguniang Bayan resolution expressing interest and willingness to secure loan from the DBP to fund the water project cost
 - LGU financial data
- b) Initial screening by DILG / DBP / WB technical group
 - Validation and analysis of financial data
 - Initial determination of LGU financial capability / borrowing capacity
- c) Preparation of feasibility study and detailed engineering design
 - Study to review scope of proposed water project, check availability / adequacy of source of water supply
 - Review of bases for population growth projections and consumer demand
 - Formulation/ recommendation of LGU's technical options
 - Presentation to the community prospective end users of the technical option approved by the SB
- d) Passage of SB resolution authorizing

- Inclusion of the proposed project in the local development plan and public investment program (Section 296, LGC)
 - Loan for the proposed project
 - Appropriation of equity requirement
- e) Perfection of Loan Agreement between the LGU and DBP
- f) Construction of the facility
- g) Start of operation of the facility

5) Project opportunities

While the main thrust of the LGU-UWSSP is to provide financing to cover the eligible cost items indicated under "Description of Loan Facility" (Item #2), it also covers other non-loan project components to assist the LGUs build up their capabilities to handle water sector projects.

The complete project components of the LGU-UWSSP are as follows:

a) Water and sanitation facilities component:

- Construction/improvement/rehabilitation of Level III water facilities
- Provision / improvement of sanitation facilities
- Construction /improvement of urban drainage

b) Institutional development components

- Training of LGUs in decentralized planning, implementation and management of water facilities applying the following commercial principles:
 - Demand driven approach
 - Private sector participation
 - Full cost recovery

c) Technical assistance component

- Feasibility study
- Detailed engineering

9.3 Institutional Arrangements

This section of the report discusses both existing and proposed roles and responsibilities of agencies involved in WATSAN sector projects. Agencies that are presently involved include national government offices precisely because the devolution of functions related to WATSAN activities is not yet complete. As the province's capability to implement WATSAN projects is enhanced in the medium-term, there will be a need for a unit that will coordinate WATSAN project implementation activities between and among national and local

office. This coordinating body is the proposed PWSU (Provincial Water Supply and Sanitation Unit: tentative name).

9.3.1 Roles and Responsibilities of Agencies Concerned

In the implementation of WATSAN sector projects, respective governmental agencies from national to barangay levels shall play their roles as described below.

(1) National government Agencies

1) Department of the Interior and Local Government

The DILG, through its Water Supply and Sanitation Program Management Office or WSS-PMO shall coordinate with the funding agency, LGUs and other national government agencies involved in the project implementation. It shall be responsible for the following:

- a) development of the capacity of PWSU and MSL members in planning, training and organizing, WATSAN technologies, health and hygiene education, gender responsiveness, implementing, monitoring and evaluation of water and sanitation projects. The formation and tasks of PWSU and MSL are discussed in the following section (9.3.2).
- b) providing staff and administrative support, and development cost for the project. A Coordinator in each province shall be assigned to ensure project coordination at the provincial level. Its field personnel at the regional, provincial and municipal offices shall be utilized to assist in the capability building programs for LGUs. Monitoring of WATSAN projects shall be integrated in their regular functions.
- c) execution of a Memorandum of Agreement (MOA) with the concerned LGUs. MOA shall include cost sharing arrangements with concerned province/s and municipality/ies, utilization of vehicle and equipment support, and possible allocation of LGU's amount out of their internal revenue allotment for future operation, repair and maintenance.
- d) selection of NGOs to assist its capability building and community management programs for the LGUs and project beneficiaries to improve the delivery of project services and ensure sustainability.
- e) conduct of orientation and information dissemination for the provincial officials on the project including requirements and strategies to obtain their support and commitment in pursuing the project;
- f) coordination and utilization of the technologies of DPWH and DOH including equipment and existing facilities; and

- g) procurement of vehicles, well rehabilitation equipment, maintenance tools, and water quality testing kits by means of bulk contract.

The other national government support agencies concerned and their respective functions in the project are:

2) Department of Public Works and Highways

It shall be the responsibility of the DPWH to:

- a) set and/or update, as and when necessary, technical standards for engineering surveys, design, construction, operation and maintenance of water supply system.
- b) upon agreement with the LGUs, assist in the conduct of engineering surveys and in the preparation of plans, specifications and programs of work, through its District Offices.
- c) upon agreement with the LGUs, assist in construction management, through its District Offices.
- d) conduct technical researches in coordination with the LGUs
- e) in the light of present-day directions in health management, emerging habits in water use, concerns arising from urbanization, environmental degradation, and the overall increase in pollutive activities, it is recommended that the DPWH conduct, on a priority basis, a thorough review to update existing technical standards in relation to water supply and sanitation systems.

3) Department of Health

The DOH shall be responsible to:

- a) set and/or update, as and when necessary, standards on water quality testing, treatment and surveillance, and sanitary practice.
- b) provide technical assistance to the LGUs in the conduct of periodic water quality control (once in every three months as stipulated in the Philippine National Standards for Drinking Water) and surveillance-related activities.
- c) monitor and evaluate, on a regular basis, health and hygiene education programs implemented by local health officers, particularly in areas where waterworks systems are expected to be constructed.

4) National Water Resource Board

The NWRB shall be responsible to:

- a) regulate the use of water resources through the issuance of water rights (for the Level I water supply projects, water right permit shall be confirmed when the site selection is completed); and
- b) establish and manage a user-friendly water resources data management system.

(2) Local Government Units

1) Provincial Government

The province, through its PWSU that is to be newly organized, shall handle all activities related to the development of the sector in the province. As the WSS technical group at the provincial level, the PWSU shall lead in the overall planning framework, technical support, and monitoring to enable the province to fulfill its sectoral targets.

The role and responsibility of each unit member as well as the joint tasks to be undertaken among them shall be clearly defined. The team member shall work hand-in-hand with the CO/NGO supervisor who shall be primarily responsible for the coordination of project activities at the municipal level. A focal person shall be designated from the PWSU members to serve as understudy of the CO/NGO to ensure social technology transfer before the phase out of the NGO intermediary. The PWSU, together with MSLT shall be primarily responsible for:

- a) annually updating the PW4SP;
- b) preparing the program of work and implementation schedule;
- c) conducting information dissemination and consultation with the municipal and barangay officials;
- d) selecting and prioritizing project sites using the selection criteria developed for the project;
- e) assisting in organizing BWSAs for Level I water supply and RWSAs for Level II, and skills training for the BOD/officers, bookkeeper and caretakers of the operating body on operation, maintenance and repair;
- f) periodically apprising for the Governor of the project developments;
- g) managing and monitoring the utilization of vehicle and equipment procured under the project;
- h) monitoring, evaluating and preparing reports on the progress of project implementation for submission to WSS-PMO for ODA assisted projects; and
- i) providing continuing technical and institutional assistance to the MSLT and project beneficiaries.

