Table S-9. Estimated mean annual groundwater recharge as a percentage of water input for baseline conditions in the Kīlauea aquifer sector of the Island of Hawai'i, compiled by land-cover type and precipitation amount (refer to USGS SIR 2011–5078).

[<, less than; –, not applicable; water input is defined as the sum of mean annual rainfall, fog, and irrigation; baseline conditions are defined as 2008 land cover and mean annual rainfall for the period 1916–83; the Kīlauea aquifer sector consists of the Pāhoa, Kalapana, Hilina, and Keaīwa aquifer systems and is defined by the Hawai'i Commission on Water Resource Management (see http://www.state.hi.us/dlnr/cwrm/mapsillustrations/gwhu_hawaii.pdf); reported mean recharge is an area-weighted average; no distinction is made between fog and non-fog conditions for shrubland, coffee, and eucalyptus forest plantations]

Land-cover description	Mean annual rainfall plus fog equal to 40 inches or less			Mean annual rainfall plus fog greater than 40 inches and less than 80 inches			Mean annual rainfall plus fog equal to 80 inches or greater		
	Number of water-budget subareas	Area (square miles)	Mean recharge as a percentage of water input[1]	Number of water-budget subareas	Area (square miles)	Mean recharge as a percentage of water input[1]	Number of water-budget subareas	Area (square miles)	Mean recharge as a percentage of water input[1]
Open native forest (outside fog zone)	262	1.58	36.2	337	1.04	45.0	11,450	81.80	44.6
Closed native forest (outside fog zone)	3	<0.005	27.1	57	0.30	31.3	7,202	54.93	42.4
Alien and mixed forest (outside fog zone)	15	0.05	31.8	63	0.13	17.4	3,061	14.32	29.8
Open native forest (inside fog zone)	36	0.11	38.8	312	0.98	49.2	1,641	10.11	57.4
Closed native forest (inside fog zone)	0	–	–	33	0.20	37.3	2,074	41.46	56.3
Alien and mixed forest (inside fog zone)	0	–	–	103	0.25	33.7	432	2.39	44.4
Shrubland	938	18.73	61.3	1,655	38.27	66.0	10,566	63.54	67.8
Agriculture: Macadamia	0	–	–	36	0.45	24.5	0	–	–
Coffee	0	–	–	0	–	–	0	–	–
Diversified	0	–	–	175	1.46	43.9	3,330	14.47	70.4
Forest (eucalyptus)	0	–	–	0	–	–	0	–	–
Fallow/Grassland	0	–	–	0	–	–	0	–	–
Golf course	0	–	–	0	–	–	51	0.08	52.8
Low-intensity developed	0	–	–	21	0.01	43.9	1,215	3.28	68.3
High-intensity developed	0	–	–	303	0.35	60.1	1,224	0.91	61.3
Grassland	522	6.57	62.8	658	5.67	64.6	5,977	25.80	62.2
Sparsely vegetated	779	65.74	61.5	1,368	47.00	63.0	3,188	55.39	65.8
Wetland vegetation	0	–	–	0	–	–	0	–	–
Water body[2]	0	–	–	0	–	–	20	0.03	–

[1]Recharge as a percentage of water input was calculated for each subarea using the formula: [(recharge - direct recharge)/(rainfall + fog + irrigation)] x 100. Values for each subarea in a particular land-cover category were then multiplied by the area and summed, and that sum was then divided by the total area of that category to obtain a mean. Direct recharge is described in USGS SIR 2011–5078.

[2]Recharge was not calculated using the water-budget model (see USGS SIR 2011–5078, p. 28).