

WHO / UNICEF

Joint Monitoring Programme
for Water Supply and Sanitation

Estimates for the use of

**Improved Drinking-Water Sources
and Improved Sanitation Facilities**

Updated March 2010

childinfo.org

Access to drinking water sources		DHS86			Brazil			Access to drinking water sources		PNAD90			Brazil		
Demographic and Health Survey		Pesquisa Nacional Sobre Saude Materno-Infantil e Planejamento Familiar, Brasil - 1986. Sociedade Civil Bem-Estar Familiar no Brasil (BEMAF).			1986			IBGE, CD-ROM		1990					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	91.0	32.0			Tap water	91.0								
	House connections	89.0	31.0			House connections	91.0								
Agua Encanada (Cozinha)	Piped water into dwelling	78.0	24.0		Rede geral	Piped water into dwelling	83.0								
Agua encanada (Quintal)	Piped water to yard/plot	11.0	7.0		Rede geral	Piped water to yard/plot	8.0								
Torneira publica	Public tap, standpipe	2.0	1.0			Public tap, standpipe									
	Other					Other									
	Ground water	7.0	46.0		Poco ou nascente	Ground water	6.0								
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
Poco	All wells	5.0	22.0			All wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
Olho d'Agua/Mina/Cacimba	All springs	2.0	24.0			All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water	0.0	16.0			Surface water									
Rio ou Riacho	River	0.0	9.0			River									
	Lake					Lake									
Acude	Dam	0.0	7.0			Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved	2.0	6.0			Other non-improved	3.0								
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
Outro	Other	2.0	6.0		Outro	Other	3.0								
	Other					Other									
	DK/missing					DK/missing									
	Total	100.0	100.0			Total	100.0								
Calculations					Calculations										
Estimations	Improved among other, based on WHS03	0.7	2.1												
	Piped wells, based on CEN90	3.5	18.0			Piped wells, based on CEN90	3.0								
	50% of remaining wells considered improved	1.8	14.0			50% of remaining wells considered improved	1.5								
						Piped wells, based on CEN90 and CEN00 = HCC	3.0								
Access to improved drinking water sources :		97%	66%		Access to improved drinking water sources :		96%								
Access to house connections :		89%	31%		Access to house connections :		94%								
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	No							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	No							
Ratios	HC / Tap water	98%	97%		Ratios	HC / Tap water	100%								
	Public tap / Tap water	2%	3%			Public tap / Tap water									
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
	Proportion of protected wells among protected groundwater	67%	56%												
	Number of people covered by the survey:					Number of people covered by the survey:									
	Number of households covered by the survey:					Number of households covered by the survey:									
	Total population:					Total population:									
Comments					Comments										

Access to drinking water sources		CEN91			Brazil			Access to drinking water sources		PNAD92			Brazil		
National Census								Pesquisa Nacional por Amostra de Domicílios							
10% micro dataset from IPUMS					1991			IBGE, CD-ROM					1992		
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	86.7	9.9			Tap water	89.0								
	House connections	86.7	9.9			House connections	89.0								
General system with indoor plumbing	Piped water into dwelling	79.5	7.1		Rede geral	Piped water into dwelling	83.0								
General system with piped water without indoor plumbing	Piped water to yard/plot	7.2	2.8		Rede geral	Piped water to yard/plot	6.0								
	Public tap, standpipe					Public tap, standpipe									
	Other					Other									
	Ground water	7.8	57.7			Ground water	7.0								
	Protected ground water	3.9	22.6			Protected ground water									
	Unprotected ground water					Unprotected ground water									
Well or spring with indoor plumbing	Protected wells or springs	3.9	22.6			Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
Well or spring without indoor plumbing	All wells	3.9	35.1			All wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources	0.7	1.8			Other improved sources									
Other source with indoor plumbing	Other	0.7	1.8			Other									
	Other					Other									
	Other non-improved	4.1	29.9			Other non-improved	4.0								
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
Other form without indoor plumbing	Other	4.1	29.9		Outro	Other	4.0								
	Other					Other									
Other/missing	DK/missing	0.7	0.8			DK/missing									
	Total	100.0	100.1			Total	100.0								
Calculations					Calculations										
Estimations	Improved among other, based on WHS03	1.4	10.5		Estimations	Piped wells, based on CEN90 and CEN00	4.3								
	50% of wells considered improved	2.0	17.6			50% of remaining wells considered improved	1.4								
						Piped wells, based on CEN90 and CEN00 = HCC	4.3								
	well or spring or other source with indoor plumbing is HCC	4.6	24.4												
Access to improved drinking water sources :		95%	62%		Access to improved drinking water sources :		95%								
Access to house connections :		91%	34%		Access to house connections :		93%								
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	No							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	No							
Ratios	HC / Tap water	100%	100%		Ratios	HC / Tap water	100%								
	Public tap / Tap water					Public tap / Tap water									
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
	Piped wells among all "piped in house"	5%	71%												
	Piped wells among wells	50%	39%												
	Number of people covered by the census					Number of people covered by the survey									
	Number of households covered by the census					Number of households covered by the survey									
	Total population					Total population									
Comments					Comments										