A priority concern of the PWSU as soon as it is organized is to launch a province-wide IEC Program (as discussed in 9.2.4 item no. 5) to create strong awareness and active support for the sector's targets, based on the creation of safe water and sanitation values.

2) Municipal Government

Each municipality shall create a Municipal Sector Liaison Team (MSLT) from MPDO, MEO and MHO. The role and responsibility of each member as well as the joint tasks to be undertaken among them shall be clearly defined. A focal person shall be designated among them, preferable from MPDO, to serve as understudy of the CO/NGO to ensure social technology transfer before the phase out of CO/NGO intermediary. The MSLT shall work hand-in-hand with the CO/NGO and with the PWSU support. It shall be responsible to:

- a) select the priority sites/barangays in close coordination with the Municipal Development Council;
- b) conduct consultation meetings with the barangay officials/development councils and community members;
- c) facilitate the barangay water and sanitation survey and spot map, and prepare the survey summary report and spot map;
- d) organize BWSAs for Level I water supply and RWSAs for Level II, if necessary, and conduct skills training for the BOD/officers, bookkeeper and caretakers of the operating body on operation, repair and maintenance;
- e) assist the operating body in the establishment of proper systems and procedures for the collection of water charges, sanction for delay and non-payment, opening and operating bank accounts and budget allocation for the operation, repair and maintenance and cost recovery of the facilities;
- f) through its MHO/RHU and its network of barangay health workers and volunteers, conduct information campaign on proper health and hygiene education in the community;
- g) periodically apprise the Mayor of the project development;
- h) manage and monitor the maintenance tools and water quality testing kits procured under the project;
- i) monitor and prepare report on the status of project implementation for submission to the PWSU; and
- j) provide continuing technical and institutional assistance to the project beneficiaries.

3) Barangay

The barangay acts as a basic unit for the development. Barangay officials and development councils serve as the entry point for all development activities in the community.

The barangay officials will play an important role in planning and implementation of WATSAN projects. They shall collaborate with the PWSU/MSLT in gathering data/information and in undertaking various activities in the barangay such as in conducting survey and spot mapping by men and women volunteers, general assembly meetings and mobilization of resources in the community. The barangay officials/development council shall serve as advisor/facilitator of the operating body and community members.

(3) Communities

1) Barangay water association

Upon completion of Level I water supply project, the facilities shall be turned-over to the operation body. A certificate of acceptance serves as a document of ownership of the beneficiaries and acceptance of their responsibility in the project. Upon decision of the community members, existing people's/community based organization, or a new water association (BWSA) shall be formed as an operating body.

The operating body shall own the project and shall undertake the responsibility for the operation, repair, maintenance and cost recovery of the facilities. Specifically, it shall be responsible for:

- a) regular collection of contributions from member-users for the operation, repair, maintenance and cost recovery of the facilities;
- b) maintenance of proper and updated financial records and transactions of funds;
- c) undertaking minor repair of the facilities for Level I and II water supply facilities and in case of major repair, requesting assistance from the MSLT/PWSU members;
- d) encouraging members to attend meetings and training activities mainly for Level I water supply;
- e) implementing policies and procedures approved by the BOD/officers; and
- f) encouraging members to observe proper health and sanitation practices.

2) Member-users

The duties and responsibilities of member-users will include the following:

- a) payment of monthly water charge contribution to the operating body;

- b) attendance in meetings and training activities designed for members;
- c) observance of rules and regulations and policies approved by the BOD/officers;
- d) reminding other water users to use the facility properly, especially for Level I and II water supply;
- e) keeping the premises of the water facility clean, sanitary and free from excess water which may cause contamination of the water source; and
- f) adopting proper health and sanitation practices.

9.3.2 Institutional Arrangements

(1) Provincial Level - PWSU

In the medium-term, it is recommended that a full-time Provincial Water Supply and Sanitation Unit (PWSU) shall be operational. This is because of the expected large volume of work that will be required by the PW4SP and other ODA – and locally-funded WATSAN projects. The main functions of the PWSU will be:

- 1) to lead in the coordination of the planning and implementation activities related to the PW4SP, among the concerned national, provincial and municipal agencies; and
- 2) to continue to implement, assist and monitor all water supply and sanitation services in the province in coordination with the municipalities and other relevant agencies.

The provincial government should ensure that the unit should be provided adequate logistical and financial support. The DILG-WSS/PMO should also continue providing technical and managerial assistance to the unit. Upon agreement with the LGU concerned, the DPWH – DEO should also continue to lend its water supply facility development capability to the province.

The initial professional-level staffing of the proposed PWSU will be as follows:

| | |
|--|----------|
| Provincial Water Supply & Sanitation Coordinator | 1 |
| Assistant Provincial Water Supply & Sanitation Coordinator | 1 |
| Community Development & Training Specialist | 2 |
| Water Supply & Sanitation Engineer | 2 |
| Monitoring Specialist | 1 |
| Total Personnel Required | 7 |

- 1) The Provincial Water Supply & Sanitation Coordinator (PWSC) will lead an interdisciplinary PWSU. The PWSC will ensure timely preparation, implementation

and reporting of sector and project progress based on the annual sector plan. For day-to-day operations, the PWSC will report to the Governor. The PWSC will also liaise with all project implementors at the municipal level. The PWSC shall be the key contact person of the DILG-WSS/PMO. Specific duties include:

- a) Preparing guidelines, work plans and schedules for project implementation work at the municipal level; coordinate the work of consultants and NGOs in their various tasks.
 - b) Preparing a detailed work plan and program of activities for project implementation at the provincial level (including technical, financial and organizational aspects) and ensure regular reports on the progress of activities.
 - c) Guiding the conduct of sector and project management and the supervision, and coordination of the PWSU; ensure the quality and timeliness of the outputs of the other agencies and consultants.
 - d) Assessing all future inputs required for project planning, design, supervision of construction and monitoring in subsequent phases of project implementation.
 - e) Taking steps to ensure that adequate financing is available to support the sector capital development requirements.
 - f) Assisting in the negotiations for external grants and loans.
 - g) Recommending policy and policy revisions to govern sector and project management activities.
- 2) An Assistant Provincial Water Supply and Sanitation Coordinator will likewise be appointed to assist PWSC in discharge of his/her duties and responsibilities of the PWSU.
- 3) The Community Development and Training Specialist (CDTS) will be particularly responsible for implementing the community development and involvement aspects of the project. His/her task will include frequent contact with the municipal liaison staff and barangays to ensure that all project activities are demand-driven and sustainable. The CDTS will report to the PWSC. Specific duties include:
- a) Identifying initial areas and developing implementation arrangements for launching the project in the various municipalities.
 - b) Conducting regular dialogue and disseminate information among local leaders on water, sanitation and health issues.
 - c) Assisting municipalities in overseeing the organization (or accreditation) of associations which will be responsible for water supply and sanitation facilities.
 - d) Coordinating with the health and hygiene education program province-wide.

