

Intervention logic and programming 2021-2027

Examples Policy Objectives 2 and 3

Meeting of REGIO Evaluation Network

15-16 October 2020

EXAMPLE 1: Policy Objective 2 – Specific Objective 2.1

Promoting energy efficiency measures and reducing greenhouse gas emissions

Assume:

- An operational programme for a less developed region
- Priority axis 1: PO2, Specific Objective 2.1, with two actions: Action 2.2.1 Support for reduction of energy consumption in public buildings Action 2.2.2 Support for reduction of energy consumption in residential buildings
- Form of financing: grants
- 80% EU co-financing rate
- Target group: public institutions and households



Indicators in the OP template (by specific objective):

- Use of EU common indicators whenever relevant
- Output indicators: baselines 0, 2024 milestones, 2029 targets
- Result indicators: baselines >=0; no milestones, 2029 targets
- Indicators presented by category of region

Tables for indicators in the programme:

Table 2: 0	Output indica	tors			- -			
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Milestone (2024)	Target (2029)
PA1	SO2.1	ERDF	Less developed	RCO18	Dwellings with improved energy performance	dwellings	100	1,000
PA1	SO2.1	ERDF	Less developed	RC019	Public buildings with improved energy performance	square metres	20,000	200,000



Table 3:	Fable 3: Result indicators											
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Baseline	Reference year	Target (2029)			
PA1	SO2.1	ERDF	Less developed	KLK/D	Annual primary energy consumption	MWh/year	41,800	2021	29,440			
PA1	SO2.1	ERDF	Less developed	RCR29	Estimated GHG emissions	tCO2/year	10,400	2021	7,520			

Indicative breakdown of the programme resources (EU) by type of intervention:

Table 4: D	Dimension 1 – ir	ntervention fie	ld		
Priority	Fund	Category of region	Specific objective	Code	EU Amount (EUR)
PA1	ERDF	Less developed	SO2.1	25	12,000,000
PA1	ERDF	Less developed	SO2.1	26	120,000,000

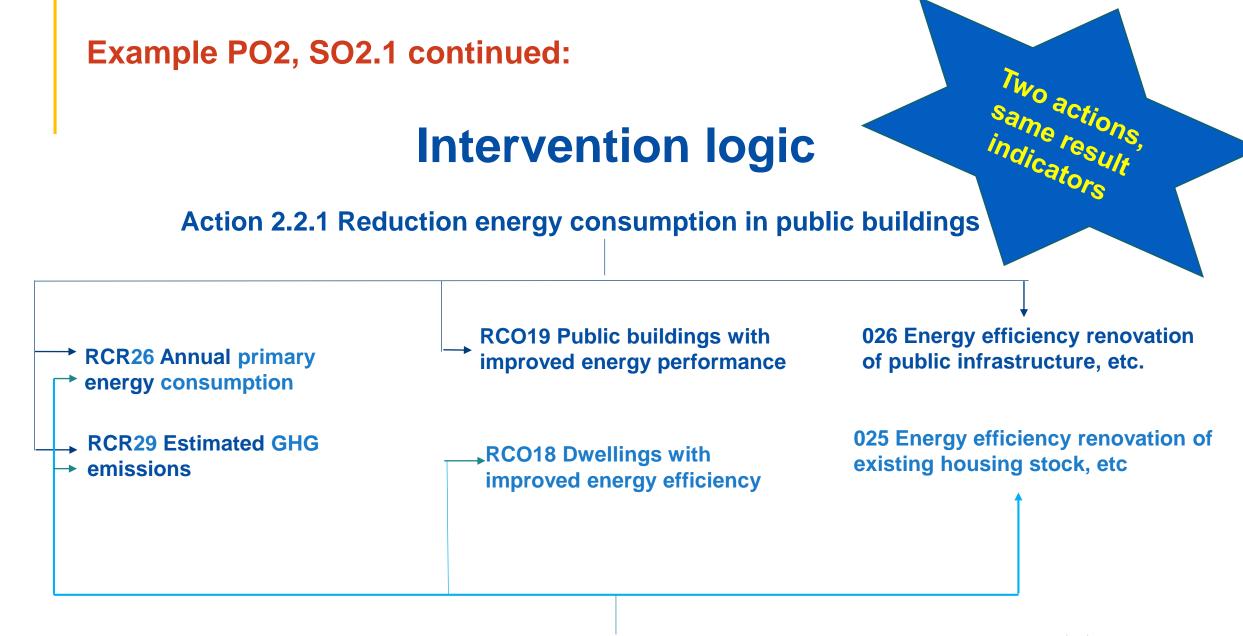
025 Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures 026 Energy efficiency renovation of public infrastructure, demonstration projects and supporting measures