Access to drinking water sources		PNAD93			Brazil			Access to drinking water sources		PNAD95			Brazil		
Pescuisa Nacional por Amostra de Domicilios					Pescuisa Nacional por Amostra de Domicilios										
IBGE, CD-ROM					IBGE, CD-ROM										
					1993								1995		
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	90.0				Tap water	91.0								
	House connections	90.0				House connections	91.0								
Rede geral	Piped water into dwelling	84.0			Rede geral	Piped water into dwelling	86.0								
Rede geral	Piped water to yard/plot	6.0			Rede geral	Piped water to yard/plot	5.0								
	Public tap, standpipe					Public tap, standpipe									
	Other					Other									
Poco ou nascente	Ground water	7.0			Poco ou nascente	Ground water	7.0								
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells					All wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved	3.0				Other non-improved	3.0								
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
Outro	Other	3.0			Outro	Other	3.0								
	Other					Other									
	DK/missing					DK/missing									
	Total	100.0				Total	101.0								
Calculations					Calculations										
Estimations	Piped wells, based on CEN90 and CEN00	4.3			Estimations	Piped wells, based on CEN90 and CEN00	4.3								
	50% of remaining wells considered improved	1.4				50% of remaining wells considered improved	1.4								
	Piped wells, based on CEN90 and CEN00 = HCC	4.3				Piped wells, based on CEN90 and CEN00 = HCC	4.3								
Access to improved drinking water sources :		96%			Access to improved drinking water sources :		97%								
Access to house connections :		94%			Access to house connections :		95%								
	Used for the estimates:	Yes	No			Used for the estimates:	Yes	No							
	Used for the estimates:	Yes	No			Used for the estimates:	Yes	No							
Ratios	HC / Tap water	100%			Ratios	HC / Tap water	100%								
	Public tap / Tap water					Public tap / Tap water									
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
	Number of people covered by the survey:					Number of people covered by the survey:									
	Number of households covered by the survey:					Number of households covered by the survey:									
	Total population:					Total population:									
Comments					Comments										

Access to drinking water sources		PNAD96			Brazil			Access to drinking water sources		DHS96			Brazil		
Pesquisa Nacional por Amostra de Domicílios					Demographic and Health Survey					Pasquisa Nacional Sobre Demografia e Saude, 1996. BEMFAM, IBGE, Ministério da Saude, DHS, USAID, UNFPA, UNICEF					
IBGE, CD-ROM					1996					1996					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	91.0				Tap water	84.3	24.9							
	House connections	91.0				House connections	84.3	24.9							
Rede geral	Piped water into dwelling	88.0			Rede geral em casa	Piped water into dwelling	81.0	20.7							
Rede geral	Piped water to yard/plot	3.0			Rede geral no terreno	Piped water to yard/plot	3.3	4.2							
	Public tap, standpipe					Public tap, standpipe									
	Other					Other									
Poco ou nascente	Ground water	7.0				Ground water	10.3	66.7							
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells					All wells	10.3	66.7							
	Private				Poco no terreno	Private	6.0	40.2							
	Public				Poco for a do terreno	Public	4.3	26.5							
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water				Engarralada	Bottled water	4.1	0.1							
	with other improved					with other improved	4.1	0.1							
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved	2.0				Other non-improved	1.3	8.1							
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
Outro	Other	2.0			Outro	Other	1.3	8.1							
	Other					Other									
	DK/missing					DK/missing									
	Total	100.0				Total	100.0	99.8							
Calculations					Calculations										
Estimations	Piped wells, based on CEN90 and CEN00	4.3			Improved among other, based on WHS03	0.4	2.8								
	50% of remaining wells considered improved	1.4			Piped wells, based on CEN90 and CEN00	6.3	31.4								
	Piped wells, based on CEN90 and CEN00 = HCC	4.3			50% of remaining wells considered improved	2.0	17.7								
					Piped wells, based on CEN90 and CEN00 = HCC	6.3	31.4								
Access to improved drinking water sources :		97%			Access to improved drinking water sources :		97%	77%							
Access to house connections :		95%			Access to house connections :		91%	56%							
	Used for the estimates:	Yes	No			Used for the estimates:	Yes	No							
	Used for the estimates:	Yes	No			Used for the estimates:	Yes	No							
Ratios	HC / Tap water	100%			HC / Tap water	100%	100%								
	Public tap / Tap water				Public tap / Tap water										
	Tubewell + protected well / All wells				Tubewell + protected well / All wells										
	Protected wells / Traditional wells				Protected wells / Traditional wells										
	Tubewell / All wells				Tubewell / All wells										
	Protected springs / All springs				Protected springs / All springs										
	Protect. well & spring / well & spring				Protect. well & spring / well & spring										
	Number of people covered by the survey:				Number of people covered by the survey:										
	Number of households covered by the survey:				Number of households covered by the survey:										
	Total population:				Total population:										
Comments					Comments										

