

1 **SUPPLEMENTAL MATERIAL**

2 **Definition of the set of initial indicators embracing sustainability of water companies**

3 Social indicators

4 (IS1) Service coverage: Percentage of the total number of households located in the intervention
5 area for which the water supply company provides effective connected service.

6 (IS2) Drinking water quality safety: Percentage of water supplied that meets the legal
7 requirements regarding quality parameters.

8 (IS3) Reserve capacity for treated water: Capacity of the water company to supply water to
9 customers if new water resources are not available.

10 (IS4) Certification of management systems for occupational risk and health issues at work.

11 (IS5) Other certifications involving multiple issues such as corporate social responsibility and
12 consumer protection mechanisms.

13 Environmental indicators

14 (IEN1) Water losses in the network: Volume of drinking water lost per kilometer of main per day.

15 (IEN2) Internal power generation by the water company: Percentage of energy generated by the
16 water company in relation to its own needs.

17 (IEN3) Energy efficiency in pumping water: Average consumption of energy for water pumping,
18 taking into account the depth of the well.

19 (IEN4) Certification of management systems for issues such as environmental responsibility and
20 environmental impact assessment mechanisms.

21 (IEN5) Certification of management systems for water quality issues.

22 Economic Indicators

23 (IEC1) Non-revenue water: Percentage of water that it is supplied but it is not invoiced.

24 (IEC2) Adequacy of staffing: Number of full-time equivalent (FTE) employees per 1000 water
25 supply connections.

26 (IEC3) Operating cost coverage ratio: The ratio between total annual operational revenues and
27 total annual operational costs.

(IEC4) Index of knowledge about infrastructure and asset management: An index ranging between 0 and 100, calculated by the water regulator based on the information available about infrastructure, interventions performed and level of asset management conducted by the water company.

Example of computations to compute the dynamic synthetic indicator for a water company

We calculated $NGPI$ for Infraquinta water company (year 2012 and 2015) in order to illustrate how to obtain the proposed dynamic indicator it and its decomposition. For this, it can be used expression (9) or (10). We select expression (10) that was applied in Section 4.

Breakdown of the calculation of $NGPI_a^{2012[u^{2012}]}$ (Unit a : Infraquinta)

	u[2012] (u _i)	INFRAQUINTA t _i =2012	p ⁺ _{aj_t1} /u _j [t _i]	n ⁺ _{aj_t1} /u _j [t _i]	p ⁻ _{akt₁} / u _k [t _i]	n ⁻ _{akt₁} / u _k [t _i]
IS1(+)	69.78	99.90	(99.90-69.78)/68.78 = 0.43			
IS2(+)	78.99	100.00	0.27			
IS3(+)	1.22	1.00		(1.22-1.00)/1.22 = 0.18		
IS4(+)	0.07	0.00		1.00		
IS5(+)	0.08	0.00		1.00		
IS6(-)	160.45	220.00			0.37	
IS7 (+)	0.50	0.00		1.00		
IS8(-)	1.05	0.53				0.50
IS9(+)	0.09	1.00	10.52			
IS10(+)	0.21	1.00	3.74			
IS11(-)	45.21	13.10				0.71
IS12(-)	3.05	6.20			1.03	
IS13(+)	77.40	110.00	0.42			
IS14(+)	40.36	50.00	0.24			
		$\sum_{j \in J} \frac{w_j(p_{aj}^+ - n_{aj}^+)}{u_j^+}$:	0.88846			
		$\sum_{k \in K} \frac{w_k(n_{ak}^- - p_{ak}^-)}{u_k^-}$:			-0.01403	
		$NGPI_a^{2012[u^{2012}]}$:	0.888 + (-0.014) = 0.874			

$J = \{IS1, IS2, IS3, IS4, IS5, IS7, IS9, IS10, IS13, IS14\}$; $K = \{IS6, IS8, IS11, IS12\}$; $w = 1/14$ (for each indicator).

Note that, on the one hand, for a positive indicator:

a) if its value is greater than the aspiration level, then there is a strength $p_{aj}^+ = I_{aj}^+ - u_j^+$

b) if its value is lower than the aspiration level, then there is a weakness $n_{aj}^+ = u_j^+ - I_{aj}^+$

43 On the other hand, for a negative indicator:

44 a) if its value is greater than the aspiration level, then there is a weakness: $p_{ak}^- = I_{ak}^- - u_k^-$

45 b) if its value is lower than the aspiration level, then there is a strength: $n_{ak}^- = u_k^- - I_{ak}^-$