- e) Reviewing past training programs for water supply and sanitation, hygiene and sanitation education, and community organization and development, including any manuals or other training materials used.
 - f) Guiding municipal liaison staff in developing / adapting a community training strategy and methodologies based on the principles of participation, adult education, experiential learning and task specific activities, including the review and development of training materials.
 - g) Preparing the overall provincial training plan enhancing management skills, institutional strengthening, improving technical skills, and community promotion, awareness and development. This should include: training methodologies; types and numbers of training events for staff and communities; training of trainers; training packages, manuals and audio visuals; management aspects of training programs; and staff requirements and cost estimates for all categories of training including equipment and materials.
 - h) Assisting municipal staff in identifying and selecting target communities and sites based on agreed upon criteria; developing methodologies and coordinating preliminary village surveys and gender analysis.
 - i) Assisting in coordinating activities of the municipal liaison.
- 4) The Water Supply and Sanitation Engineer (WSSE) will be responsible for all the technical aspects of the project including feasibility studies, design, construction, operation and maintenance. The WSSE will report to the PWSC. Specific duties include:
- a) Reviewing the existing technical and environmental situation relating to water supply and sanitation facilities and assessing the needs for new facilities and rehabilitation.
 - b) Preparing and updating criteria and process for the selection of water supply and sanitation facilities appropriate to the conditions prevailing in the project areas focusing on systems that can be operated and maintained by the community.
 - c) Reviewing design standards for water supply and for on-site sanitation (human excreta disposal) facilities for individual households, communal and school latrines.
 - d) Establishing appropriate design standards and technical specifications for water and sanitation materials and equipment applicable to systems proposed in the project. Establishing quality control mechanisms for the procurement of materials and equipment as appropriate.

- e) Preparing standard contract documents, specifications and cost estimates for civil works and procurement.
 - f) Ensuring proper construction supervision and monitoring in coordination with the municipal liaison. Ensuring timely transport of LGU-provided materials to project sites.
 - g) Providing for adequate maintenance of LGUs equipment and tools for water and sanitation facilities, including drilling rigs and vehicles.
 - h) Supervising major repair or rehabilitation work beyond the capacity of communities to undertake.
 - i) Implementing, in coordination with the PHO, the water quality surveillance system.
- 5) The Monitoring Specialist (MS) will be responsible for ensuring that the status of sector projects and outputs are properly reported and fed back to management. His/her task will include frequent contact with the municipalities to ensure that all project activities are demand-driven and sustainable. The MS will report to the PWSC and liaise closely with the PPDO who has the responsibility for monitoring all development activities and needs in the province. Specific duties include:
- a) Drafting all project reports and documents including the quarterly and annual sector report.
 - b) Maintaining the registry of associations responsible for water and sanitation in their respective communities.
 - c) Coordinating and developing indicators for monitoring and evaluating the achievement of project objectives.
 - d) Monitoring actual costs for typical water supply and sanitation systems.

(2) Municipal Level - MSLT

At the municipal level, the municipal development coordinator, the municipal engineer, the municipal health officer or any other qualified staff selected by the mayor may be appointed as a member of the MSLT.

The role of the MSLT will be very critical at all stages of sector and project management. The MSLT should ensure that the activities guided by PWSU are implemented at the barangay level, particularly information dissemination about funding opportunities. The MSLT receives all requests for water and sanitation facilities including the commitment of the barangays to provide counterpart funds or labor for the projects. The MSLT also

recommends the programming of municipal funds (from municipal IRA allocation or other sources) to provide counterpart support or to fully finance the projects.

Supported by the PWSU, the MSLT ensures that a viable organization is set up or appointed to handle the operation, maintenance and fee collection for the water system. The MSLT also reviews the detailed project plan and design. During implementation, the MSLT monitors the construction and drilling activities. The activities of the MSLT will be closely coordinated and reported to the PWSU. If warranted, the mayor should establish a municipal water and sanitation office in the long-term future to handle all the above functions when the level of activities shall have become substantial.

(3) Barangay Level

At the barangay level, the barangay government, through its Committee on Health, and the Rural Health Unit (RHU) plays a major role in concretizing the community aspiration for improved water and sanitation services.

The barangay government is the entry point for all development activities in the community. Particularly, it will play an important role in preparatory stage before the association is set up (or a responsible group is appointed). The barangay government prepares the request for assistance and assembles available local resources (funds, manpower, materials) to serve as the community's initial counterpart which demonstrates the barangay's commitment.

The RHUs and their network of barangay health workers (volunteers), on the other hand, have established an effective primary health care delivery system in the province. The system will continue to provide, among others, health and hygiene education services focusing on the interdependence of safe water supplies and sanitary toilet facilities to achieve overall health and environmental benefits. The RHUs will be the principal data collectors to monitor the conditions in access and coverage of water supply and sanitation services.

(4) National Level – DPWH, DOH, DILG

At the national level, DPWH, DOH and DILG will continue to provide technical assistance to LGUs per NEDA Resolution No.4 (series of 1994), either directly or through their local field offices. In addition, mandated government agencies, such as LWUA, will continue to provide technical and managerial services and loans to duly-organized water districts and RWSAs. Through the DOF and DBM, the IRA allocations will continue, from which a portion can be allocated for sector projects. Since this IRA allocation for

water and sanitation projects will likely be very limited, the LGU will have to coordinate with appropriate national agencies to gain access to external funds. Regulations, promulgated and enforced by national regulatory bodies, like the NWRB, will have to be complied with by the LGU.