Access to drinking water sources		PNAD97			Brazil			Access to drinking water sources		LSMS97			Brazil		
Pescuisa Nacional por Amostra de Domicilios					Living Standards Measurement Survey										
IBGE, CD-ROM					1997					1997					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	91.0				Tap water	92.5	21.8							
	House connections	91.0			General grid or system	House connections	91.7	21.1							
Rede geral	Piped water into dwelling	87.0				Piped water into dwelling									
Rede geral	Piped water to yard/plot	4.0				Piped water to yard/plot									
	Public tap, standpipe				Public pump or fountain	Public tap, standpipe	0.8	0.7							
	Other					Other									
Poco ou nascente	Ground water	6.0				Ground water	4.5	50.4							
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells					All wells	4.5	50.4							
	Private				Well on the property	Private	3.3	34.9							
	Public				Well off the property	Public	1.2	15.5							
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved	2.0				Other non-improved	3.0	27.8							
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided				Tanker truck	Tanker truck provided	0.3	1.0							
	Other	2.0			Other	Other	2.7	26.8							
	Other					Other									
Outro	DK/missing					DK/missing									
	Total	99.0				Total	100.0	100.0							
Calculations					Calculations										
Estimations	Piped wells, based on CEN90 and CEN00	3.7			Improved among other, based on WHS03	1.0	9.8								
	50% of remaining wells considered improved	1.2			Piped wells, based on CEN90 and CEN00	2.8	23.7								
					50% of remaining wells considered improved	0.9	13.3								
	Piped wells, based on CEN90 and CEN00 = HCC	3.7			Piped wells, based on CEN90 and CEN00 = HCC	2.8	23.7								
Access to improved drinking water sources :		96%			Access to improved drinking water sources :		97%	69%							
Access to house connections :		95%			Access to house connections :		94%	45%							
Used for the estimates:		Yes	No		Used for the estimates:		Yes	Yes							
Used for the estimates:		Yes	No		Used for the estimates:		Yes	Yes							
Ratios	HC / Tap water	100%			HC / Tap water	99%	97%								
	Public tap / Tap water				Public tap / Tap water	1%	3%								
	Tubewell + protected well / All wells				Tubewell + protected well / All wells										
	Protected wells / Traditional wells				Protected wells / Traditional wells										
	Tubewell / All wells				Tubewell / All wells										
	Protected springs / All springs				Protected springs / All springs										
	Protect. well & spring / well & spring				Protect. well & spring / well & spring										
Number of people covered by the survey:					Number of people covered by the survey:										
Number of households covered by the survey:					Number of households covered by the survey:										
Total population:					Total population:										
Comments					Comments										

Access to drinking water sources		JMP99			Brazil			Access to drinking water sources		CEN00			Brazil		
Global Water Supply and Sanitation Assessment 2000.					Censo Demográfico					2000					
Water Supply and Sanitation Sector Questionnaire - 1999. Form 6 sent to WHO.					1998					resultados de universo					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
Population served with household connection.	Tap water	90.6	19.7			Tap water	89.1	17.8							
	House connections	90.6	19.7			House connections	89.1	17.8							
	Piped water into dwelling				Canalizada em pelo menos um comodo	Piped water into dwelling	83.6	12.4							
	Piped water to yard/plot				canalizada so na propriedade ou terreno	Piped water to yard/plot	5.5	5.4							
	Public tap, standpipe					Public tap, standpipe									
	Other					Other									
Population without household connection but with reasonable access to a public.	Ground water	6.7	60.4			Ground water	7.6	56.4							
	Protected ground water	6.7	60.4			Protected ground water	5.5	31.0							
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs	5.5	31.0							
	Private				Well/Spring Canalizada em pelo menos um comodo	Private	4.9	26.3							
	Public					Public									
	Other				Well/Spring Canalizada so na propriedade ou terreno	Other	0.6	4.7							
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells				Well/Spring not piped	All wells	2.1	25.4							
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
Total population unserved	Other non-improved	2.7	19.9			Other non-improved	3.3	25.8							
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
	Other				Other	Other	3.3	25.8							
	Other					Other									
	DK/missing					DK/missing									
	Total	100.0	100.0			Total	100.0	100.0							
Calculations					Calculations										
Estimations					Estimations	Improved among other, based on WHS03	1.1	9.1							
						50% of wells considered improved	1.1	12.7							
						Well/Spring Canalizada is HCC	5.5	31.0							
Access to improved drinking water sources :		97%	80%		Access to improved drinking water sources :		97%	71%							
Access to house connections :		91%	20%		Access to house connections :		95%	49%							
Used for the estimates :		No	No		Used for the estimates :		Yes	Yes							
Used for the estimates :		No	No		Used for the estimates :		Yes	Yes							
Ratios	HC / Tap water	100%	100%		Ratios	HC / Tap water	100%	100%							
	Public tap / Tap water					Public tap / Tap water									
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
					Piped wells among all "piped in house"	6%	64%								
					wells among "not improved"	39%	50%								
					Piped wells among wells	72%	55%								
Number of people covered by the survey:					Number of people covered by the census:										
Number of households covered by the survey:					Number of households covered by the census:										
Total population:		124139	31741		Total population:										
Comments					Comments										