46 In a similar way:

47 Breakdown of the calculation of $NGPI_a^{2015[u2015]}$

	u[2015] (u ₂)	INFRAQUINTA t ₂ =2015	p _{aj} t ₂ /u _j [t ₂]	n _{aj} t ₂ /u _j [t ₂]	p _{akt} 2/ u _k [t ₂]	n _{akt} 2/ u _k [t ₂]
IS1(+)	69.62	99.60	0.43			
IS2(+)	79.40	100.00	0.26			
IS3(+)	1.19	1.20	0.01			
IS4(+)	0.14	0.00		1.00		
IS5(+)	0.09	0.00		1.00		
IS6(-)	155.17	58.00				0.63
IS7 (+)	0.57	14.00	23.54			
IS8(-)	1.06	0.50				0.53
IS9(+)	0.15	1.00	5.72			
IS10(+)	0.26	1.00	2.84			
IS11(-)	44.28	6.30				0.86
IS12(-)	2.75	6.40			1.33	
IS13(+)	76.16	126.00	0.65			
IS14(+)	41.85	90.00	1.15			
		$\sum_{j \in J} \frac{w_j(p_{aj}^+ - n_{aj}^+)}{u_j^+}$:	2.32858			
		$\sum_{k \in K} \frac{w_k(n_{ak}^- - p_{ak}^-)}{u_k^-}$:			0.04865	
		NGPI_a^{2015[u2015]}:	2.329+0.049 = 2.378			

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49 Consequently,

50 $\Delta NGPI_a^{2012[u2012]:2015[u2015]} = NGPI_a^{2015[u2015]} - NGPI_a^{2012[u2012]} = 2.38 - 0.87 = 1.51$

51 To decompose this variation (according to expression (10)), we have to calculate

52 $NGPI_a^{2015[u2012]}$

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54 Breakdown of the calculation of $NGPI_a^{2015[u2012]}$

	u[2012] (u ₁)	INFRAQUINTA t ₂ =2015	$\hat{p}_{ajt_2}^+/u_j[t_1]$	$\hat{n}_{ajt_2}^+/u_j[t_1]$	$\hat{p}_{akt_2}^-/u_k[t_1]$	$\hat{n}_{akt_2}^-/u_k[t_1]$
IS1(+)	69.78	99.60	0.43			
IS2(+)	78.99	100.00	0.27			
IS3(+)	1.22	1.20		0.02		
IS4(+)	0.07	0.00		1.00		
IS5(+)	0.08	0.00		1.00		
IS6(-)	160.45	58.00				0.64
IS7 (+)	0.50	14.00	26.87			
IS8(-)	1.05	0.50				0.53
IS9(+)	0.09	1.00	10.52			
IS10(+)	0.21	1.00	3.74			
IS11(-)	45.21	6.30				0.86
IS12(-)	3.05	6.40			1.10	
IS13(+)	77.40	126.00	0.63			
IS14(+)	40.36	90.00	1.23			
		$\sum_{j \in J} \frac{w_j(\hat{p}_{aj}^+ - \hat{n}_{aj}^+)}{u_j^+}$:	2.97617			
		$\sum_{k \in K} \frac{w_k(\hat{n}_{ak}^- - \hat{p}_{ak}^-)}{u_k^-}$:			0.06618	
		$NGPI_a^{2015[u2012]}$:	2.976 + 0.066 = 3.042			

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56 Catch-up effect:

57 $\Delta NGPI_a^{2012[u2012]:2015[u2012]} = NGPI_a^{2015[u2015]} - NGPI_a^{2015[u2012]} = 2.38 - 3.04 = -0.67$

58 Innovation effect:

59 $\Delta NGPI_a^{2015[u2012]:2015[u2015]} = NGPI_a^{2015[u2012]} - NGPI_a^{2012[u2012]} = 3.04 - 0.87 = 2.17$

60 Therefore, the dynamic indicator can be decomposed as follows (see expression (10)):

61 $\Delta NGPI_a^{2012[u2012]:2015[u2015]} = -0.67 + 2.17$

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Sustainability change of the water companies with the best and worst evolution across time