Methodological document (Article 13) is needed to understand:

- the intervention logic
- the use of resources
- the choice of indicators by type of intervention
- evidence supporting the assumptions for the calculation of the 2024 milestones and the 2029 targets
- durability of results
- risks related to sensitivity of assumptions, data reliability etc





Action 2.2.2 Reduction energy consumption in residential buildings



Example PO2, SO2.1 continued: Methodological document

Action 2.2.1 (public buildings):

- Choice of result indicator(s): how does success look like? *Example: reduced energy consumption (RCR26), reduced GHG emissions (RCR29)*
- Choice of output indicator(s): what does the action deliver? *Example: public buildings supported for reduction of energy consumption* (RCO19)
- Calculation of 2029 target for output RCO19: *Total financing (EU + National) based on category 026: 150 million euro Average support per public building: 1.5 million euro/ building Average floor surface per building: 2000 square metres Target 2029 for RCO19: 150 000 000*2000/1 500 000=200 000 square metres metres*

Action 2.2.1 (public buildings):

- Calculation of 2024 milestone for output RCO19: Assume action progress of 10% mid period Milestone 2024 = 10% * Target 2029 = 20 000 square metres
- Calculation of baseline and 2029 target for result RCR26 for public buildings:

Baseline: assume initial energy consumption of 200 kwh/sqm per year Baseline 2021 = 200 kWh/sqm per year*200 000 sqm / 1000 kWh/MWh=40 000 MWh/year

Target: assume a reduction of 30% in energy consumption per year Target 2029= 70% * 40 000 MWh/year = 28 000 MWh/year



Action 2.2.1 (public buildings):

Calculation of baseline and 2029 target for result RCR29 for public buildings:
 Assume 40 kg CO2/ sqm per year and the output target of 200 000 sqm for public buildings
 Baseline 2021 = 40 kg CO2/sqm per year * 200 000 sqm / 1000 kg/tonnes= 8000 tCO2/year
 Target: assume a reduction of 30% in GHG emissions per year Target 2029= 70% * 8000 tCO2/year= 5600 tCO2/year



Action 2.2.2 (dwellings):

- Choice of result indicator(s): how does success look like? *Example: reduced energy consumption (RCR26), reduced GHG emissions (RCR29)*
- Choice of output indicator(s): what does the action deliver? Example: dwellings with improved energy efficiency (RCO18)
- Calculation of 2029 target for output RCO18: *Total financing (EU + National) based on category 025: 15 million euro Average support per public building: 15 000 euro/ dwelling Target 2029 for RCO18: 15 000 000/ 15 000 = 1000 dwellings*



Action 2.2.2 (dwellings):

- Calculation of 2024 milestone for output RCO18: Assume action progress of 10% mid period Milestone 2024 = 10% * Target 2029 = 100 dwellings
- Calculation of baseline and 2029 target for result RCR26 for dwellings:
 Assume initial energy consumption of 150 kWh/month per dwelling. Baseline 2021 = 150 kWh/month*12 months/year * 1000 dwellings / (1000 kwh/MWh)=1800 MWh/year
 Target: assume a reduction of 20% in energy consumption per year
 Target 2029= 80% * 1800 MWh/year = 1440 MWh/year



