



Project no. 4CE439P3

URBAN_WFTP

**Introduction of Water Footprint (WFTP) Approach in Urban Area
to Monitor, Evaluate and Improve the Water Use**

WP 5.2.4 Definition of the content of the improvement plan

Start date of project: 1 November 2012

Duration: 25 months

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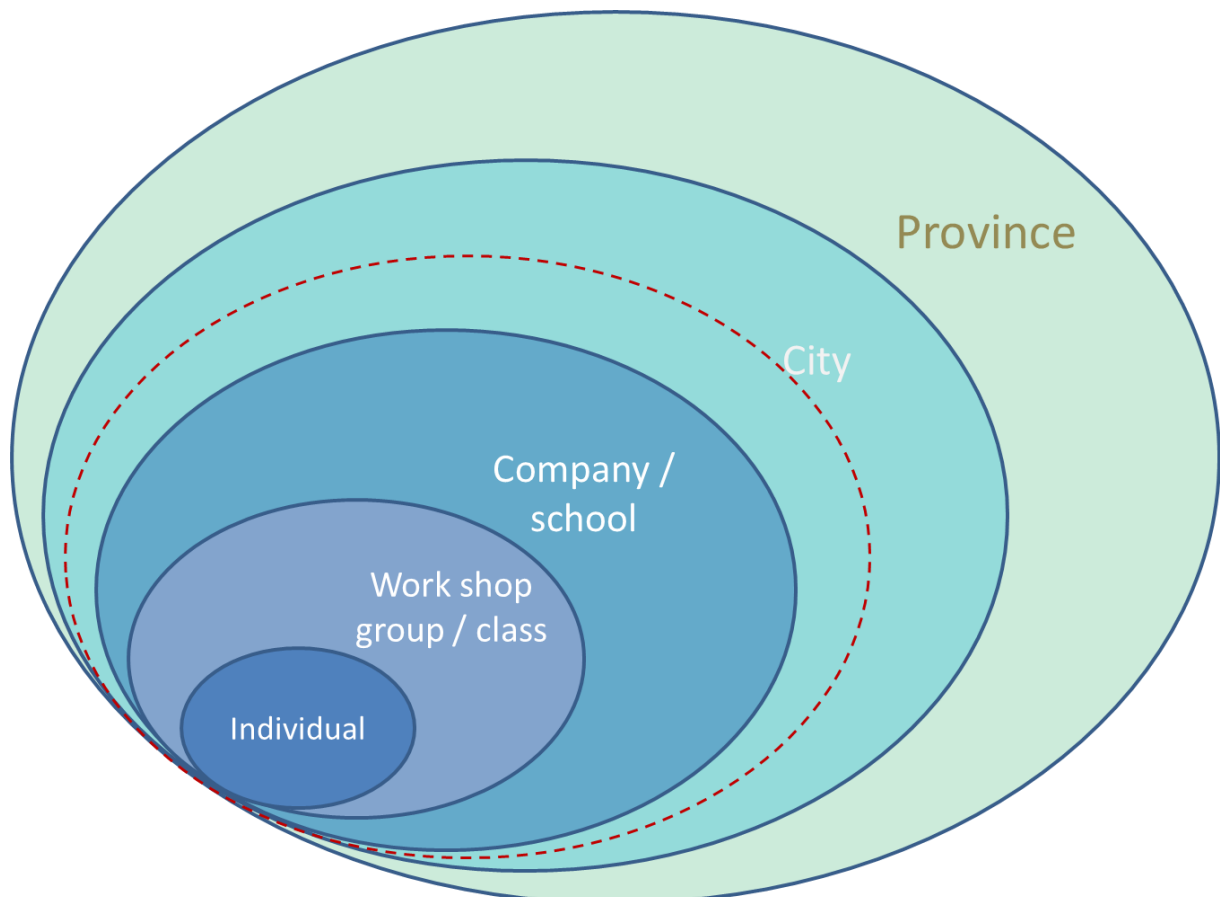
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1.1 Scope of the improvement plan

Based on output “5.2.2_ Identification of the water footprint improvement objective and policy declaration” the scope of the improvement plan is to extend the awareness building programme. By applying a step-wise approach, it is the aim to increase the number of citizens who are aware of their water consumption regarding direct and virtual water. Figure 1 show this approach starting on the level of an individual and expands further via single school classes, to an entire school (Reithmann Gymnasium), to the city (Innsbruck) and finally reaches the population across a province (Tyrol). More specific details and the applied methodology are described in output 5.2.2.

