

		Which challenge?		How to assess/calculate the challenge?					FR Cities CALs				
		CHALLENGES /objectives	SPECIFIC TOPIC	Indicator - Description of metrics' assesment methodology	Unit	Tools/models (if required)	Data requirements	Data source and availability	Sample time Data intervals	MILAN			
Citizen Safety and Security	physical environmental	real (direct)	flooding risk assessment exposure (average/year)	total rainfall volume/total water detention time		Flood peak reduction	GIS Mapping	floods records		CAL 1: GR			
			static analysis of Green Roofs	For a green roof, wall or facade, the loads that the building structure must support include: -Dead load - Live load - Transient load	Weight loading (kg/m2)		GIS Mapping			CAL 1: GR			
			Run-off	Runoff Coefficient and peaks: Crucial to measure rainfall at high resolution throughout the duration of the project, irrespective of runoff method, For direct measurement of runoff - high resolution data logging - possibly 15 min intervals, important to gather information of site conditions before AND after greening (e.g. infiltration rate, soil type)	Measures or Modeling		Direct measurement of runoff, USDA Curve Number . Unit = mm, Rational Method for estimating 'peak' flow rates for simple urban watersheds/sewers. Units = m3/s or litres/s, Statistical estimation of 'peak' runoff rates for return periods of 5,10,100 years Units = litres/s or m3/s, Process-based hydraulic modelling. Units = various, Rainfall. Standard guage method - logged. Unit = mm			CAL 1: GR		CAL 3: TIBALDI	
			noise	day/evening/night noise level Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002	Measures or Modelling	effect of noise on health	dBA (Average data of the days that have been measured. Annual average in the case of the acoustic simulation.)		Lnight Lden	CAL 1: GR		CAL 3: TIBALDI	
			urban heat island	thermal comfort score		outdoor index.	analysis of tropical nights, heat stresses,	temperature measurement (morning, night, differences)			CAL 2: GIA		
			traffic safety	accidents / crossings							CAL 2: GIA		CAL 3: TIBALDI
			air quality	Non-spatial indicators of gross quantities: annual amount of pollutants captured/removed by vegetation		measures of PM10, NO2	concentration of pollutants	yearly mortality because of air problems					CAL 3: TIBALDI
	perceived (indirect)	thermal comfort	estimation based on coefficients of plants used reduction capacity		community walks							CAL 3: TIBALDI	
		urban design features	heights of trees/vegetation density/visibility index	number of blind walls	observations	urban design experts							
		Social co-benefits	qualitative assessment of user attachment to user preferences on green/blue areas	qualitative index	mapping / surveys /economic valuation	place-based values and sense of belonging in community members	PSI					CAL 3: TIBALDI	
	Social	real (direct)	crime in vicinity	Number and types of crime committed in the demonstration area per inhabitant OR use		Crime statistics (segregated by type and time of day)	stata						CAL 3: TIBALDI
			accessibility of green public spaces	accessibility index (measured as distance or time) of urban green spaces for population	index	number of users/time	gis mapping /neighboring analysis	surveys			CAL 1: GR	CAL 2: GIA	CAL 3: TIBALDI
			sociability of public spaces	Number of people using the space during day/night	activities +tracking methods	PSI/Place standards Observations /surveys	quantitative/qualitative						
			Devices contributing to safety	Self reporting instruments to assess indicators of literacy, numeracy and perceived levels of crime and safety.		surveys		EKLIPSE				CAL 2: GIA	
		perceived (indirect)	social degradation	quality of life / social structure in the area	socio-demographics	eyes on streets	social analysis to local residents per catchment area	statistics					CAL 3: TIBALDI
			poor maintenance to green spaces / management of public spaces	number of maintenance events on ground to NBS / falling trees		community groups	community engagement in associations					CAL 2: GIA	
	perception of safety /sense of place		Residents' and area users' perceptions of safety		Surveys/ interviews	background on socio-demograhics	census data				CAL 2: GIA	CAL 3: TIBALDI	