9.4 Project Management Arrangements

In implementing specific WATSAN projects, there are several approaches / strategies which are recommended that will increase the likelihood for success and sustainability over the long term. These general approaches/strategies should be treated as minimum project requirements, which can be enhanced or improved upon to further ensure the project's success and sustainability.

9.4.1 Project Approach/Strategy

(1) Capacity Enhancement

- a) Creation of support structure at the provincial and municipal levels (PWSU and MSLT, respectively) with clearly delineated roles and responsibilities of each member as well as the joint tasks to be undertaken by them.
- b) Improving information dissemination to and consultation with local officials at the provincial, municipal, and barangay levels to secure full support and cooperation in the execution of the project.
- c) Tapping NGO intermediaries to assist in the capability building and community management programs for the LGUs and project beneficiaries.
- d) Capability building shall be undertaken at various levels, from the national to the beneficiary levels. A Consultant shall develop the capacity of the WSS-PMO and NGOs, who in turn shall be responsible to develop the capacity of LGUs (PWSU, MSLT) and CO/NGOs. Finally, LGUs shall develop the capacity of the project beneficiaries who are to operate and manage the projects.
- e) Consultancy services shall be availed of to assist the executing and implementing agencies' capabilities in the successful implementation of the project.

(2) Service Level Determination

- a) The appropriate service level for a geographical area shall be determined in the following manner:

- at the initial stage of the project, the public will already be consulted regarding their needs, desires, and willingness to pay;
 - before construction begins, all parties will sign an agreement acknowledging their respective roles and responsibilities;
- b) Communities with no existing water system will be encouraged to adopt Level II systems instead of Level I systems, subject to a validation of the technical feasibility and the prospective users' willingness to participate in the construction, operation and maintenance of the system.
 - c) Existing Level III systems will be encouraged to expand their coverage to the fringe areas, subject to the results of studies on prospective demand, technical feasibility, and financial feasibility.
 - d) Existing Level III systems that are in close geographical proximity to other existing Level III systems will be encouraged to merge in order to achieve economies of scale.

(3) Community Participation

- a) The selection criteria for the priority sites will be the community demand for the level of service. Demand assessment shall be made through participatory beneficiary assessment prior to construction of facilities in the barangays.
- b) Tapping existing people's/community-based organizations as operating body of the project. Merger or consolidation with the existing water association in the barangay shall be considered before forming a new one.
- c) Community participation shall be incorporated in all phases of the project - from planning to evaluation. Community participation shall be achieved through consultation and interactions with the community members.
- d) A greater participation of women shall be required in the planning, implementation, management, and monitoring of WATSAN projects.
- e) Integration of water supply, sanitation and hygiene education and provision of information, education and communication materials to the community members.

(4) Cost Recovery

- a) LGUs shall adopt commercial principles in the operation and management of water utilities in order to provide cost effective and reliable services to consumers.
- b) Community equity contributions and LGU counterpart shall be required and will serve as an indication of willingness and commitment to participate in the project.
- c) Cost recovery through regular water charge collection from the end-users shall be a requisite of the project.

- d) Funds collected from the end-users shall be utilized for operation and maintenance and future rehabilitation and reconstruction. The funds shall not be included in the general account of LGUs, even if the waterworks is owned by the LGU.
- e) Merging of operating bodies may be studied to save on O&M cost and maximized the utilization of limited manpower resources.

(5) Feedback Mechanism

- a) A participatory monitoring and evaluation system shall be installed in partnership between the LGUs and beneficiaries.
- b) Monitoring and evaluation shall start during the project implementation. The system must have clear objectives and the right indicators - sustainability, effective use, and replicability.

The success of water and sanitation projects in most cases depends on the strength of the institutional arrangement and mechanism. Therefore, it is imperative that each institution as well as those personnel involved in the project should have a clear grasp of their respective responsibilities in the various stages of project implementation. Figure 9.4.1 and 9.4.2 in the Supporting Report shows in detail the project implementation arrangement and procedure for Level I water supply and sanitation from the national to barangay levels. These have been designed to encourage active participation of implementers and beneficiaries in undertaking the project.

9.4.2 Project Implementation Arrangements

(1) Level I

Figure 9.4.3 depicts the Activity Process Flow for Level I Facilities. The following key requirements should be noted:

- 1) **Project Selection:** The basis for selecting projects should be self-selection and local initiative. All barangays should be well-informed about sector opportunities and policies. The barangays should take the first step by assessing their needs, deciding that they want to improve their water and sanitation above all other needs and expressing their aspiration. The initial tasks of LGUs will be social marketing and information dissemination. The barangay should also decide desired service level/s, with a full understanding of the cost recovery aspects and other responsibilities.