Based on this increased awareness of water consumption it is possible to reduce the overall water footprint of Innsbruck.

Figure 1: Step-wise extension of target groups within the awareness building programme. The red line indicates the declared object within the project duration.



1.2 Targeted footprint improvement

Through a series of workshops with the local school partner, some data regarding direct and indirect water consumption could be gathered and WFTP reduction measures were developed and implemented.

The analysis of these data shows a proportion of direct to indirect water consumption by 1:20 (i.e. 88 l/day/capita to 1870 l/day/capita, Table 1). This signifies that a reduction of virtual water (indirect water) will have a greater impact on the reduction of the entire water footprint. Among the virtual water consumption categories meat consumption contributes the most with 777 l/day/capita, followed by dairy products with 465 l/day/capita (Table 1). Accordingly, changes in meat consumption have a strong impact on the water footprint. This fact also was recognised by the school students and therefore 19% of the students agreed on “eating less meat” and implemented this measure (Table 3).

For example, a reduction of meat consumption by 50% reduces the indirect water footprint by 21% and the total water footprint by 11% (Table 2).

Although these results are based on a small sample size, the total water footprint (including cloths) of 3533 l/c/d corresponds with the water foot print calculated by Vanham (2013) for Austria of 3655 l/c/d (Figure 1). In a more detailed approach Vanham (2013) calculated how different diets affect the water footprint and developed three diet based scenarios (DEG=Healthy diet; VEG=Vegetarian; COM=Combination of DEG and VEG). Here, the COM scenario corresponds with the improvement measures implemented by many of the students, i.e. meat reduction by 50%. However, the reduction potential of the COM scenario calculated by Vanham (2013) is with 30% higher than the reduction potential based on our data. This is due to more detailed changes regarding the diet in the COM scenario.

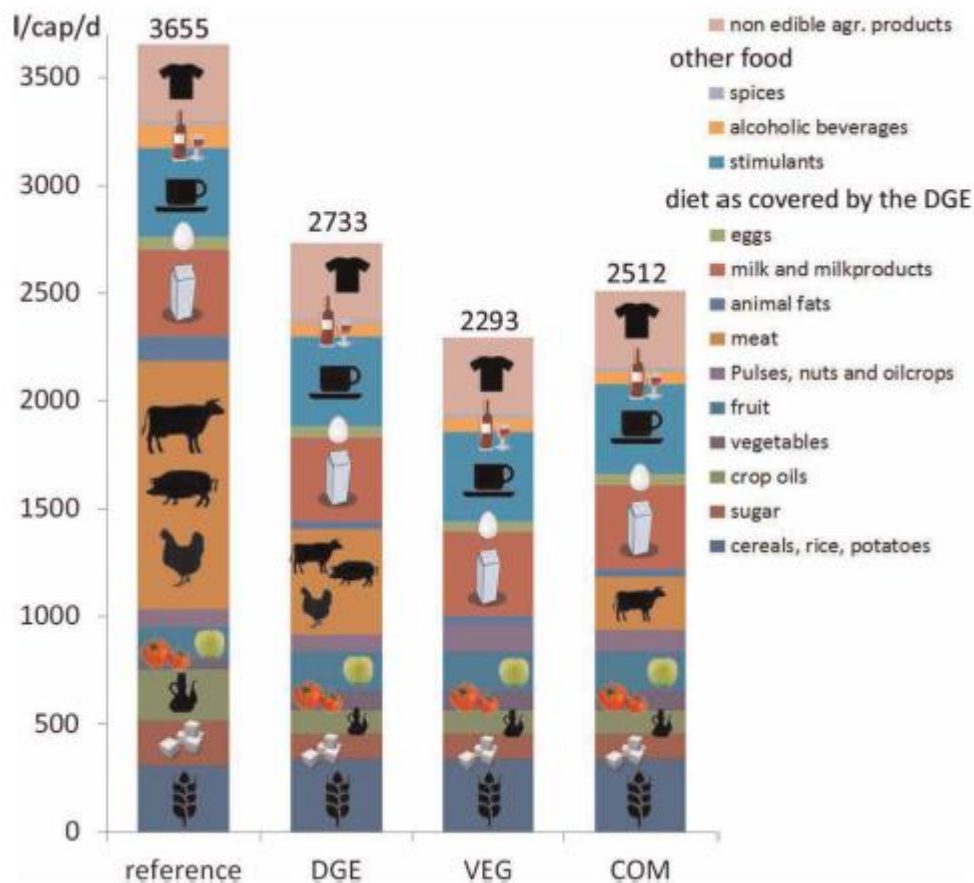
Nevertheless, this comparison demonstrates in which way a few and simple measures can contribute to the reduction of the water footprint.