Action 2.2.2 (dwellings):

• Calculation of baseline and 2029 target for result RCR29 for dwellings:

Assume: 30kg CO2/sq meter per year, an average floor surface of 80 sqm per dwelling, and the 2029 output of 1000 dwellings Baseline 2021 = 30 kg CO2/ sqm per year * 80 sqm/dwelling * 1000 dwellings / 1000 kg/tonne=2400 tCO2/year Target: assume a reduction of 20% in GHG emissions per year Target 2029= 80% * 2400 tCO2/year= 1920 tCO2/year



Overview table:

Action	Total allocation at action level (indicative)	Code	Indicator name	M.U.	Baseline	Reference year	Milestone 2024	Target 2029	Intervention field	Amount (EU+National) (euro)
Action 2.2.1	150,000,000	RCO19	Public buildings with improved energy performance	sq m	n.a.	n.a.	20,000	200,000	026 Energy efficiency	150,000,000
		RCR26	Annual primary energy consumption	MWh/year	40,000	2021	n.a.	28,000	rennovation of public	
		RCR29	Estimated GHG emissions	tCO2/year	8,000	2021	n.a.	5,600	infrastructure etc	
		RC018	Dwellings with improved energy efficiency	dwellings	n.a.	n.a.	100	1,000	025 Energy efficiency	
Action 2.2.2	15,000,000	RCR26	Annual primary energy consumption	MWh/year	1,800	2021	n.a.	1,440	rennovation of existing housing	15,000,000
	R	RCR29	Estimated GHG	2021	n.a.	1,920	stock etc			

RCR26 Target 2029 at SO level = 28 000 + 1 440 = 29 440 RCR29 Target 2029 at SO level = 5 600 + 1920 = 7 520 (see Table 3 in the OP)



Two more examples for PO2 and PO3 for further reading



EXAMPLE 2: Policy Objective 2 – Specific Objective 2.2 Promoting renewable energy Assume:

- An operational programme for a less developed region
- Priority axis 2: PO2, Specific Objective 2.2, with two actions: Action 2.2.3 Support for installing additional capacity for renewable energy for self-consumption, and for reducing energy consumption and GHG emissions in enterprises. Action 2.2.4 Support for increased reliance on renewable energy for self-consumption in public buildings
- Form of financing: grants
- 80% EU co-financing rate
- ^{15•} Target group: enterprises and public authorities



Tables for indicators in the programme:

Table 2:	Table 2: Output indicators										
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Milestone (2024)	Target (2029)			
PA2	S02.2	ERDF	Less developed	RC001	Enterprises supported	- ANTARNISAS		1200			
PA2	S02.2	ERDF	Less developed	RC002	Enterprises supported by grants	enterprises	240	1200			
PA2	SO2.2	ERDF	Less developed	RC022	Additional production capacity for renewable energy	MW	1.2125	12.125			
PA2	SO2.2	ERDF	Less developed	PS01	<i>Number public buildings supported for installing renewable energy</i>	buildings	6	62			



Table 3:	Table 3: Result indicators											
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Baseline	Reference year	Target (2029)			
PA2	SO2.2	ERDF	Less developed	RCR31	Total renewable energy produced	MWh/year	18000	2021	37400			
PA2	S02.2	ERDF	Less developed	RCR26	Annual primary energy consumption	MWh/year	60000	2021	48000			
PA2	SO2.2	ERDF	Less developed	RCR29	Estimated GHG emissions	tCo2/year	41950	2021	22140			

Indicative breakdown of the programme resources (EU) by type of intervention:

Table 4:	Dimension 1	<u>l – intervent</u>	ion field		
Priority	Fund	Category of region	Specific objective	Code	EU Amount (EUR)
PA2	ERDF	Less developed	SO2.2	24	14,400,000
PA2	ERDF	Less developed	S02.2	29	19,400,000

