Name of method	< 1 year	1-50 years	> 50 years	Local	Basin	Regional	Tropical	Humid	Semi-arid	Arid	Sediments	Hard-rock	Karst	Human impact	Direct	Indirect	Reconnaissance	Sampling	Measurement	Construction	Rainfall	Runoff	Water levels	Aquifer data	Landuse data	Isotopes	Chemistry	Standard (Spreadsheet)	Commercial	Scientific	a. Local application	b. General GAS study	c. Operational method	Not documented	Discrete Time Steps	Discrete Grids (Maps)	Transfer to side-basins	Parametric method	Allows Scenarios
Time scale →				*Spatial scale*			*Climatic Realm*				*Geo-Environments*				*Recharge types covered*		*Required field work*				*Required Data*							*Available Software*			*Applications in Brazil*				*Results*				
Experimental methods																																							
Lysimeter	+	-	-	+	-	-	+	+	o	-	+	-	-	o	+	-		o	+	+	+	-	-	-	+	o	o	-	-	+	1	-		+	+	-	+	-	-
Tensiometer	+	-	-	+	-	-	o	+	o	-	+	-	-	o	+	-	-	+	+	+	+	-	-	-	+	o	o	-	+	+	2	-			+	-	-	-	-
Soil water balance																																							
Soil water balance	+	o	-	+	+	o	+	+	o	-	+	-	-	+	+	-	+	-	-	-	+	+	+	+	+	-	-	o	o	+	3				+	+	+	+	+
Chloride method	o	+	O	+	o	-	-	o	+	+	+	+	+	o	+	+	+	+	+	-	+	-	-	-	-	-	+	-	-	+	4			+	+	-	-	+	-
Hydrologic water balances for different balance units																																							
Water works data	+	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	+	-	-	-	+	-	-	-	-	+	-	-	5				+	-	-	-	o
Spring discharge	+	-	-	+	+	-	+	+	o	-	+	+	+	+	+	+	+	-	+	o	o	+	-	-	-	-	-	+	-	-	6				+	-	-	-	-
Base flow	+	+	O	o	+	o	+	+	+	-	+	+	+	+	+	+	+	-	+	-	+	+	-	-	-	-!	-!	+			7a	7b	7c		+	-	-	+	-
Aquifer parameters and storage changes																																							
Water level change	+	+	-	+	+	o	+	+	+	+	+	o	o	+	+	+	+	-	+	-	+	-	+	+	-	-!	-!	+		+	8				+	o	-	+	-
Aquifer data (Darcy)	-	+	+	-	+	o	+	+	+	o	+	o	-	+	o	+	+	-	-	-	-	-	+	+	-	-!	-!	+			9a	9b			-	-	-	o	-
Aquifer model	o	+	+	o	+	o	+	+	+	o	+	+	-	+	+	+	+	-	+	-	-	+	+	+	-	-!	-!			+	10a	10b			+	+	-	o	+
Isotope and hydrochemical methods																																							
[18]O stable isotope time series	+	-	-	o	+	o	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	o	-	-	-	+	o	-	-	+	11				+	-	-	-	-
Tritium, [85]Kr, FHC, SF$_6$, other tracers	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	o	o	o	-	+	o	+	+	+	12				-	-	-	+	o
[14]C dating / mixing	-	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	-	+	o	o	o	-	+	o	+	+	+	13				-	o	-	+	o
Development of hydro-geological concept models																															14a	14b	14c						

Table 1   Overview of the most common methods for groundwater recharge estimations and their properties