Table 2: Water footprint reduction potential.

	day	Reduction potential	
water consumption (indirect)	Litre/capita	litre/capita	%
coffee (cup)	89	89	0
tea (cup)	12	12	0
dairy products (kg)	465	465	0
eggs	74	74	0
fruits (kg)	153	153	0
vegetables (kg)	37	37	0
meat products (kg)	777	388	50
cereal products (kg)	263	263	0
indirect water total	1.870	1.482	20,77

Total water footprint	day	Reduction potential	
	Litre/capita	litre/capita	%
Sum of direct	88	88	0,00
Sum of indirect	1870	1.482	20,77
Sum of additional	1575	1.575	0,00
Sum of total water footprint	3533	3.145	10,99

Figure 2: Different diet scenarios and their effect on the water footprint for agricultural products for Austria, based on Vanham (2013: 829).



1.3 Measures to be used and possible indicators

There are two types of indicators possible to measure the improvement: qualitative and quantitative.

Qualitative improvement

Based on the data gathered during the workshop cycle at our local partner school multiple measures to reduce the personal water footprint were developed and implemented over a period of six weeks. Each student chose 2-3 measures (Table 3).

By applying these measures the personal water footprint can be reduced.

Table 3: WFTP improvement measures with frequency how many students applied each measure over a duration of six weeks.

Measure	Frequency
Eat less meat	19
Re-use PET bottles	17
Shorter shower	15
Turning of tap	7
Eco button (toilette)	7
Shower instead of bath	6
More regional/seasonal products	6
Separating waste	5
Tea instead of coffee / less coffee	7
Only full loads with dish washer /washing mashine	3
Tap water instead of bottled water	2
Use more public transport	2
More organic products	1
No new cloths in the next six weeks	1
Cloth bag instead of plastic bag	1
Airing cloths instead of washing	1
	100

Quantitative improvement:

In addition to the qualitative reduction of the water footprint, the main improvement objective is to expand the awareness building. Here the main aim is to reach as many people as possible who we can some tools and information about their water footprint and possible reduction

measures. Through this we increase the potential to reduce the overall water footprint. In order to reach this goal a step-wise approach will be applied. With each step the number of people will increase (Figure 2). Each of these steps requires a set of multiple methods (Figure 3).

Figure 3: Step-wise approach how to increase the amount of people who are aware of their water footprint.