024 Energy efficiency and demonstration projects in SMEs and supporting measures

17 029 Renewable energy: solar



Example PO2, SO2.2 continued: Intervention logic

Two actions, shared output, results and Action 2.2.3 Renewable energy and reduced energy consumption in SMEs

RCR26 Annual primary energy consumption

- RCR31 Total renewable → energy produced
- RCR29 Estimated GHG

emissions

- RCO01 Enterprises supported
- RCO02 Enterprises supported by grants
- **RCO22 Additional production** capacity for renewable energy

→ PSO1 Number of public building supported for installing renewable energy 024 Energy efficiency and

demonstration projects in SMEs and supporting measures

Categor

→ 029 Renewable energy: solar



Methodological document

- Choice of result indicator(s): how does success look like? Example: reduced energy consumption (RCR26), reduced GHG emissions (RCR29) and production of renewable energy (RCR31)
- Choice of output indicator(s): what does the action deliver? Example: SMEs supported (RCO01, RCO02) and production capacity for renewable energy (RCO22)



Action 2.2.3 (support for SMEs):

• Calculation of 2029 targets for outputs RCO01 and RCO02: Assume each enterprise receives a grant which combines equally support for energy efficiency and for additional capacity for renewable energy for self-consumption. Total financing for SMEs based on intervention fields 24 and 29 is

36 000 000 euro.

Average support per SME: 30 000 euro/ enterprise, of which 15 000 euro for energy efficiency and 15 000 euro for renewable energy 2029 Targets for RCO01 and RCO02: 36 000 000 / 30 000 = 1200 enterprises



- Calculation of 2024 milestones for outputs RCO01 and RCO02: Assume action progress of 20% by mid period Milestone 2024 = 20% * Target 2029 = 240 enterprises
- Calculation of 2029 target for output RCO22: Total allocation based on intervention field 29: 18 000 000 euro Assume a unit cost of 2 million euro per MW installed 2029 Target for RCO22: 18 000 000 / 2 000 000 = 9 MW production capacity for renewable energy
- Calculation of 2024 milestone for output RCO22: Assume action progress of 10% by mid period Milestone 2024 = 10% * Target 2029 = 0.9 MW.



- Calculation of baseline for result RCR26: Assume: average level of annual energy consumption of 50 MWh/year per enterprise
 2021 Baseline for RCR26: 50 MWh/year per enterprise * 1200 enterprises supported = 60 000 MWh/ year
- Calculation of target for result RCR26: Assume an average reduction of 20% in energy consumption 2029 Target for RCR26: 80% * 60 000 MWh/year = 48 000 MWh/ year



- Calculation of baseline for result RCR31: Assume: an average initial reliance on renewable energy for the SMEs supported of 30%
 2021 Baseline for RCR31: 60 000 MWh/year * 30% = 18 000 MWh/ year initial production of renewable energy
- Calculation of target for result RCR31: Assume that 1MW installed generates 1600 MWh/year renewable energy, and full use of the new capacity installed. 2029 Target for RCR31= Initial production + Additional production from capacity installed = 18 000 MWh/year+ 9 MW * 1600 MWh/year= 32 400 MWh/year total renewable energy produced



- Calculation of baseline for result RCR29: Assume: a coefficient of 0.628 kg CO2 per kWh consumed 2021 Baseline for RCR29= Energy consumption based on fossil fuel * 0.628 * 1000 kWh/MWh / 1000 kg/ tonne = = (60 000 MWh/year - 18 000 MWh/ year) * 0.628 kgCO2/kWh* 1000 kWh/MWh / 1000 kg/ tonne = 26 376 tCO2/ year
- Calculation of target for result RCR29: Assume: a coefficient of 0.628 kg CO2 per kWh consumed 2029 Target for RCR29: Energy consumption based on fossil fuel * 0.628 * 1000 kWh/MWh / 1000 kg/tonne=
 - = (48 000 MWh/year 32400 MWh/ year) * 0.628 kgCO2/kWh* 1000
- ²⁴ *kWh/MWh / 1000 kg/ tonne = 9 797 tCO2/ year*