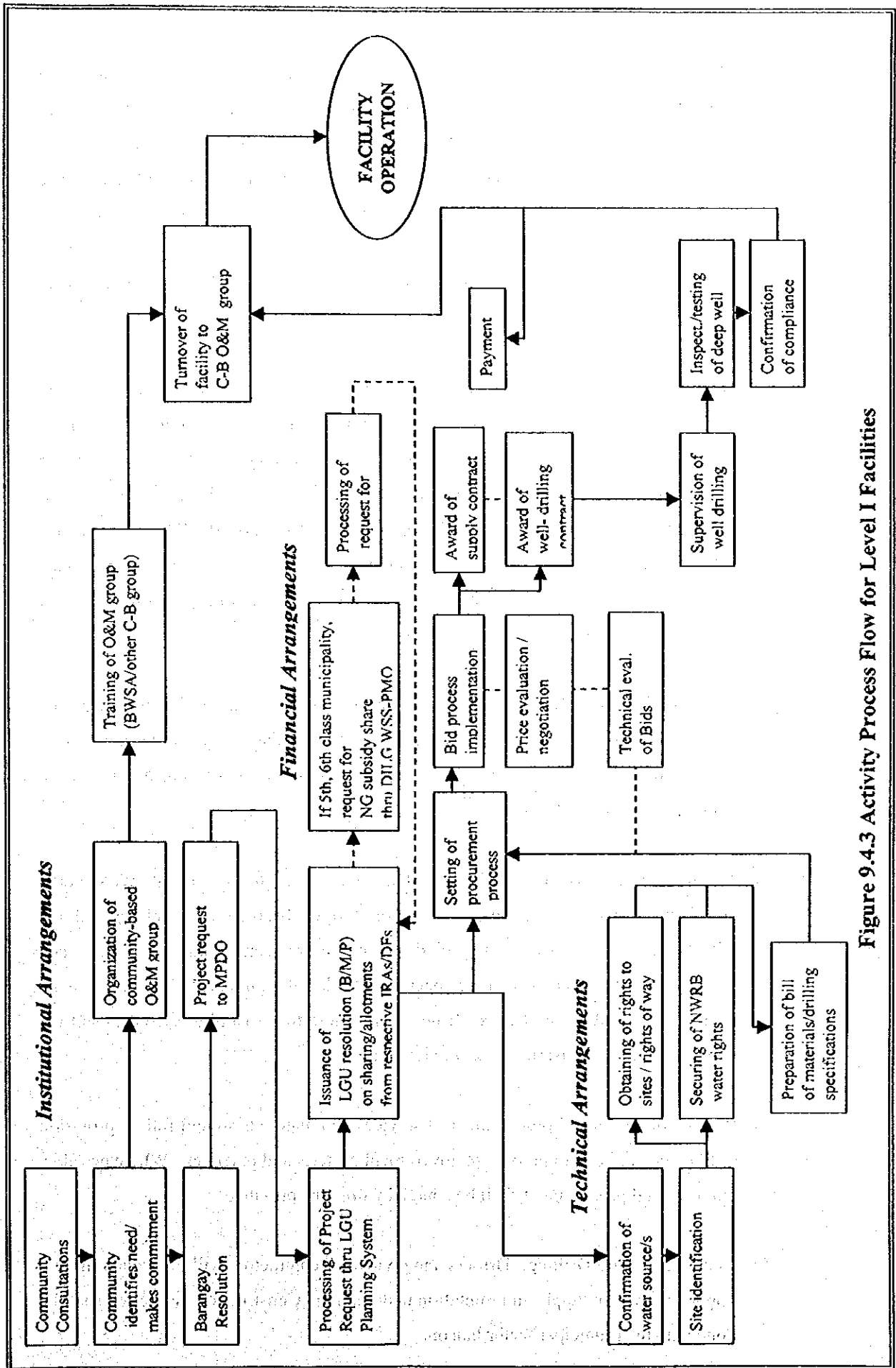


Figure 9.4.3 Activity Process Flow for Level I Facilities

- 2) Organization of associations: More flexibility is needed in order to tap local community resources. The issue of the necessity of forming BWSAs has been raised on several occasions. The proliferation of single-purpose associations for every government-sponsored project tends to divide barangay resources and complicate barangay structures. Many socio-civic groups have in fact "adopted" facilities and are looking after their maintenance voluntarily. Actual success rate seems to be higher in areas where water supply is extremely difficult regardless of whether there is monitoring or not.

The basic principle is that the community agrees that a particular group at the local level will be responsible. Existing local groups with other socio-civic objectives, with an active track record, and which are ready, willing and able to take on the BWSA functions may be tasked with the responsibility for the facilities. LGUs will assess the situation and, if justified, approve alternative non-BWSA arrangements. BWSA formation, of course, remains an option. An "institutional accreditation" system can be organized. If the association fails to live up to its responsibilities, it can lose its accreditation to another group.

The association can decide how to organize itself internally in coordination with the municipal sector liaison. The important condition is that all functions have to be attended to. Thus, an association may subdivide itself by "puroks" or it may choose to operate as one institution.

- 3) Technology and Technical Design Standards: The former Rural Waterworks Development Corporation (whose functions were absorbed by LWUA) and the DPWH have developed a simplified procedure for conducting the initial data gathering. The formats, which are appended (Table 9.4.1 Supporting Report), may be adopted and used by the LGUs. If necessary, these forms can be revised to suit the specific needs of the barangay or municipality.
- 4) Bidding of works and procurement of services and materials should follow provision of PD 1594 and other appropriate government policies and practices. Where possible, major capital procurement shall be sourced within the province.
- 5) Construction and Drilling: Drillers and civil work contractors will be needed for any major rural water supply and sanitation undertaking. Construction inspection shall be done with the municipal sector liaison.

- 6) Right of Way Acquisition: Deed of Donation (or written permits to grant use of land) for proposed facility sites should be executed in favor of the municipal government/ barangay prior to project approval.
- 7) Major rehabilitation work, beyond the capacity of the associations, shall be referred to the municipality for action. Clear definition of "major rehabilitation work" is needed. All costs incident to the rehabilitation shall be for the account of the association O&M reserve fund. The municipality (supported by PWSU) may assist the association in securing soft loans, if the reserve funds are inadequate.
- 8) Operation & Maintenance will generally be the responsibility of the association. To support the caretakers, a franchising system for major O&M activities may be instituted by the municipality (through a private firm, a major Water District in the area or any other competent group). Mechanics and plumbers can organize well-equipped "mobile service centers" which visits all the facilities monthly to check-up facilities and provide technical advice on behalf of the LGUs.

With standardization, local hardware stores will find it more profitable to stock up on needed spare parts. The LGUs should not maintain spare parts, although it is expected to maintain a ready stock of fast-moving spares.

- 9) Water Rate Setting: Fees and rates shall be established and approved by the community prior to construction. The fees shall be sufficient to cover all monthly operation, maintenance and administration costs, as well as to establish a reserve fund.
- 10) Fees Collection and Funds Management: The association shall collect monthly fees. All funds of the association shall be deposited in a bank to be selected by the association.

(2) Level II

Figure 9.4.4 depicts the Activity Process Flow for Level II Facilities. The following key requirements should be noted:

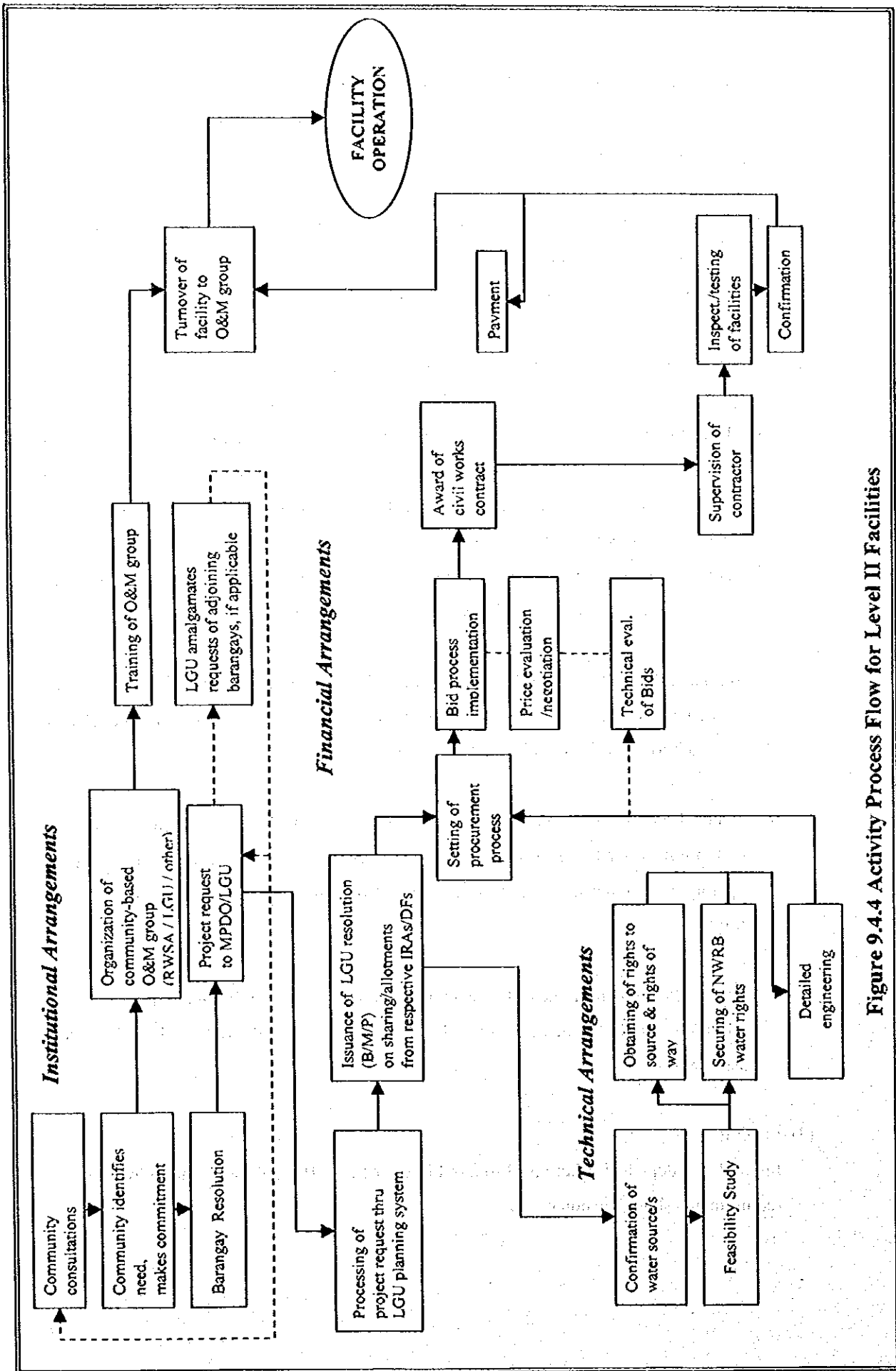


Figure 9.4.4 Activity Process Flow for Level II Facilities

- 1) **Project Selection:** Guidelines similar to that of Level I project selection shall be followed, i.e., self-selection and local initiative. Two or more barangays (or puroks) may agree to have a joint water and sanitation project.
- 2) **Organization:** The RWSA model may be followed by the participating communities. Again, flexibility will be followed and alternative models for managing the system may be considered.
- 3) **Technology and Technical Design Standards:** Technical standards have been in use by LWUA for RWSAs and by DPWH for Level II systems. (refer to Table 9.4.2 with annexes, Supporting Report). As these are considered as national standards, they will be adopted by the LGUs.
- 4) **Bidding of works and procurement of services and materials** should follow provision of PD 1594 and all other applicable national and local legislation on bidding and award of contracts using public funds. LWUA uses standard formats and procedures for this process, which may be adopted by the LGUs.
- 5) **Construction** would usually be done by a contractor: Inspection would be undertaken by the RWSA; by the cooperative or the private developer; or by the LGUs depending on the institutional arrangement adopted.
- 6) **Right of Way Acquisition:** The association shall negotiate for the purchase of land on which facilities will be constructed. Should negotiations fail, the government may exercise the power of eminent domain to secure needed land.
- 7) **Operation & maintenance and rehabilitation** will be the responsibility of the association. It shall ensure that adequate tools and spare parts are available. It shall employ needed staff and caretakers.
- 8) **Water Rate Setting:** All fees shall be subject to public hearing and approval by the appropriate regulatory authority.
- 9) **Fees Collection and Funds Management:** Same policies for Level I shall apply. However, fee computation shall include provision for debt service and possibly a higher reserve requirement.

(3) Level III

Figure 9.4.5 depicts the Activity Process Flow for Level III Facilities. The following key requirements should be noted:

- 1) **Project Selection:** Most Level III systems are to be initiated by the municipal governments. In principle, all communities (including rural areas) may request Level III services provided that they are willing and able to take on the financial and managerial obligations for higher service levels. Viability and affordability are issues, however, so that appropriate studies need to be undertaken to apprise communities of the costs and financial obligations involved. The point is that service level selection is community decisions.
- 2) **Organization:** There are several viable Level III models, which may be adopted: the Water District Concept; a LGU-managed system; a cooperative-run system; or a privately-owned and managed system (refer to 5.2 Data Report). The LWUA water district concept was briefly described in the preceding chapters. For detailed information, the LGUs should contact and coordinate with LWUA. The second option for the LGUs is to maintain operational control over the utility. Current experiences, however, reveal many difficulties because of numerous government controls and restrictions. Preferably a separate economic unit or enterprise may be set up. The private sector may be a viable option. It may use the BOT mechanism or it may invest on a long-term basis in larger systems.
- 3) **Technology and Technical Design Specifications:** Regardless of the type of institutional model adopted, the technical design standards to be enforced should be uniform. Technical standards used by the water districts and LWUA will be adopted and enforced by the LGUs.
- 4) **Bidding of works and procurement of services and materials shall follow the provision of PD 1594 and all other applicable national and local rules on bidding and award of contracts using public funds. The LWUA uses standard formats and procedures for this process and the LGUs may adopt this.**
- 5) **Construction by a private contractor is preferred. Inspection will be conducted by the water district; by the cooperative or the private developer; or by the LGUs depending on the institutional arrangement adopted.**

