Table 1 Different levels of detail for the different DPSIR blocks

DPSIR blocks	Levels of complexity		
	Low	**Medium**	**High**
DRIVERS **PRESSURES**	Activity levels and emissions are estimated for the 11 macro sectors (SNAP1 classification) at a low spatial resolution (e.g. national level), using by default a top-down methodology. Due to the limited detail in the sector contributions and spatial resolution, this level does not allow for detailed scenarios at a local scale.	Combination of bottom-up and top-down methodology is used (SNAP2 or SNAP3 classification). Emission factors and activity data representative for the study area are used when available.	Emissions and activities are calculated with the finest space and time resolution required for the purpose of the IAM application, with a bottom-up approach and finest level classification at least for the significant emission sources for the area of interest. Emission factors and activity data have to correspond to the specific activities (SNAP3 classifications) and fuels of the area under study. The processes have to be detailed as well as possible, to attribute the most representative emissions. In case data are lacking, a top-down approach can be used but with the help of complementary data to take into account regional specificities.
STATE	The simplest way to characterize the AQ state is to use measurements taken routinely or during a measurement campaign and to interpolate these to a grid with a geo-statistic interpolation method to obtain a map of concentrations over the area of interest. Such an assessment of STATE does not require any input on emissions and thus activities. For IAM application, the difficulty is therefore to link these concentrations to emissions; that is, to estimate the contribution from identified sources to observed concentrations (source apportionment).	It is based on a characterization of the AQ state using one single deterministic model adapted to the studied spatial scale. This model should be validated over the studied area and should use emissions input data adapted to this scale.	It is based on a characterization of the AQ state using a chain of AQ and meteorological models, from large scale (Europe for example) to regional (country or regions) and urban/local scale (city area) and street scale. The use of a downscaling model chain allows for taking into account the interactions between the various scales, such as the transport of pollutants at a large scale or interactions between mesoscale wind flows and local dynamics. An operational model validation with observations is required.
IMPACTS (Health)	A level 1 approach requires a coarse "exposure" estimate of AQ provided either by measurement or modelling (e.g. average mean annual exposure for a city), a dose-response function or concentration-response function and a simple population description. This results in a single number to roughly indicate the 'average' exposure for the considered territory (for example a city or a country).	Similar to level 1, but with spatial detail in the STATE description, so the variation in space of the AQ is taken into consideration.	A level 3 approach requires a detailed "exposure" estimate based on detailed, temporal and spatial, concentration and population information and allows deriving health impact information taking into account aspects such as distance to a road, spatial distribution and vulnerable groups for instance.
RESPONSES	Expert judgment and Scenario analysis. In this case the selection of emission abatement measures is based on expert opinion, with/without modelling support to test the consequences of a predefined emission reduction scenario on an AQI or better an health impact indicator (HII). In this context, the costs of the emission reduction actions can be evaluated as an output of the procedure if the data for such cost computation are available.	Source Apportionment and Scenario analysis. In this case the main sources of emissions that are influencing an AQ index are derived through a formal approach; this then allows selection of the measures that should be applied to improve the Health Impact Indicators. Again, emission reduction costs, if computed, are usually evaluated as a model output.	Optimization. In this case the whole decision framework is described through a mathematical approach and costs are usually taken into account.