Action 2.2.4 (support for public buildings):

- Choice of result indicator(s): how does success look like? Example: production of renewable energy (RCR31), reduced GHG emissions (RCR29)
- Choice of output indicator(s): what does the action deliver? Example: public buildings supported (PSO1) and production capacity for renewable energy (RCO22)



Action 2.2.4 (support for public buildings):

- Calculation of 2029 target for output RCO22: Assume:
 - investments in equipment for generating renewable energy to replace (part of) energy consumption based on fossil fuels in public buildings
 - a unit cost per MW installed of 2 million euro Total financing for public buildings based on intervention fields 29 is 6 250 000 euro.
 2029 Target for RCO22: 6 250 000 / 2 000 000 = 3.125 MW installed.
- Calculation of 2024 milestone for output RCO22: Assume: 10% progress in implementation by mid term. 2024 Milestone for RCO22: 10% * 3.125 MW = 0.3125 MW installed.



Action 2.2.4 (support for public buildings):

- Calculation of 2029 target for output PSO1 (number of buildings):
 Assume: average capacity installed of 0.05MW per building 2029 Target for PSO1: 3.125 / 0.05 = 62 buildings supported
- Calculation of 2024 milestone for output PSO1: Assume: 10% progress in implementation by mid term. 2024 Milestone for PSO1: 10% * 62 = 6 buildings.



Action 2.2.4 (support for public buildings):

 Calculation of baseline for result RCR31 for public buildings: Assume: no initial production of renewable energy in any of the buildings supported 2021 Baseline for RCR31= 0

• Calculation of target for result RCR31: Assume that one MW installed generates 1600 MWh/year 2029 Target for RCR31: 1600 * 3.125 MW = 5000 MWh/year



Example PO2, SO2.2 continued: Action 2.2.4 (support for public buildings):

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- Calculation of baseline for result RCR29 for public buildings: Assume: a coefficient of 0.628 kg CO2/ kWh consumed; average energy consumption of 200 kWh/ square metre per year, and an average floor surface of 2000 square metres per building 2021 Baseline for RCR29 = 0.628 kg CO2/kWh * 62 buildings * 2000 sqm/ building * 200 kWh/sqm = 15 574 400 kgCO2 per year = 15 574 tCO2/ year
- Calculation of target for result RCR29: Assume full use of the capacity for renewable energy installed. This implies that 5000 MWh/year from the total energy consumption has zero GHG emissions.

Total energy consumption in the 62 buildings is: 200 kWh/year *2000 sqm/ building *62 buildings = 24 800 000 kWh/year = 24800 MWh/year Target 2029 for RCR29 = (24800-5000) * 1000 kWh/MWh * 0.628 kgC02/ kWh = 12 343 400 kgC02/ year = 12 343.4 tC02/year

Overview table:

Action	Total allocation at action level (indicative)	Code	Indicator name	M.U.	Baseline	Reference year	Milestone 2024	Target 2029	Intervention field	Amount (EU+National) (euro)	
		RCO01	Enterprises supported	enterprises	n.a.	n.a.	240	1,200			
		RC002	Enterprises supported by grants	enterprises	n.a.	n.a.	240	1,200	024 Energy efficiency		
Action	36,000,000	RCO22	Additional production capacity for renewable energy	MW	n.a.	n.a.	0.9	9	and demonstration projects in SMEs and supporting measures	18,000,000	
2.2.3		RCR31	Total renewable energy produced	MWh/year	18,000	2021	n.a.	32,400			
		RCR26	Primary energy consumption	MWh/year	60,000	2021	n.a.	48,000	029 Renewable energy: solar	18,000,000	
		RCR29	Estimated GHG emissions	tCO2/year	26,376	2021	n.a.	9,797			
		PSO1	Number public buildings supported for installing renewable energy	buildings	n.a.	n.a.	6	62			
Action 2.2.4	6,250,000	RCO22	Additional production capacity for renewable energy	MW	n.a.	n.a.	0.3125	3.125	029 Renewable energy: solar	6,250,000	
		RCR31	Total renewable energy produced	MWh/year	0	2021	n.a.	5,000			
		RCR29	Estimated GHG emissions	MWh/year	15,574	2021	n.a.	12,343			