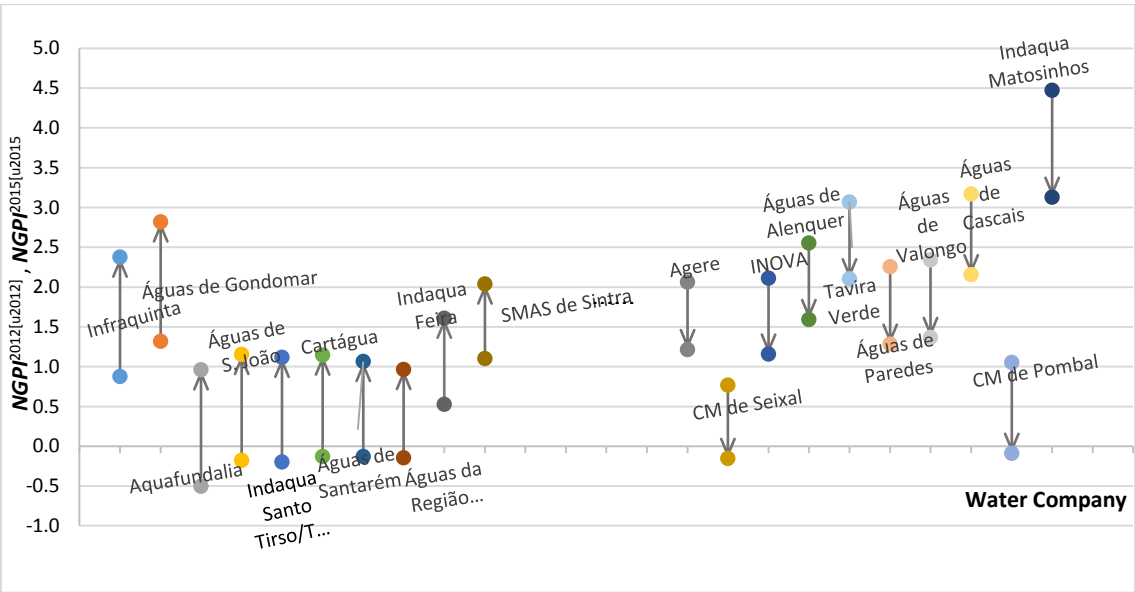


Figure S1. Synthetic indicator of sustainability for 2012 and 2015 for the 20 water companies that present the best and worst evolution.

Decomposition of the dynamic synthetic indicator under the first methodological alternative reported on section 2 (expression (9)).

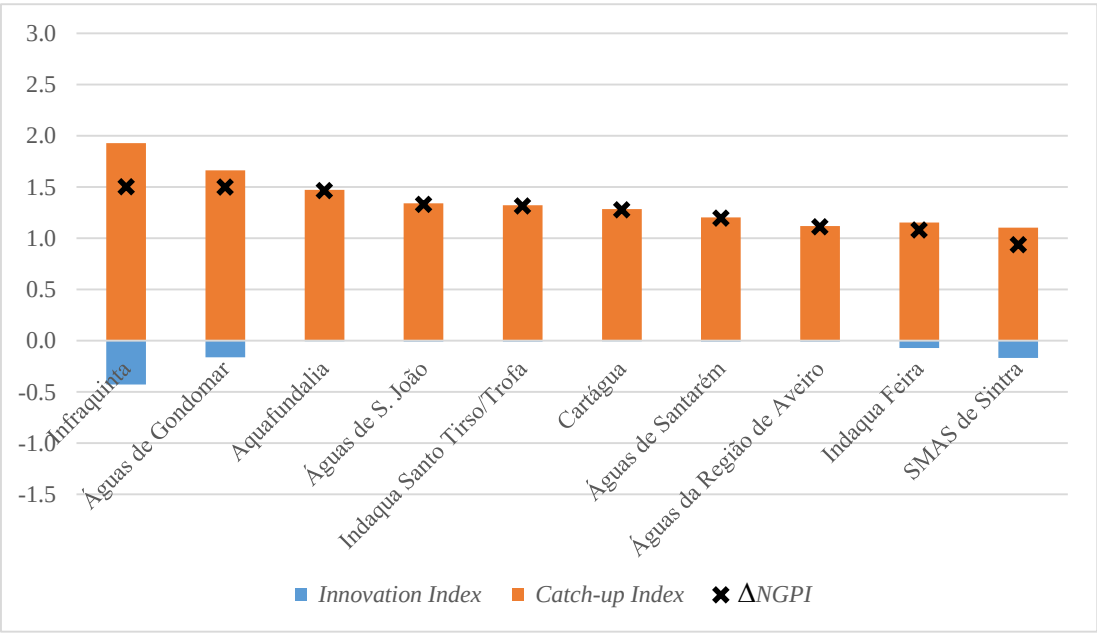


Figure S2. Decomposition of the dynamic net goal programming indicator ($\Delta NGPI$) into innovation ($\Delta NGPI_a^{t_1[u_1]:t_1[u_2]}$) and catch-up ($\Delta NGPI_a^{t_1[u_2]:t_2[u_2]}$) index for the 10 water companies that have improved the most its sustainability.

