A practical example using InaSAFE

"We are going to walk you through the process of running through an InaSAFE analysis in a very simple way. As part of the process you will try out adding hazard, exposure and aggregation data to QGIS, assigning keywords to an exposure layer, run an analysis and then view the resulting report."

The analysis workflow in InaSAFE is similar regardless of which hazard and exposure types you have: Add your Hazard, Exposure and optionally Aggregation layers to QGIS, ensure they have their InaSAFE Keywords defined, then run the analysis. At the end of the analysis, InaSAFE will add a layer group to the layers panel, which will contain the results of the analysis. InaSAFE will also generate PDF reports containing both cartographic and tabular products. We use a fictitious flood layer for this example.

You try:

Goal: To be able to run an simple analysis in InaSAFE.

First load the data layers as indicated in the 'load data' requirements.
Next use the InaSAFE Keyword Wizard to define keywords for the population layer. Select the layer first in the legend, then click the InaSAFE "Keywords Creation Wizard" icon in the InaSAFE toolbar (use the tooltips to ensure you click the right icon). Use the Exposure keywords shown in the 'exposure keywords' requirements.
Finally run the InaSAFE 'Impact Function Centric Wizard', reading the instructions on each step carefully and make the most sensible choices (bearing in mind all the data is already loaded in QGIS).

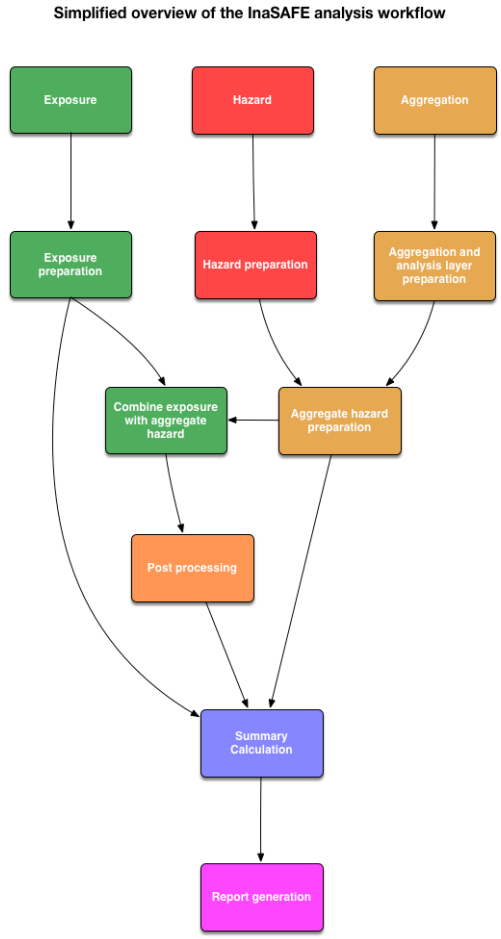
Requirements	
Load data	*Use the QGIS Browser panel to add the following datasets to your QGIS project.* ***From the exercise_data folder:*** *wards.shp, worldpop_25.tif, tandale_imagery.tif* ***From the exercise1 folder:*** *tandale_floods.shp*
Exposure keywords	**Title** Worldpop resampled 25m **Purpose** exposure **Exposure** population **Geometry** raster **Data type** continuous **Units** count **Source** WorldPop **Url** http://worldpop.org.uk **Date**15 Jan 2015 **Keyword version** 4.1 **Reference system** EPSG:4326 **Layer source ....** worldpop_25.tif

Check your results:

How many people were affected by the flood? Do the results match your expectations?

More about the analysis

In this exercise we have **really simple** dataset so that we can easily understand at the results generated. We also pre-generated the keywords for the aggregation and hazard layers (we will cover these in detail in subsequent worksheets). So what happened when we ran the analysis? InaSAFE performs a sequence of spatial operations on the data, converting rasters to vector data, unioning each vector layer with all the others and assigning hazard and aggregation classes to each resulting feature. The result data then used to generate a number of reports using the InaSAFE reporting engine and the QGIS composer. The exact nature and sequence of operations will vary according to the input datasets – continuous raster data gets reclassified then polygonised, vector attributes get remapped into standard exposure concepts and so on.



Check your knowledge:

1. **Choose which exposure types are supported for aggregation ratios:**

a) roads (for calculating the ratio of each road type in an aggregation area)
b) buildings (for calculating the ratio of each building type in an aggregation area)
c) population (for calculating the ratio of each demographic group in an aggregation area)

2. **Mark all the correct statements:**

a) Aggregation areas are required for an InaSAFE analysis to work
b) Aggregation areas are centrally provided and maintained by the InaSAFE project
c) InaSAFE allows you to use a subset of the aggregation areas to determine the analysis area.

Answers:

Further reading:

See the aggregation section in the InaSAFE technical documentation at:
http://manual.inasafe.org/en/index.html#aggregation-groups or in the application help.