Access to drinking water sources		PNAD03			Brazil			Access to drinking water sources		WHS03			Brazil		
Pesquisa Nacional por Amostra de Domicílios					World Health Survey										
IBGE, CD-ROM					2003					2003					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	91.4	25.7			Tap water	95.4	43.8							
	House connections	88.8	19.6			House connections	94.2	39.5							
Com canalização interna, Rede geral	Piped water into dwelling				Piped water through house connection or yard	Piped water into dwelling									
	Piped water to yard/plot					Piped water to yard/plot									
Sem canalização interna, rede geral	Public tap, standpipe	2.6	6.1		Public standpipe	Public tap, standpipe	1.3	4.4							
	Other					Other									
	Ground water	5.2	35.3			Ground water	3.6	43.8							
	Protected ground water	5.2	35.3			Protected ground water	3.1	36.4							
	Unprotected ground water					Unprotected ground water	0.5	7.5							
	Protected wells or springs	5.2	35.3		Protected dug well or protected spring	Protected wells or springs	1.5	4.5							
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs				Unprotected dug well or spring	Unprotected wells or springs	0.5	7.5							
	Private					Private									
	Public					Public									
	Other					Other									
	All wells	5.2	35.3			All wells	1.6	31.9							
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole				Protected tube well or bore hole	Tubewell, borehole	1.6	31.9							
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells	5.2	35.3			Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
Com canalização interna, outro	Protected well	5.2	35.3			Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater	0.3	4.3							
	Covered cistern/tank				Rainwater (into tank or cistern)	Covered cistern/tank	0.3	4.3							
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water				Water taken directly from pond-water or stream	Surface water	0.2	5.9							
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved	3.4	39.0			Other non-improved	0.5	2.1							
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided				Tanker-truck, vendor	Tanker truck provided	0.5	2.1							
Outro	Other	3.4	39.0			Other									
	Other					Other									
Sem declaração	DK/missing	0.0	0.0			DK/missing									
	Total	100.0	100.0			Total	100.0	100.0							
Calculations	Estimation of wells among "others", based on CEN00	1.3	19.3		Calculations										
Estimations	50% of wells considered improved	0.7	9.7		Estimations										
	Com canalização interna, outro	5.2	35.3			Piped wells, based on CEN00 = HCC	2.2	20.0							
Access to improved drinking water sources :		97%	71%		Access to improved drinking water sources :		99%	85%							
Access to house connections :		94%	55%		Access to house connections :		96%	59%							
Used for the estimates :		No	No		Used for the estimates :		Yes	Yes							
Used for the estimates :		No	No		Used for the estimates :		Yes	Yes							
Ratios	HC / Tap water	97%	76%		Ratios	HC / Tap water	99%	90%							
	Public tap / Tap water	3%	24%			Public tap / Tap water	1%	10%							
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells	100%	100%			Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells	100%	100%							
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring	75%	37%							
						Improved among other (all except piped and wells)	34%	35%							
Number of people covered by the survey:					Number of people covered by the survey:										
Number of households covered by the survey:					Number of households covered by the survey:										
Total population:					Total population:										
Comments	Not used: category "Outro" is too high.				Comments										

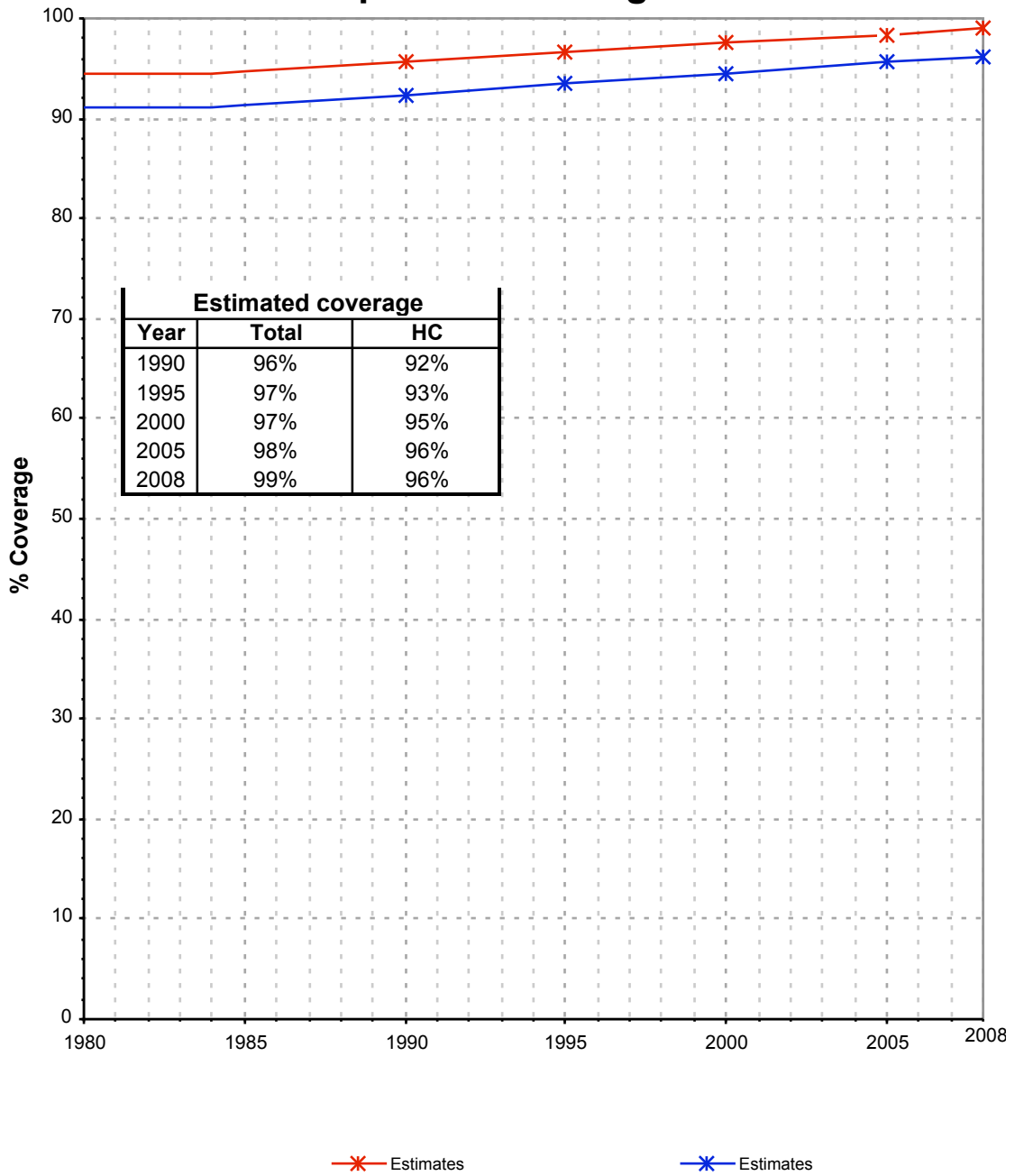
Access to drinking water sources		PNAD01			Brazil			Access to drinking water sources		PNAD02			Brazil		
Pescuisa Nacional por Amostra de Domicilios					Pescuisa Nacional por Amostra de Domicilios										
IBGE					IBGE										
		2001								2002					
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	96.8	54.4			Tap water	96.5	57.1							
	House connections	87.7	15.5			House connections	88.5	17.9							
Com canalizaco interna, Rede general	Piped water into dwelling	87.7	15.5		Com canalizaco interna, Rede general	Piped water into dwelling	88.5	17.9							
	Piped water to yard/plot					Piped water to yard/plot									
Sem canalizaco interna,com rede general	Public tap, standpipe	3.2	5.4		Sem canalizaco interna,com rede general	Public tap, standpipe	2.8	4.8							
Com canalizaco interna, outro	Other	4.9	33.5		Com canalizaco interna, outro	Other	5.2	34.4							
Sem canalizaco interna, outro	Ground water	4.1	45.5		Sem canalizaco interna, outro	Ground water	3.5	42.9							
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells					All wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other non-improved					Other non-improved									
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
	Other					Other									
	Other					Other									
Outro					Outro										
Sem declaraco	DK/missing				Sem declaraco	DK/missing									
	Total	100.0	100.0			Total	100.0	100.0							
Calculations					Calculations										
Estimations					Estimations										
	50% of groundwater considered improved	2.1	22.8			50% of groundwater considered improved	1.7	21.4							
	Com canalizaco interna, outro = HCC	4.9	33.5			Com canalizaco interna, outro = HCC	5.2	34.4							
Access to improved drinking water sources :		98%	77%		Access to improved drinking water sources :		98%	79%							
Access to house connections :		93%	49%		Access to house connections :		94%	52%							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	Yes							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	Yes							
Ratios	HC / Tap water	92%	28%		Ratios	HC / Tap water	92%	31%							
	Public tap / Tap water	3%	10%			Public tap / Tap water	3%	8%							
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
	Number of people covered by the survey:					Number of people covered by the survey:									
	Number of households covered by the survey:					Number of households covered by the survey:									
	Total population:	141263	27175			Total population:	145184	27337							
Comments					Comments										

