Annex III: Proposed indicators for the TIA workshop

	Indicator	Possible to measure by	Type of region	Importance	Parameter for evaluation
Waste	Waste generation	Tons/ year	All	Monitor progress on waste management; Better pianification of waste management systems; Possibility to implement an "early warning system"	Benefits in terms of CO2 emissions, reduced costs for waste management, job creation potential and resource efficiency gains can be estimated starting from these indicators.
	Recycled waste				
	Incinerated waste (including export rate where possible)				
	Landfilled waste (including export rate where possible)				
	Organic waste generated	Tons/year	Rural areas	Estimate potential for recycling	Organic waste management systems are likely to be put in place to enable the recovery of organic matter (e.g. in some regions of Netherlands and France). Instead, implementing recycling systems may result economically and logistically inconvenient due to low density of the territory
	Illegal landfilling	Rate illegal landfilling / total waste generate	EU11 Countries****	Monitor illegal landfilling practices Estimate release of pollutants in the environment Estimate real loss of resource	In EU 11 countries, illegal landfilling is supposed to be about 11%. Illegal landfilling practices released uncontrolled pollutant in the environment.
	Regional incineration VS national incineration rate	Tons incinerated waste region (minus exported incinerated waste)/ Tons incinerated waste national	Especially in MS with high level of landfilling	Estimate traffic	Rely on incineration plans for treating waste can increase traffic in the area for waste transport.
	Municipal waste material recycling VS per capita annual regional GDP	$\frac{\%\text{material recycling}}{GDPcapita\ (in \frac{1000€}{cap} year)}$		Estimate regional potential for recycling	A minimum per capita GDP of 20,000 € year seems to be necessary to achieve material recycling rates above 40%

	Indicator	Possible to measure by	Type of region	Importance	Parameter for evaluation
Demographic	Population density	$\frac{Inhabitants}{km^2}$	Highly and low dense populated regions**	Estimate regional potential for recycling	Seem to have problems in implementing recycling.
			Aggregates with population between 1000 and 20.000 inhabitants		Municipalities with a number of inhabitants lower than 10.000 have more chances to achieve the 65% recycling rate
			Urban regions**		Big urban agglomerates (e.g. Vienna, Bruxelles, London, Paris, Berlin, Cologne, Hamburg) have problems with recycling waste (e.g. due to lack of space for installations, difficulties in management of big amounts of waste)
	Illegal incineration practices	Number of accidents	Eastern and southern rim of the European Union	Measure increase of illegal incineration practices	Monitor progress in countries which have not yet implemented sufficient waste management systems
Natural environment	Pollutants in soil,	Rate of estimate illegal landfilling VS contamination rate of illegal landfilling ***	Natural areas** Islands in the south of Europe	Risks correlated to illegal landfilling and incineration	In certain areas, practices as illegal / landfilling can cause uncontrolled release of pollutants, and fires (e.g. in summer)
	Pollutants in ground/surface water*				
	Conservation of natural heritage (landscape diversity) *	Loss of areas (due to fires and landfilling) / total regional level***			
	Emissions of CO2*	Tons	All	Estimate impacts of different waste management practices on climate change	All life cycle should be taken into account

	Indicator	Possible to measure by	Type of region	Importance	Parameter for evaluation
Economic development	Innovation *	Rate of new patents/year, in certain application (e.g. recycling techniques)***	All	Estimate potential improvements in recycling sector	More innovation can lead to improvements to all life cycle aspects related to waste prevention and recycling
	Entrepreneurship (share of private enterprises)*	Rate of total amount of business and enterprises involved in the recycling sector (e.g. by NACE codes)***	All	Estimation of business potential	Business potential in the recycling sector can boost investments and creation of jobs
	Access to IT services	Number of access to internet/ total population	All	Estimate potential for recycling practices	Better access to IT technologies seems to be related to increase in recycling practices
	Overnight stays (tourism)*	Population of tourists× waste generated pro capita***	Islands in the south of Europe	Estimation of increase in the amount of waste generated	Island territories face particular difficulties in implementing adequate waste management systems
	Efficiency of government/ governance mechanisms (efficiency / effectiveness of public administration)*				Faster implementation of the new directives

Legend:

* ESPON QUICK SCAN: indicators

** ESPON QUICK SCAN: Types of regions according to NUTS 2 statistical region

*** measures suggested by the authors