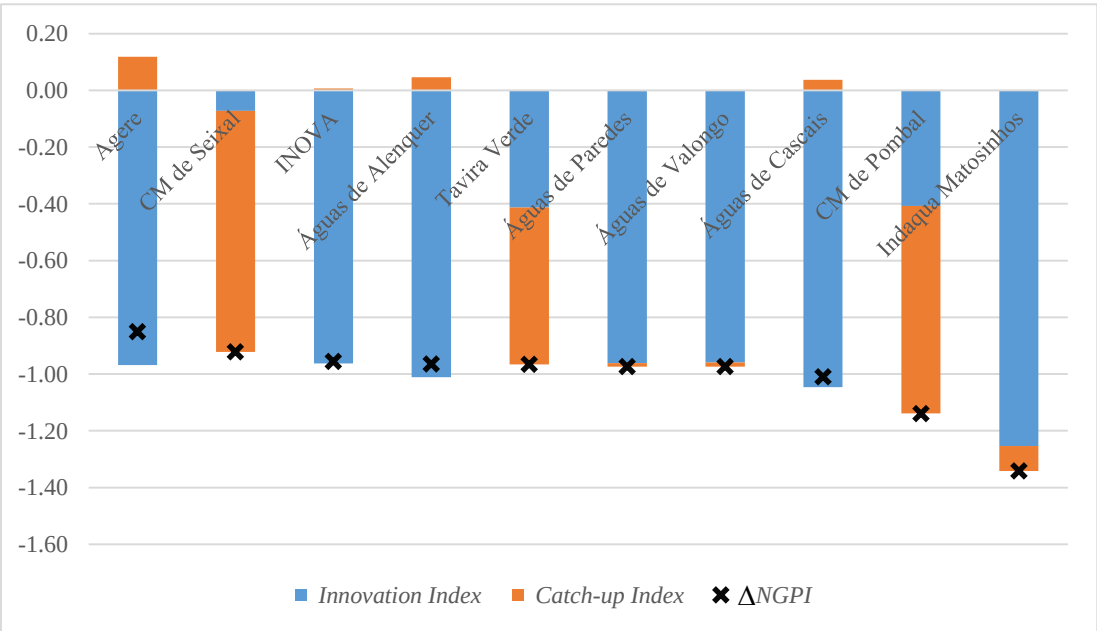


Figure S3. Decomposition of the dynamic net goal programming indicator ($\Delta NGPI$) into innovation ($\Delta NGPI_a^{t_1[u_1]:t_1[u_2]}$) and catch-up ($\Delta NGPI_a^{t_1[u_2]:t_2[u_2]}$) index for the 10 water companies that have worsened the most its sustainability.

83 Sustainability synthetic indicator for 2012 and 2015 and its change for all water
84 companies evaluated

Water company	Sustainability 2012 ($NGPI^{2012[u2012]}$)	Ranking 2012	Sustainability 2015 ($NGPI^{2015[u2015]}$)	Ranking 2015	Sustainability Change 2015-2012 $\Delta NGPI^{2012[u2012]:2015[u2015]}$
Infraquinta	0.87	21	2.38	3	1.51
Á. de Gondomar	1.32	14	2.82	2	1.50
Aquafundalia	-0.51	127	0.96	27	1.47
Á. de S. João	-0.18	75	1.15	20	1.33
Indaqua Santo Tirso	-0.20	82	1.12	22	1.32
Cartágua	-0.13	64	1.15	21	1.27
Á. de Santarém	-0.13	63	1.07	24	1.19
Á. da Região de Aveiro	-0.15	68	0.97	26	1.12
Indaqua Feira	0.53	31	1.61	10	1.08
SMAS de Sintra	1.10	16	2.04	6	0.94
Indaqua Vila do Conde	0,18	39	1,10	23	0,91
Fagar - Faro	0.51	33	1.28	16	0.77
CM de Grândola	-0.53	128	-0.33	108	0.20
CM de Avis	-0.64	129	-0.47	126	0.17
CM de Vila Verde	0.01	50	0.16	43	0.15
Aquaervas	1.11	15	1.26	17	0.15
CM de Vimioso	0.04	48	0.18	41	0.15
CM de Nelas	-0.46	125	-0.32	107	0.14
CM de Almeida	-0.35	115	-0.24	87	0.12
SMAS de Vila Franca de Xira	0.06	44	0.16	42	0.11
CM de Póvoa de Varzim	-0.41	119	-0.31	105	0.10
CM de Mourão	-0.42	123	-0.33	109	0.09
CM de Alijó	-0.38	117	-0.29	100	0.09
EPAL	1.91	11	1.98	7	0.08
CM de Mogadouro	-0.05	55	0.02	50	0.07
CM de Vila Viçosa	-0.30	106	-0.23	85	0.07
CM de Mértola	-0.42	120	-0.35	115	0.07
CM de Ferreira do Zêzere	-0.35	114	-0.29	99	0.07
CM de Castro Verde	-0.42	121	-0.36	117	0.06
CM de Ponte da Barca	-0.19	78	-0.13	63	0.06
Águas do Ribatejo	-0.21	84	-0.15	66	0.06
Penafiel Verde	-0.20	80	-0.14	65	0.05
CM de Vale de Cambra	0.04	47	0.10	45	0.05
Infralobo	-0.27	96	-0.22	83	0.05