Access to drinking water sources		PNAD03			Brazil			Access to drinking water sources		PNAD04			Brazil		
Pescuisa Nacional por Amostra de Domicilios					Pescuisa Nacional por Amostra de Domicilios										
IBGE					IBGE										
		2003					2004								
Original denomination	Classification	Urban	Rural	Total	Original denomination	Classification	Urban	Rural	Total						
	Tap water	96.6	61.0			Tap water	97.0	59.9							
	House connections	88.8	19.6			House connections	89.5	19.7							
Com canalização interna, Rede general	Piped water into dwelling	88.8	19.6		Com canalização interna, Rede general	Piped water into dwelling	89.5	19.7							
	Piped water to yard/plot					Piped water to yard/plot									
Sem canalização interna,com rede general	Public tap, standpipe	2.6	6.1		Sem canalização interna,com rede general	Public tap, standpipe	2.5	5.5							
Com canalização interna, outro	Other	5.2	35.3		Com canalização interna, outro	Other	5.0	34.8							
Sem canalização interna, outro	Ground water	3.4	39.0		Sem canalização interna, outro	Ground water	3.0	40.1							
	Protected ground water					Protected ground water									
	Unprotected ground water					Unprotected ground water									
	Protected wells or springs					Protected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected wells or springs					Unprotected wells or springs									
	Private					Private									
	Public					Public									
	Other					Other									
	All wells					All wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Tubewell, borehole					Tubewell, borehole									
	Private					Private									
	Public					Public									
	Other					Other									
	Traditional wells					Traditional wells									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected well					Protected well									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected well					Unprotected well									
	Private					Private									
	Public					Public									
	Other					Other									
	All springs					All springs									
	Private					Private									
	Public					Public									
	Other					Other									
	Protected spring					Protected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Unprotected spring					Unprotected spring									
	Private					Private									
	Public					Public									
	Other					Other									
	Rainwater					Rainwater									
	Covered cistern/tank					Covered cistern/tank									
	Uncovered cistern/tank					Uncovered cistern/tank									
	Bottled water					Bottled water									
	with other improved					with other improved									
	without other improved					without other improved									
	Surface water					Surface water									
	River					River									
	Lake					Lake									
	Dam					Dam									
	Pond					Pond									
	Stream					Stream									
	Irrigation channel					Irrigation channel									
	Other					Other									
	Other improved sources					Other improved sources									
	Other					Other									
	Other					Other									
	Other non-improved					Other non-improved									
	Cart with small tank/drum					Cart with small tank/drum									
	Tanker truck provided					Tanker truck provided									
Outro	Other				Outro	Other									
	Other					Other									
Sem declaração	DK/missing				Sem declaração	DK/missing									
	Total	100.0	100.0			Total	100.0	100.0							
Calculations					Calculations										
Estimations					Estimations										
	50% of groundwater considered improved	1.7	19.5			50% of groundwater considered improved	1.5	20.0							
	Com canalização interna, outro = HCC	5.2	35.3			Com canalização interna, outro = HCC	5.0	34.8							
Access to improved drinking water sources :		98%	80%		Access to improved drinking water sources :		98%	80%							
Access to house connections :		94%	55%		Access to house connections :		95%	54%							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	Yes							
	Used for the estimates:	Yes	Yes			Used for the estimates:	Yes	Yes							
Ratios	HC / Tap water	92%	32%		Ratios	HC / Tap water	92%	33%							
	Public tap / Tap water	3%	10%			Public tap / Tap water	3%	9%							
	Tubewell + protected well / All wells					Tubewell + protected well / All wells									
	Protected wells / Traditional wells					Protected wells / Traditional wells									
	Tubewell / All wells					Tubewell / All wells									
	Protected springs / All springs					Protected springs / All springs									
	Protect. well & spring / well & spring					Protect. well & spring / well & spring									
	Number of people covered by the survey:					Number of people covered by the survey:									
	Number of households covered by the survey:					Number of households covered by the survey:									
	Total population:	147742	27472			Total population:	150452	30819							
Comments					Comments										