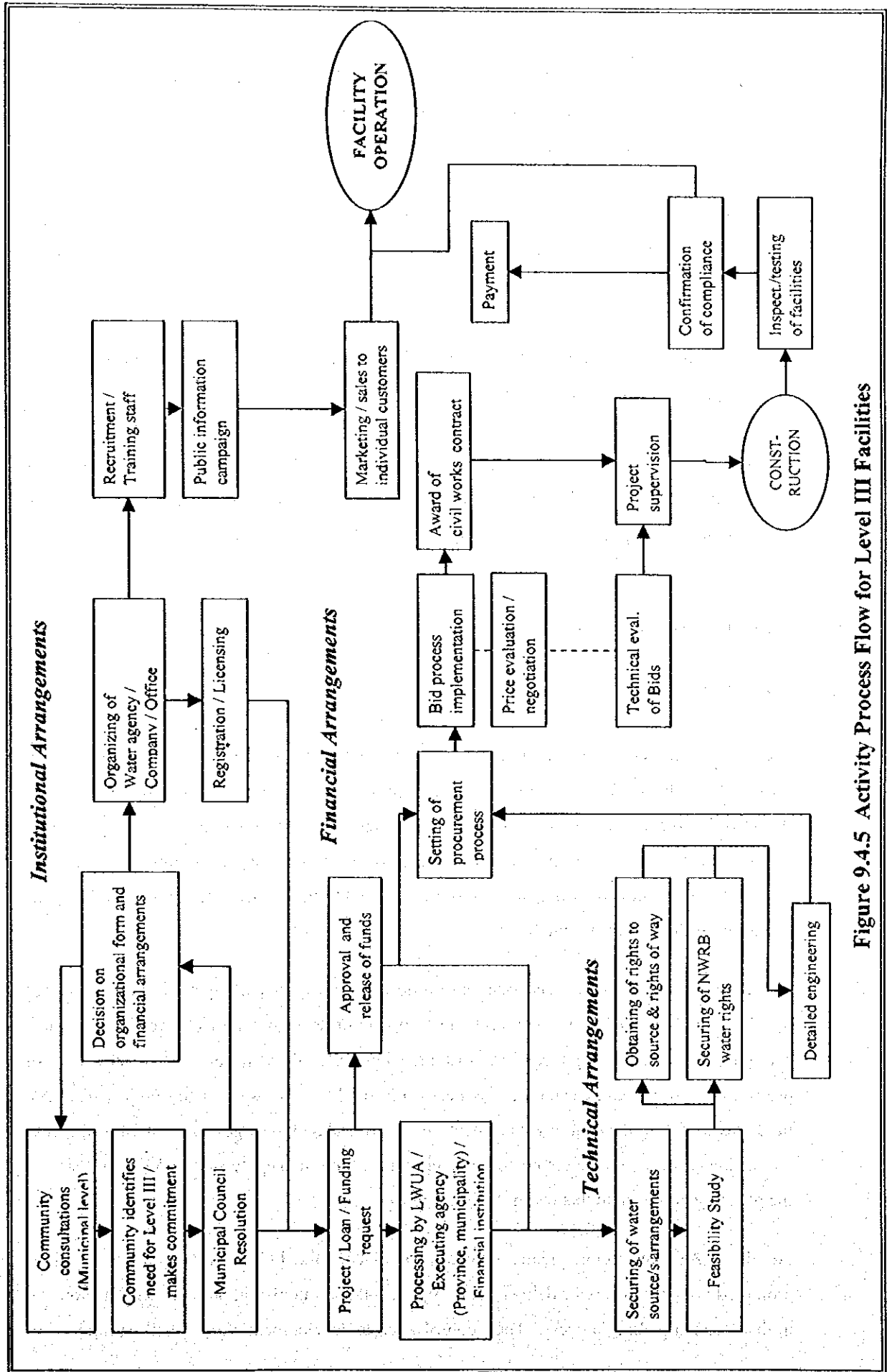


Figure 9.4.5 Activity Process Flow for Level III Facilities

- 6) **Right of Way Acquisition:** The waterworks will have to negotiate for the purchase of land on which facilities will be constructed. Should negotiations fail, the government may exercise the power of eminent domain to secure needed lands.
- 7) **Operation & maintenance and rehabilitation** will be the responsibility of the waterworks. It shall ensure that adequate tools and spare parts are available. It shall employ needed staff and caretakers.
- 8) **Water Rate Setting:** All rates are subject to public hearings and approval by the appropriate regulatory authority.
- 9) The waterworks shall establish a formal billing and collection system and business practice systems shall be adopted. The LWUA has established a comprehensive commercial practice system, which may be adopted by the organization.

9.5 Community Development

9.5.1 General

The success and sustainability of water and sanitation projects largely depend on the active participation of the users and unwavering commitment of the beneficiary community. Past WATSAN projects have failed because government planners and implementors gave only cursory attention to the felt needs and demands of the beneficiary communities. Thus, the lack of involvement and participation of the people led to the steady deterioration and/or non-operation of the WATSAN facilities.

This chapter presents the recommendations on how to harness the participation of the individual members of the beneficiary community in sector projects in order to ensure that the gains derived from WATSAN projects are sustained long after these have been constructed. In proffering these recommendations, it is necessary to take on the side of the project planners/ implementors from the central government, the provincial and local government units, down to the barangay level so as to complete the cycle where both the supply side and demand side of the planning approach to this sector study is linked.

For the WATSAN sector, greater involvement of both the LGUs and the people shall be promoted not only in service delivery and implementation but also in project identification and in the decision-making process. Their contribution to development efforts shall be in terms of

articulating their demands to guide concerned government and private institutions and of initiating community-based activities. In this way, they shall not just be passive recipients of projects and services but shall be harnessed as active partners in the identification and solution of community problems.

9.5.2 CD Structure and Linkage for Sector Projects

Participatory community development is a process that enables the members of the community to become action-oriented and self-reliant. This process is not easy to start, much less complete, because it takes time and resources. It also requires the genuine involvement, participation and collaboration of all the parties involved in sector development – from the national agencies, to the provincial governments, down to the municipal and barangay levels. It is only through having set the proper structures and linkages among these parties that participatory CD can take off as an important part of the entire sector.

(1) National

The Department of the Interior and Local Government (DILG), through its Water Supply and Sanitation Program Management Office (WSS-PMO), shall retain the role as the central government agency that will promote the community development component of water supply and sanitation projects with its regional offices providing close coordination with the LGUs in this fundamental sector activity.