CM de Sousel	-0.17	71	-0.12	61	0.05
CM de Marinha Grande	-0.20	81	-0.15	68	0.04
Águas do Planalto	-0.05	53	-0.01	51	0.04
CM de Vila de Rei	-0.22	88	-0.18	74	0.04
CM de Cadaval	-0.24	91	-0.21	81	0.03
SMAS de Viseu	-0.17	72	-0.14	64	0.03
CM de Seia	-0.36	116	-0.33	110	0.03
CM de Porto de Mós	-0.28	101	-0.26	94	0.02
SM de Castelo Branco	0.07	42	0.09	46	0.02
CM de Alandroal	-0.28	98	-0.25	93	0.02
CM de Miranda do Douro	-0.23	89	-0.21	80	0.02
SMAS de Torres Vedras	-0.14	65	-0.12	60	0.02
SMAS de Oeiras e Amadora	0.62	29	0.64	31	0.01
SMAS de Peniche	-0.25	94	-0.24	88	0.01
CM de Castro Daire	-0.26	95	-0.25	91	0.01
CM de Vila Nova de Famalicão	-0.42	122	-0.41	121	0.01
CM de Vila Nova de Foz Coa	-0.29	103	-0.28	97	0.01
CM de Santiago do Cacém	0.59	30	0.60	33	0.01
CM de Sines	-0.08	56	-0.07	55	0.01
CM de Almodôvar	-0.31	109	-0.30	103	0.01
Águas do Sado	-0.18	77	-0.18	72	0.00
CM de Moita	-0.18	74	-0.18	71	0.00
CM de Odemira	-0.27	97	-0.27	96	0.00
CM de Nisa	-0.21	87	-0.21	79	0.00
CM de Castanheira de Pera	-0.41	118	-0.41	122	0.00
CM de Melgaço	-0.11	59	-0.11	59	0.00
CM de Aljezur	-0.12	62	-0.13	62	0.00
CM de Ponte de Sor	-0.28	99	-0.28	98	0.00
CM de Alvaiázere	-0.21	85	-0.22	82	-0.01
SMAS de Tomar	-0.09	57	-0.10	58	-0.01
SMAS de Montijo	0.08	41	0.07	47	-0.02
CM de Óbidos	-0.19	79	-0.21	78	-0.02
SMAS de Almada	0.62	28	0.61	32	-0.02
SM de Nazaré	-0.16	69	-0.18	73	-0.02
CM de São Brás de Alportel	-0.32	112	-0.34	114	-0.02
SM de Abrantes	-0.17	73	-0.19	76	-0.02
CM de Vila Nova de Poiares	-0.31	110	-0.33	112	-0.02
CM de Arronches	-0.44	124	-0.46	125	-0.02
CM de Pedrógão Grande	-0.30	107	-0.33	111	-0.03
CM de Góis	0.01	49	-0.03	53	-0.04
CM de Marvão	-0.33	113	-0.37	119	-0.04