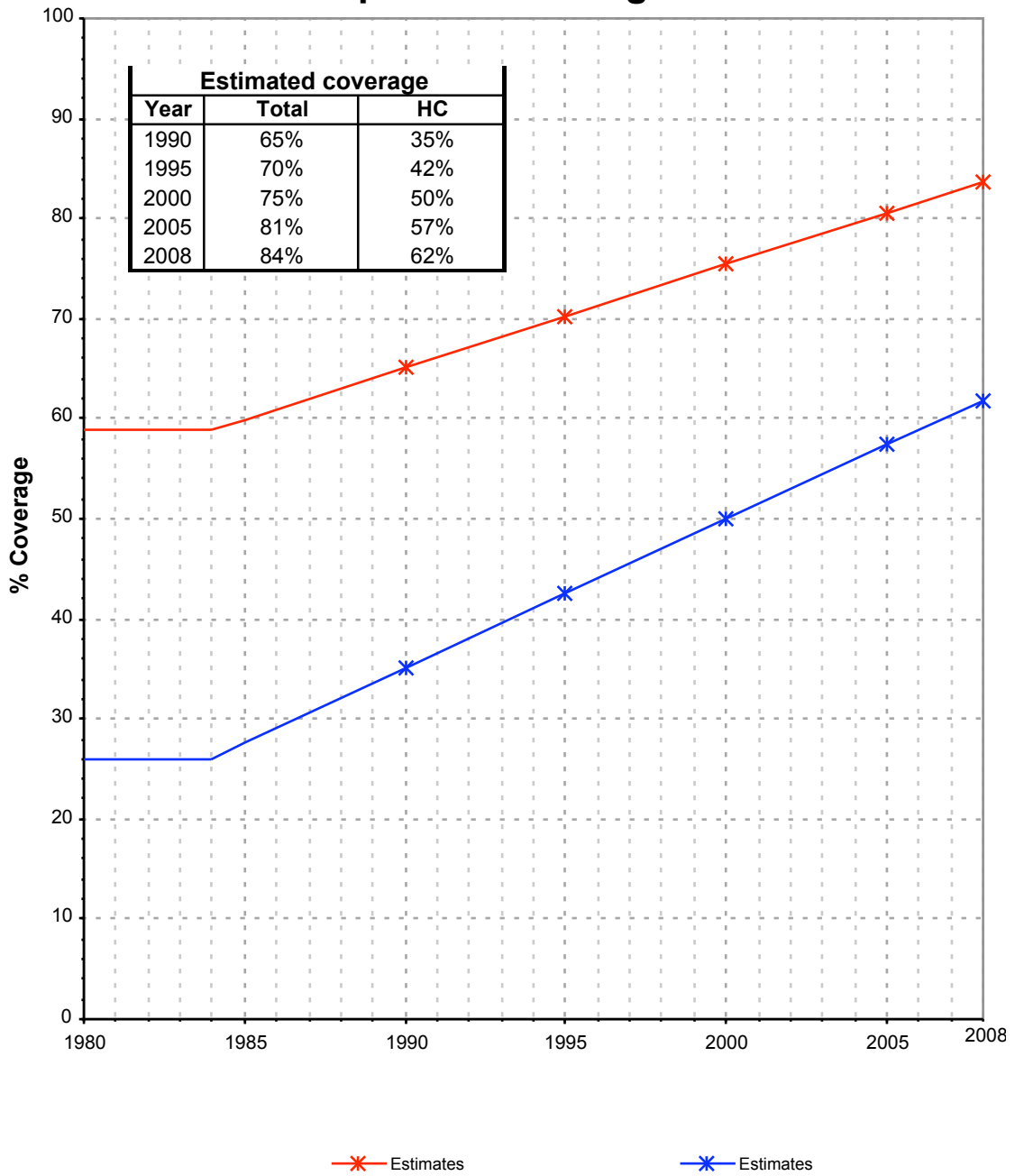
Access to drinking water sources		PNAD05			Brazil			Access to drinking water sources		PNAD06			Brazil		
Pescuisa Nacional por Amostra de Domicilios					Pescuisa Nacional por Amostra de Domicilios										
IBGE					IBGE										
Original denomination		Classification			Urban	Rural	Total	Original denomination		Classification			Urban	Rural	Total
		Tap water			97.4	61.7				Tap water			97.7	64.0	
		House connections			89.8	21.1				House connections			90.9	21.7	
Com canalização interna, Rede general		Piped water into dwelling			89.8	21.1		Com canalização interna, Rede general		Piped water into dwelling			90.9	21.7	
		Piped water to yard/plot								Piped water to yard/plot					
Sem canalização interna,com rede general		Public tap, standpipe			2.2	5.7		Sem canalização interna,com rede general		Public tap, standpipe			1.8	5.7	
Com canalização interna, outro		Other			5.4	34.9		Com canalização interna, outro		Other			5.1	36.6	
Sem canalização interna, outro		Ground water			2.6	38.3		Sem canalização interna, outro		Ground water			2.3	36.0	
		Protected ground water								Protected ground water					
		Unprotected ground water								Unprotected ground water					
		Protected wells or springs								Protected wells or springs					
		Private								Private					
		Public								Public					
		Other								Other					
		Unprotected wells or springs								Unprotected wells or springs					
		Private								Private					
		Public								Public					
		Other								Other					
		All wells								All wells					
		Private								Private					
		Public								Public					
		Other								Other					
		Tubewell, borehole								Tubewell, borehole					
		Private								Private					
		Public								Public					
		Other								Other					
		Traditional wells								Traditional wells					
		Private								Private					
		Public								Public					
		Other								Other					
		Protected well								Protected well					
		Private								Private					
		Public								Public					
		Other								Other					
		Unprotected well								Unprotected well					
		Private								Private					
		Public								Public					
		Other								Other					
		All springs								All springs					
		Private								Private					
		Public								Public					
		Other								Other					
		Protected spring								Protected spring					
		Private								Private					
		Public								Public					
		Other								Other					
		Unprotected spring								Unprotected spring					
		Private								Private					
		Public								Public					
		Other								Other					
		Rainwater								Rainwater					
		Covered cistern/tank								Covered cistern/tank					
		Uncovered cistern/tank								Uncovered cistern/tank					
		Bottled water								Bottled water					
		with other improved								with other improved					
		without other improved								without other improved					
		Surface water								Surface water					
		River								River					
		Lake								Lake					
		Dam								Dam					
		Pond								Pond					
		Stream								Stream					
		Irrigation channel								Irrigation channel					
		Other								Other					
		Other improved sources								Other improved sources					
		Other								Other					
		Other non-improved								Other non-improved					
		Cart with small tank/drum								Cart with small tank/drum					
		Tanker truck provided								Tanker truck provided					
Outro		Other						Outro		Other					
		Other								Other					
Sem declaração		DK/missing						Sem declaração		DK/missing					
		Total			100.0	100.0				Total			100.0	100.0	
Calculations								Calculations							
Estimations								Estimations							
		50% of groundwater considered improved			1.3	19.2				50% of groundwater considered improved			1.1	18.0	
		Com canalização interna, outro = HCC			5.4	34.9				Com canalização interna, outro = HCC			5.1	36.6	
		Access to improved drinking water sources :			99%	81%				Access to improved drinking water sources :			99%	82%	
		Access to house connections :			95%	56%				Access to house connections :			96%	58%	
		Used for the estimates:			Yes	Yes				Used for the estimates:			Yes	Yes	
		Used for the estimates:			Yes	Yes				Used for the estimates:			Yes	Yes	
Ratios		HC / Tap water			92%	34%		Ratios		HC / Tap water			93%	34%	
		Public tap / Tap water			2%	9%				Public tap / Tap water			2%	9%	
		Tubewell + protected well / All wells								Tubewell + protected well / All wells					
		Protected wells / Traditional wells								Protected wells / Traditional wells					
		Tubewell / All wells								Tubewell / All wells					
		Protected springs / All springs								Protected springs / All springs					
		Protect. well & spring / well & spring								Protect. well & spring / well & spring					
		Standpipe among "Rede general"			2%	21%				Standpipe among "Rede general"			2%	21%	
		Number of people covered by the survey:								Number of people covered by the survey:					
		Number of households covered by the survey:								Number of households covered by the survey:					
		Total population:			152194	31624				Total population:			155194	31168	
Comments								Comments							