Baselines, milestones and targets cumulated at SO level:

- RCO22: Milestone = 0.9 (Action 2.2.3) + 0.3125 (Action 2.2.4)
- RCO22: Target = 9 (Action 2.2.3) + 3.125 (Action 2.2.4)
- RCR31: Baseline = 18000 (Action 2.2.3) + 0 (Action 2.2.4)
- RCR31: Target = 32400 (Action 2.2.3) + 5000 (Action 2.2.4)
- RCR29: Baseline = 26376 (Action 2.2.3) + 15574 (Action 2.2.4)
- RCR29: Target = 9797 (Action 2.2.3) + 12343 (Action 2.2.4)



EXAMPLE 3: Policy Objective 3 – Specific Objective 3.4 Promoting sustainable multimodal urban mobility

Assume:

- An operational programme for a less developed region
- Priority axis 2: PO3, Specific Objective 3.4, with two actions: *Action 3.4.1 Support for safe cycling on dedicated infrastructure Action 3.4.2 Support for public bike sharing systems*
- Form of financing: grants
- 80% EU co-financing rate
- Target group: public authorities



Tables for indicators in the programme:

Table 2: 0	Table 2: Output indicators										
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Milestone (2024)	Target (2029)			
PA2	SO3.4	ERDF	Less developed	RCO58	Dedicated cycling infrastructure	km	5	50			
PA2	SO3.4	ERDF	Less developed	PSO2	<i>Capacity of bike sharing docks created</i>	bicycles	600	2000			

Table 3: Result indicators										
Priority	Specific objective	Fund	Category of region	ID	Indicator	Measurement unit	Baseline	Reference year	Target (2029)	
PA2	SO3.4	ERDF	Less developed	RCR64	Annual users of dedicated infrastructure	Users/year	5,000,000	2021	5,500,000	
PA2	SO3.4	ERDF	Less developed	PSR1	Annual users of bike sharing services supported	Users/year	0	2021	1,000,000	



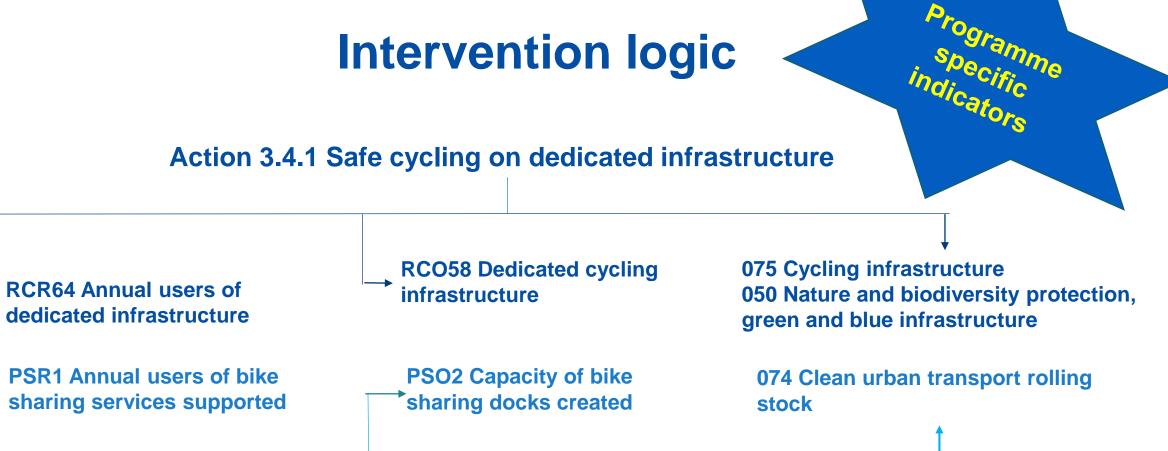
Indicative breakdown of the programme resources (EU) by type of intervention:

Table 4: Dimension 1 – intervention field											
Priority	Fund	Category of region	Specific objective	Code	EU Amount (EUR)						
PA2	ERDF	Less developed	SO3.4	75	10,400,000						
PA2	ERDF	Less developed	SO3.4	74	2,000,000						
PA2	ERDF	Less developed	SO3.4	50	800,000						

075 Cycling infrastructure074 Clean urban transport rolling stock

050 Nature and biodiversity protection, green and blue infrastructure





Action 3.4.2 Public bike sharing systems



Methodological document

Action 3.4.1 (cycling infrastructure):

- Choice of result indicator(s): how does success look like? Example: increase use of bicycle as a mode of transport in the city (RCR64)
- Choice of output indicator(s): what does the action deliver? Example: dedicated public infrastructure (RCO58)
- Calculation of 2029 target for output RCO58: Total financing (EU + National) based on category 075: 13 million euro Average support per km: 260 000 euro/ km Target 2029 for RCO58: 13 000 000 / 260 000 = 50 km



Action 3.4.1 (continued):

- Calculation of 2024 milestone for output RCO58: Assume action progress of 10% mid period Milestone 2024 = 10% * Target 2029 = 5 km
- Calculation of baseline and 2029 target for result RCR64 for users of cycling infrastructure: Baseline: assume an average of 100 000 annual users per bike path of average length of 1 km Baseline 2021 = 100 000 annual users/km * 50 km = 5 000 000 annual users

Target: assume an increase of 10% in annual users Target 2029= 1.10^* 5 000 000 = 5 500 000 annual users



Action 3.4.2 (public bike sharing):

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- Choice of result indicator(s): how does success look like? Example: encourage use of public bike sharing services (programme specific indicator PSR1)
- Choice of output indicator(s): what does the action deliver? Example: bike sharing docks (programme specific indicator PSO2)
- Calculation of 2029 target for output PSO2: *Total financing (EU + National) based on category 025: 2.5 million euro Assume: fixed cost of 100 000 for the public docks and 1200 euro per bike acquired*

Target 2029 for PSO2: (2 500 000 – 100 000)/1200 = 2000 bicycles

Action 3.4.2 (public bike sharing):

Calculation of baseline and 2029 target for result PSR1 for public bike sharing:
 Baseline: assume that bike sharing services are new for the city
 Baseline 2021 = 0
 Target: assume an average of 5 users per day per bike and a bike use of 100 days/ year
 Target 2029= 5*2000*100= 1 000 000 annual users



Overview table:

	Total		Indicator		Baselin	e	Miles		Allocation used	Intervention fie	ld	
Action	allocation at action level (indicative)	Code	Name	M.U.	Value	Year	tone 2024	Target 2029	for calculation of 2029 target (euro)	Name	Amount (EU+National) (euro)	
Action		RCO58	Dedicated cycling infrastructure	km	n.a.	n.a.	5	50		075 Cycling infrastructure	13,000,000	
Action 3.4.1	14,000,000	VI V64	Annual users of dedicated infrastructure	users/ year	5,000,000	2021	n.a.	5,500,000	13,000,000	050 Nature and biodiversity protection, green and blue infrastructure	1,000,000	
Action	2 500 000	PSO2	Capacity of bike sharing docks created (number bikes)	bikes	n.a.	n.a.	600	2,000		074 Clean urban transport	2 500 000	
3.4.2	2,500,000	PSR1	Number of uses of bike sharing services supported	users/ year	0	2021	n.a.	1,000,000	2,500,000 rolling stock		2,500,000	