Águas do Porto	0.83	23	0.79	29	-0.04
SMAS de Leiria	0.75	25	0.71	30	-0.04
Aquamaior	1.10	17	1.06	25	-0.04
CM de Albufeira	0.28	36	0.24	40	-0.04
Luságua Alcanena - Gestão de Águas	0.33	35	0.28	38	-0.05
EMAS de Beja	0.64	26	0.59	34	-0.05
CM de Penacova	-0.12	61	-0.17	70	-0.05
SMAS de Guarda	-0.14	67	-0.19	75	-0.05
SMAS de Caldas da Rainha	-0.25	92	-0.30	101	-0.05
CM de Monção	-0.21	86	-0.27	95	-0.06
CM de Murça	-0.29	105	-0.35	116	-0.06
Águas de Carrazeda	-0.10	58	-0.16	69	-0.06
CM de Estremoz	-0.32	111	-0.38	120	-0.06
CM de São João da Pesqueira	-0.50	126	-0.56	128	-0.07
CM de Caminha	-0.24	90	-0.30	104	-0.07
CM de Arganil	0.11	40	0.04	49	-0.07
Ambiolhão	-0.25	93	-0.32	106	-0.07
CM de Mealhada	-0.18	76	-0.25	90	-0.07
EMAR de Portimão	0.05	46	-0.03	52	-0.08
CM de Alcoutim	-0.14	66	-0.22	84	-0.09
Águas da Figueira	0.52	32	0.44	37	-0.09
CM de Miranda do Corvo	1.04	19	0.95	28	-0.09
CM de Lamego	-0.28	102	-0.37	118	-0.09
CM de Bombarral	0.22	38	0.12	44	-0.10
SM de Loures	0.63	27	0.51	35	-0.11
CM de Ponte de Lima	-0.11	60	-0.23	86	-0.11
CM de Soure	-0.21	83	-0.33	113	-0.13
CM de Ferreira do Alentejo	-0.30	108	-0.44	123	-0.13
CM de Mira	0.06	45	-0.09	56	-0.14
Águas de Mafra	1.43	13	1.28	15	-0.15
CM de Montemor-o-Novo	-0.04	51	-0.20	77	-0.16
CM de Arcos de Valdevez	0.23	37	0.06	48	-0.16
Vimágua	2.17	7	1.98	8	-0.19
SMSB de Viana do Castelo	2.13	8	1.93	9	-0.19
CM de Arraiolos	-0.05	54	-0.25	92	-0.20
CM de Pinhel	-0.29	104	-0.49	127	-0.20
CM de Penedono	-0.05	52	-0.30	102	-0.26
CM de Proença-a-Nova	-0.16	70	-0.46	124	-0.29
CM de Évora	0.07	43	-0.25	89	-0.32
Infratróia	-0.28	100	-0.67	129	-0.39
EMAR de Vila Real	0.33	34	-0.06	54	-0.40

Águas de Barcelos	1.83	12	1.36	13	-0.48
Inframoura	0.95	20	0.45	36	-0.50
CM de Santa Marta de Penaguião	0.85	22	0.25	39	-0.60
Agere	2.06	10	1.21	18	-0.85
CM de Seixal	0.77	24	-0.15	67	-0.92
INOVA	2.11	9	1.16	19	-0.96
Á. de Alenquer	2.56	4	1.59	11	-0.96
Tavira Verde	3.07	3	2.10	5	-0.97
Á. de Paredes	2.26	6	1.28	14	-0.97
Á. de Valongo	2.34	5	1.37	12	-0.97
Á. de Cascais	3.17	2	2.16	4	-1.01
CM de Pombal	1.05	18	-0.09	57	-1.14
Indaqua Matosinhos	4.47	1	3.13	1	-1.34

85 Table S1. Synthetic indicator of sustainability for 2012 and 2015 and its change for the
86 Portuguese water companies evaluated.

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88 **Decomposition of the dynamic synthetic indicator for all water companies**
89 **evaluated.**

Water company name	Sustainability Change 2012-2015 $\Delta NGPI^{2012[u2012]:2015[u2015]}$	Decomposition 1		Decomposition2	
		Innovation Index	Catch-up index	Innovation index	Catch-up index
Infraquinta	1.51	-0.43	1.93	-0.67	2.17
Á. de Gondomar	1.50	-0.16	1.66	-0.41	1.91
Aquafundalia	1.47	-0.01	1.47	-0.96	2.43
Á. de S. João	1.33	-0.01	1.34	-0.96	2.29
Indaqua Santo Tirso	1.32	-0.01	1.32	-0.96	2.28
Cartágua	1.27	-0.01	1.28	-0.96	2.24
Á. de Santarém	1.19	-0.01	1.20	-0.97	2.16
Á. da Região de Aveiro	1.12	-0.01	1.12	-0.14	1.25
Indaqua Feira	1.08	-0.07	1.15	-1.01	2.09
SMAS de Sintra	0.94	-0.17	1.10	-1.05	1.99
Indaqua Vila do Conde	0,91	-0.08	0.99	-0.96	1.87
Fagar - Faro	0.77	-0.11	0.88	-0.98	1.75
CM de Grândola	0.20	-0.01	0.21	-0.01	0.21
CM de Avis	0.17	-0.01	0.18	-0.01	0.18
CM de Vila Verde	0.15	-0.07	0.23	-0.07	0.22
Aquaelvas	0.15	-0.41	0.56	-0.95	1.11
CM de Vimioso	0.15	-0.04	0.19	-0.09	0.24
CM de Nelas	0.14	-0.01	0.15	-0.01	0.15
CM de Almeida	0.12	-0.01	0.12	-0.01	0.12
SMAS de Vila Franca de Xira	0.11	-0.06	0.16	-0.07	0.18
CM de Póvoa de Varzim	0.10	-0.01	0.11	-0.01	0.11