Brazil			DRINKING WATER								
			URBAN				RURAL				
			House connection		Total		House connection		Total		
Source	Code	Year	Used	Not used	Used	Not used	Used	Not used	Used	Not used	
Demographic and Health Survey	DHS86	1986	89.0		96.9			31.0		66.1	
Pescuisa Nacional por Amostra de Domicilios	PNAD90	1990	94.0		95.5						
National Census	CEN91	1991	91.3		94.6			34.3		62.4	
Pescuisa Nacional por Amostra de Domicilios	PNAD92	1992	93.3		94.6						
Pescuisa Nacional por Amostra de Domicilios	PNAD93	1993	94.3		95.6						
Pescuisa Nacional por Amostra de Domicilios	PNAD95	1995	95.3		96.6						
Pescuisa Nacional por Amostra de Domicilios	PNAD96	1996	95.3		96.6						
Demographic and Health Survey	DHS96	1996	90.6		97.1				56.3		76.9
Pescuisa Nacional por Amostra de Domicilios	PNAD97	1997	94.7		95.8						
Living Standarts Measurement Survey	LSMS97	1997	94.5		97.1			44.8		68.6	
Pescuisa Nacional por Amostra de Domicilios	PNAD98	1998	95.7		97.5			48.2		71.1	
Pescuisa Nacional por Amostra de Domicilios	PNAD99	1999	95.7		97.5						
Global Water Supply and Sanitation Assessment 2000.	JMP99	1998		90.6		97.3			19.7		80.1
Censo Demográfico	CEN00	2000	94.6		96.8			48.8		70.6	
Pescuisa Nacional por Amostra de Domicilios	PNAD03	2003		94.0		97.3			54.9		70.7
World Health Survey	WHS03	2003	96.4		98.9			59.5		84.5	
Pescuisa Nacional por Amostra de Domicilios	PNAD01	2001	92.6		97.9			49.0		77.2	
Pescuisa Nacional por Amostra de Domicilios	PNAD02	2002	93.7		98.2			52.3		78.6	
Pescuisa Nacional por Amostra de Domicilios	PNAD03	2003	94.0		98.3			54.9		80.5	
Pescuisa Nacional por Amostra de Domicilios	PNAD04	2004	94.5		98.5			54.5		80.0	
Pescuisa Nacional por Amostra de Domicilios	PNAD05	2005	95.2		98.7			56.0		80.8	
Pescuisa Nacional por Amostra de Domicilios	PNAD06	2006	96.0		98.9			58.3		82.0	
Pescuisa Nacional por Amostra de Domicilios	PNAD07	2007	96.4		98.9			61.9		83.1	
Pescuisa Nacional	PNDS06	2006		77.9	97.7				58.0	79.8	