To attain this, DILG shall develop the capacity of the provincial and municipal sector teams in undertaking (1) community development/management programs, particularly in the areas of community mobilizing and organizing and in capacity building; and (2) information, education and communication management programs. It should also be able to identify national NGOs that can assist its capability building and community management programs for the LGUs and project beneficiaries.

The Local Water Utilities Administration shall continue to provide assistance to the LGUs in the formation of LGU-WS into water districts, particularly in community participation on (1) the decision on whether or not to form a water district in the locality; and (2) the nomination of representatives to the five sectors that will compose the WD Board of Directors.

The LWUA shall also continue to provide regular CD assistance to the water districts particularly in consultation with the community on new projects, (called project hearings),

the information/approval of new loans, and the approval for adjustments or increases in water rates (called water rate hearings).

(2) Provincial

Since WATSAN projects would be on-going in the long term, it is recommended that a CD Unit should be established within the proposed "Provincial Water Supply and Sanitation Office," discharging functions as important as the technical, financial, administrative units. The CD Unit will serve as the coordinating arm for all CD activities for WATSAN projects in the Province. It will mainly be responsible for establishing an over-all Comprehensive CD Management Plan for the province and implement this together with the LGUs. It will also be equally responsible for the conceptualization of the over-all Comprehensive IEC Plan for province and execute this together with the LGUs. The CD Unit shall also closely coordinate with NGOs/CBOs/POs in the province to augment their manpower and experience in doing community organizing and mobilization work. It will also obtain/furnish the inputs articulated by the people in all the phases of the project – that is, from project planning, implementation, operation and maintenance, monitoring to evaluation – thus contributing significantly in extending the life of the facilities as well as in promoting the health and productivity of the community as a whole.

Appointment of a Provincial CD Specialist

The province shall, within one year, provide for a regular plantilla position for at least one CD Specialist who will be appointed to take charge of the CD Unit. The CD Specialist will plan, implement and/or coordinate CD management programs, IEC programs, and the capacity building activities for sector projects. He/she shall also be responsible for the assisting in the training of municipal CD specialists and barangay CD coordinators. Within two years, or when the specific projects under this sector materialize, another CD Specialist position shall be opened, if resources permit. If not, said NGOs/CBOs/POs can be tapped for the purpose (refer to the Supporting Report for the Responsibilities and Qualifications of a CD Specialist).

(3) Municipal

The municipality is the next link in the delivery of services to the people. There may be a need to establish a more permanent office/unit, such as a "Municipal WATSAN Office" in the long term; but for the medium term, the Municipal Sector Liaison Team (MSLT) concept will do. Among this team's multi-functions is to undertake and/or coordinate all CD and IEC work for the sector. It shall also collaborate with the water district on their CD-IEC programs, when and where practicable. It shall also coordinate with the

NGOs/CBOs/POs that find their presence in the municipality. It will obtain/furnish the inputs articulated by the people in all the phases of the project – that is, from project planning, implementation, operation and maintenance, monitoring to evaluation to be utilized by those concerned.

Assignment of a Municipal CD Specialist

Within the medium term, the municipal government shall endeavor to assign a CD Specialist to the MSLT who shall undertake and/or coordinate actual CD and IEC work, together with the CD Specialist of the province. The CD Specialist shall closely coordinate CD work with NGOs/CBOs/POs and the private sector. He/she will also be responsible for assisting the Province in capacity building/training programs for barangay CD coordinators.

(4) Barangay

Not all barangays have established water supply and sanitation committees. It is recommended, therefore, that each BDC should establish a WATSAN Committee that will undertake and/or coordinate all WATSAN projects in the barangay. The committee, to be headed by the BDC's infrastructure committee chairman, shall have four members, preferably coming from the health, education, socio-civic and NGO sectors of the barangay. They shall be responsible for coordinating all the activities/phases in the project, including community development, such as but not limited to barangay meetings, surveys, mapping, project identification and planning, formation of a suitable WATSAN association/organization and other decisions regarding the acceptance of the water facility and the barangay counterpart in the construction of WATSAN facilities.

Designation of Barangay CD Coordinator

The barangay council should designate one person, preferably a member of the BDC or the WATSAN committee, who can be trained on CD work, particularly community organizing. Once trained, he/she will be the permanent CD coordinator of all CD activities related to WATSAN projects. The Barangay Health Worker can be an ideal candidate since he/she is already familiar with the work and the whole community.

9.5.3 Training on CD

The DILG WSS-PMO should immediately develop a capacity-building program on CD and IEC for LGUs, utilizing existing training institutions such as the Local Government Academy (LGA). While the importance of CD is acknowledged by the LGUs, there is an urgent need to

raise the general level of CD awareness of the officials who would be involved in making decisions for the sector. For those who have a direct hand in the planning and implementation of sector projects, there is also a pressing need to upgrade their knowledge on CD-CO processes and approaches because methods being currently applied have been found to be very limited in scope, coverage and effectivity.

In this connection, it is recommended that the following measures be done in the medium term: (1) conduct a training needs assessment to determine the appropriate type of training program suited and relevant to the proposed participants' level of attainment; (2) upgrade the knowledge of the PPDO and PHO staffs, the MPDO and the MHO staffs, as well as the members of the BDC's WATSAN committees of improved CD frameworks available as well as CO approaches developed from the experience gained from other WATSAN projects; and, (3) develop other training programs to enhance CD and IEC as shown from the result of the training needs assessment.

Suggested seminar workshops are the following: (1) Trainors' Training on CD – duration, 4-5 days; to be conducted by the DILG WSS-PMO, with the proposed participants as select PPDO/PHO staff and CD Specialists of the municipalities who belong to the priority list for the medium-term; (2) Seminar Workshop on Community Organizing – duration, 4-5 days; to be conducted by the Province with the assistance of the DILG WSS-PMO, the proposed participants being the barangay CD coordinators; and (3) Seminar Workshop on IEC – duration, 4-5 days; to be conducted by the DILG WSS-PMO with the assistance of the Philippine Information Agency (PIA), the proposed participants being CD Specialists of the LGUs.

These training programs should be conducted on a regular basis until all the municipalities/barangays are covered. Each of the parties/participants to the training will shoulder their own costs, such that the DILG will be financially responsible for its trainors, the instructional materials, and the training venue. The LGUs, on the other hand, will pay for their own participants' expenses such as transportation and room and board. Eventually, when the Province has been fully trained and equipped to be the trainor, it shall conduct said CD/IEC training programs and will charge the LGUs and the barangays their proportionate share in the training costs.