CM de Mourão	0.09	-0.01	0.10	-0.01	0.10
CM de Alijó	0.09	0.00	0.09	0.00	0.09
EPAL	0.08	-0.49	0.57	-1.03	1.11
CM de Mogadouro	0.07	0.00	0.08	0.00	0.08
CM de Vila Viçosa	0.07	-0.01	0.08	-0.01	0.08
CM de Mértola	0.07	-0.01	0.08	-0.01	0.08
CM de Ferreira do Zêzere	0.07	-0.01	0.07	-0.01	0.07
CM de Castro Verde	0.06	-0.01	0.08	-0.01	0.07
CM de Ponte da Barca	0.06	-0.01	0.06	0.00	0.06
Águas do Ribatejo	0.06	-0.01	0.06	-0.01	0.06
Penafiel Verde	0.05	-0.01	0.06	-0.01	0.06
CM de Vale de Cambra	0.05	-0.07	0.12	-0.07	0.12
Infralobo	0.05	-0.02	0.06	-0.01	0.06
CM de Sousel	0.05	0.00	0.05	0.00	0.05
CM de Marinha Grande	0.04	-0.01	0.05	-0.01	0.05
Águas do Planalto	0.04	0.00	0.04	0.00	0.04
CM de Vila de Rei	0.04	-0.01	0.05	-0.01	0.04
CM de Cadaval	0.03	0.00	0.04	-0.01	0.04
SMAS de Viseu	0.03	-0.01	0.04	-0.01	0.04
CM de Seia	0.03	-0.01	0.03	-0.01	0.03
CM de Porto de Mós	0.02	-0.01	0.03	-0.01	0.03
SM de Castelo Branco	0.02	-0.07	0.09	-0.07	0.09
CM de Alandroal	0.02	-0.01	0.03	-0.01	0.03
CM de Miranda do Douro	0.02	-0.01	0.03	-0.08	0.10
SMAS de Torres Vedras	0.02	-0.01	0.02	-0.01	0.02
SMAS de Oeiras e Amadora	0.01	-0.10	0.11	-0.08	0.10
SMAS de Peniche	0.01	-0.01	0.02	-0.01	0.02
CM de Castro Daire	0.01	0.00	0.01	0.00	0.01
CM de Vila Nova de Famalicão	0.01	-0.01	0.02	-0.01	0.02
CM de Vila Nova de Foz Coa	0.01	-0.01	0.02	-0.01	0.02
CM de Santiago do Cacém	0.01	-0.08	0.09	-0.08	0.09
CM de Sines	0.01	-0.01	0.01	-0.01	0.01
CM de Almodôvar	0.01	-0.01	0.02	-0.01	0.02
Águas do Sado	0.00	-0.02	0.02	-0.01	0.02
CM de Moita	0.00	-0.01	0.02	-0.01	0.02
CM de Odemira	0.00	-0.01	0.01	-0.01	0.01
CM de Nisa	0.00	-0.01	0.01	-0.01	0.01
CM de Castanheira de Pera	0.00	-0.01	0.01	-0.01	0.01
CM de Melgaço	0.00	-0.01	0.00	0.00	0.00
CM de Aljezur	0.00	0.00	0.00	0.00	0.00
CM de Ponte de Sor	0.00	-0.01	0.00	-0.01	0.00