Brazil - urban - Use of improved drinking water sources



Brazil - rural - Use of improved drinking water sources



Drinking Water

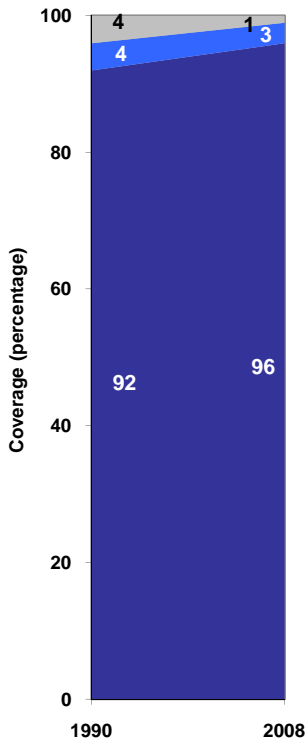
Brazil	Drinking water coverage estimates					
	Urban (%)		Rural (%)		Total (%)	
	1990	2008	1990	2008	1990	2008
Piped into premises	92	96	35	62	78	91
Other improved source	4	3	30	22	10	6
Unimproved source	4	1	35	16	12	3

Source: WHO/UNICEF JMP, 2010

Brazil	Urban		Rural		Total	
	1990	2008	1990	2008	1990	2008
Population (x1000)	111,888	164,497	37,683	27,475	149,570	191,972

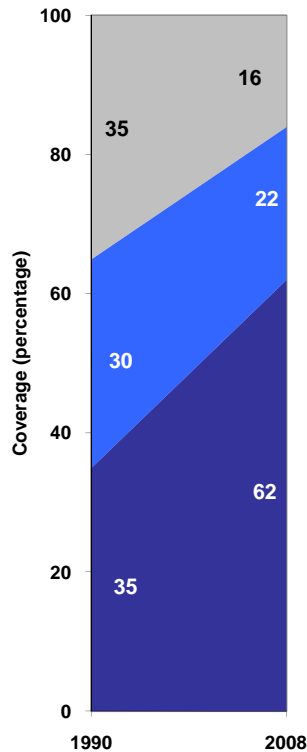
Source: UN / Population Division, 2008

Urban drinking water trends



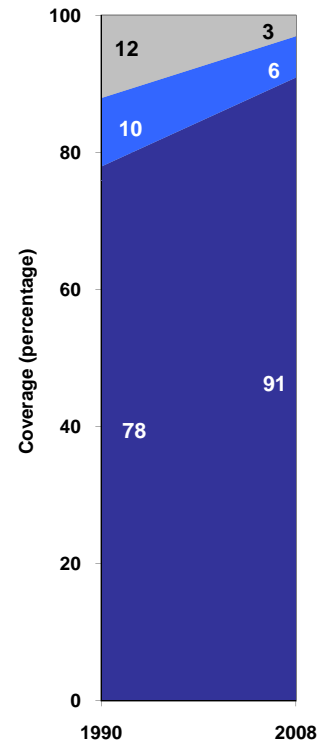
- Unimproved sources
- Other improved sources
- Piped onto premises

Rural drinking water trends



- Unimproved sources
- Other improved sources
- Piped onto premises

Total drinking water trends



- Unimproved sources
- Other improved sources
- Piped onto premises