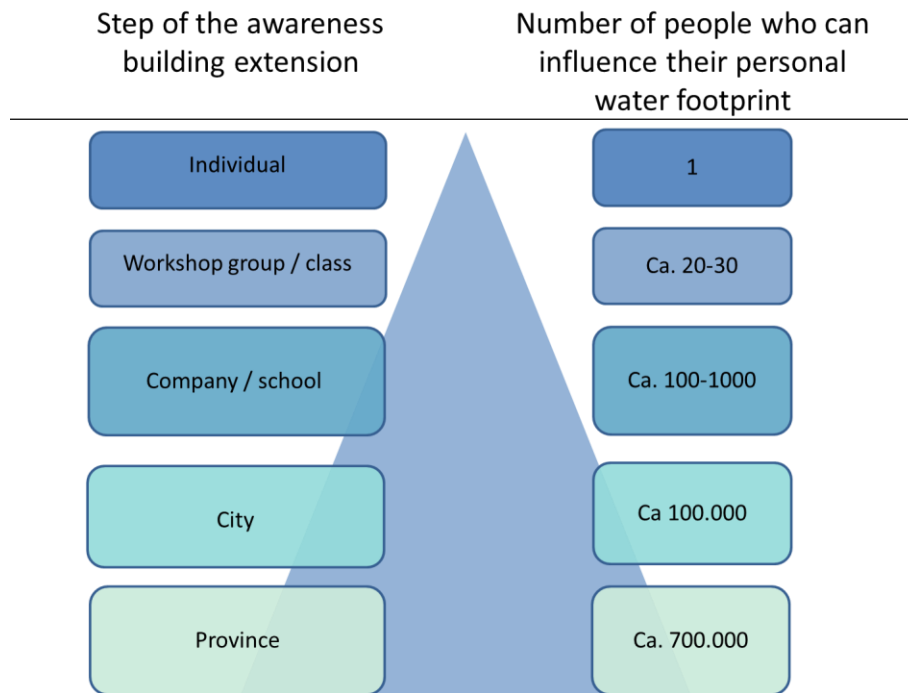
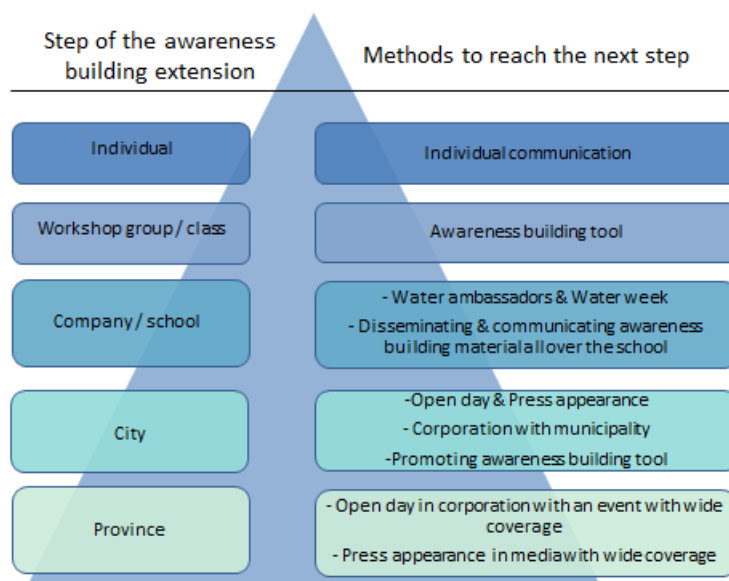


Figure 4: Set of methodologies applied to reach each of these steps.



1.4 Affected stakeholders and risks to a successful implementation

The target group of the improvement is the individual citizen, with a special focus on school children.

Improving their water footprint implies that the citizens will have to change their behaviour regarding water and food consumption, and their general consumerism. According to the motto “old habits die hard”, changing these behavioural pattern is a difficult process and might take a long time. This is also the main risk for a successful implementation, as these changes are completely voluntary. However, with the knowledge that everybody is able to produce a positive impact on their water footprint, this internal motivation is supposed to support a successful implementation in everyday-life.

1.5 Executing organisations

alpS GmbH (PP6) is responsible for executing the improvent objective. It cooperates with the director and teachers of Reithmann Gymnasium and is supported by the Innsbrucker Kommunalbetriebe AG (IKB).

1.6 Estimated costs of implementation

The highest costs incur during the planning period. However, as the tool “awareness building” has been fully developed and additional materials are ready to use, the costs for future implementations are rather low. These implementation costs include staff costs for 3 persons for approximately one month. Additional expenses can incur when it is planned to create promotional material. This would sum up to ca. 3000€.

1.7 Assessment of results

In respect to the two sets of indicators (qualitative and quantitative) the WFTP improvement can be assessed in different ways.

Qualitative

A possible method to measure the improvement could be to test the acquired knowledge, e.g. what is a water footprint, what is virtual water, how can you improve your water footprint,

etc. This however, is only possible for a small amount of people. For the majority of people only quantitative measures will be appropriate, e.g. how many people could be reached via the awareness building programme?

References

Vanham, D. (2013): The water footprint of Austria for different diets. In: *Water Science & Technology*, Vol. 67, Issue 4, 824-830. IWA Publishing, London.