CM de Alvaiázere	-0.01	0.00	0.00	0.00	0.00
SMAS de Tomar	-0.01	-0.01	0.00	-0.01	0.00
SMAS de Montijo	-0.02	-0.08	0.06	-0.07	0.06
CM de Óbidos	-0.02	-0.01	-0.01	-0.01	-0.01
SMAS de Almada	-0.02	-0.09	0.07	-0.08	0.07
SM de Nazaré	-0.02	-0.01	-0.01	-0.01	-0.01
CM de São Brás de Alportel	-0.02	-0.01	-0.01	-0.01	-0.01
SM de Abrantes	-0.02	-0.01	-0.01	-0.01	-0.01
CM de Vila Nova de Poiares	-0.02	-0.01	-0.01	-0.01	-0.01
CM de Arronches	-0.02	-0.01	-0.01	-0.01	-0.02
CM de Pedrógão Grande	-0.03	0.00	-0.03	0.00	-0.03
CM de Góis	-0.04	0.00	-0.03	0.00	-0.03
CM de Marvão	-0.04	-0.01	-0.03	-0.01	-0.03
Águas do Porto	-0.04	-0.08	0.04	-0.08	0.04
SMAS de Leiria	-0.04	-0.07	0.03	-0.07	0.03
Aquamaior	-0.04	-0.42	0.38	-0.96	0.92
CM de Albufeira	-0.04	-0.08	0.04	-0.07	0.03
Luságua Alcanena - Gestão de Águas	-0.05	-0.07	0.02	-0.07	0.02
EMAS de Beja	-0.05	-0.08	0.03	-0.08	0.03
CM de Penacova	-0.05	-0.01	-0.04	-0.01	-0.04
SMAS de Guarda	-0.05	-0.03	-0.02	-0.03	-0.02
SMAS de Caldas da Rainha	-0.05	-0.01	-0.04	-0.01	-0.04
CM de Monção	-0.06	-0.01	-0.05	-0.01	-0.05
CM de Murça	-0.06	-0.01	-0.05	-0.01	-0.05
Águas de Carrazeda	-0.06	-0.01	-0.05	-0.01	-0.05
CM de Estremoz	-0.06	-0.01	-0.05	-0.01	-0.05
CM de São João da Pesqueira	-0.07	-0.01	-0.06	-0.01	-0.06
CM de Caminha	-0.07	-0.01	-0.06	-0.01	-0.06
CM de Arganil	-0.07	-0.07	0.01	-0.07	0.00
Ambiolhão	-0.07	-0.01	-0.06	-0.01	-0.06
CM de Mealhada	-0.07	-0.01	-0.07	-0.01	-0.07
EMAR de Portimão	-0.08	0.00	-0.07	-0.01	-0.07
CM de Alcoutim	-0.09	0.00	-0.08	-0.01	-0.08
Águas da Figueira	-0.09	-0.09	0.01	-0.09	0.00
CM de Miranda do Corvo	-0.09	-0.14	0.05	-0.13	0.05
CM de Lamego	-0.09	0.00	-0.08	-0.01	-0.08
CM de Bombarral	-0.10	-0.07	-0.03	-0.07	-0.03
SM de Loures	-0.11	-0.08	-0.03	-0.08	-0.03
CM de Ponte de Lima	-0.11	-0.01	-0.11	-0.01	-0.11
CM de Soure	-0.13	-0.01	-0.12	-0.01	-0.12
CM de Ferreira do Alentejo	-0.13	-0.01	-0.12	-0.01	-0.12

CM de Mira	-0.14	-0.07	-0.07	-0.07	-0.07
Águas de Mafra	-0.15	-0.62	0.47	-0.96	0.81
CM de Montemor-o-Novo	-0.16	0.00	-0.15	-0.01	-0.15
CM de Arcos de Valdevez	-0.16	-0.06	-0.10	-0.07	-0.09
Vimágua	-0.19	-0.68	0.49	-1.02	0.83
SMSB de Viana do Castelo	-0.19	-0.97	0.77	-1.03	0.84
CM de Arraiolos	-0.20	-0.01	-0.19	-0.01	-0.19
CM de Pinhel	-0.20	0.00	-0.20	0.00	-0.20
CM de Penedono	-0.26	-0.01	-0.25	-0.01	-0.25
CM de Proença-a-Nova	-0.29	0.00	-0.29	0.00	-0.29
CM de Évora	-0.32	-0.07	-0.25	-0.01	-0.31
Infratróia	-0.39	-0.02	-0.37	-0.03	-0.36
EMAR de Vila Real	-0.40	-0.08	-0.32	-0.02	-0.37
Águas de Barcelos	-0.48	-0.25	-0.23	-0.21	-0.27
Inframoura	-0.50	-0.42	-0.08	-0.42	-0.08
CM de Santa Marta de Penaguião	-0.60	-0.62	0.01	-0.62	0.02
Agere	-0.85	-0.97	0.12	-0.96	0.11
CM de Seixal	-0.92	-0.07	-0.85	-0.01	-0.91
INOVA	-0.96	-0.96	0.01	-0.96	0.01
Á. de Alenquer	-0.96	-1.01	0.05	-1.01	0.05
Tavira Verde	-0.97	-0.41	-0.55	-0.33	-0.64
Á. de Paredes	-0.97	-0.96	-0.01	-0.96	-0.01
Á. de Valongo	-0.97	-0.96	-0.01	-0.96	-0.01
Á. de Cascais	-1.01	-1.05	0.04	-1.04	0.03
CM de Pombal	-1.14	-0.41	-0.73	0.00	-1.14
Indaqua Matosinhos	-1.34	-1.25	-0.09	-1.22	-0.13

90 Table S2. Dynamic net goal programming indicator and their drivers according to the two
91 decomposition approaches.