

## POLLUTANT LOADS DISCHARGED INTO WATER COURSES

### WATER 4

The excessive introduction of organic matter, nitrogen, phosphorus and various micropollutants (trace metals, pesticides, etc.) into surface waters is one of the main causes of the bad ecological status of some rivers. These contributions result mainly from direct discharges of waste water and runoff to agricultural land, polluted soils or other types of coverings (roads, roofs, etc.).

The quantities of carbon (C), nitrogen (N) and phosphorus (P) that end up in Walloon rivers can be assessed using the PEGASE model. The results produced by this model should be interpreted with caution, taking into account the characteristics and limitations of the model.

### Ground runoff<sup>1</sup> and urban waste water discharges are the main sources of C, N and P

According to the latest results provided by the model for the year 2015, the respective contributions of C, N and P to the Walloon hydrographic network were estimated at about 56,200 t, 36,400 t and 1,780 t respectively. Simulations show that more than 61% of total inputs came from diffuse inputs by runoff to soils (agricultural and non-agricultural), while 27% came from urban waste water discharge and 8% from industrial discharges.

Between 1993 and 2015, pollutant loads of C, N and P from runoff to soils, urban waste water discharges, industrial discharges and inputs by cattle decreased. For example, the pollutant loads resulting from urban discharges decreased by 46% for C, 31% for N and 55% for P. This evolution is mainly due to the increasing treatment of waste water in Wallonia<sup>2</sup> and factors such as the removal of phosphates from detergents and laundry detergents. The evolution of diffuse inputs is more difficult to interpret because they vary more according to soil cover and climatic conditions.

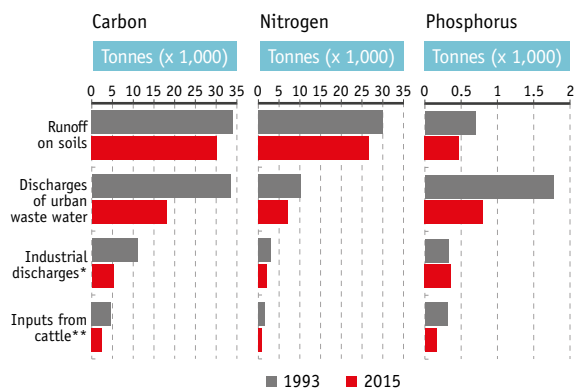
### Decreasing industrial discharges

Between 1994 and 2013, the industrial pollutant loads discharged into water courses decreased from 16% to 94%, depending on the substance<sup>3</sup>. This development is the result of the application of a waste water discharge tax, the phasing-out of the most polluting activities and measures taken by industry to clean up and improve certain processes<sup>4</sup>.

In addition to the basic measures already in place to reduce the pollution of water courses (collection and treatment of waste water, environmental permits, the prevention of soil erosion, the Sustainable Management Programme for Nitrogen in Agriculture<sup>5</sup>, etc.), the Walloon authorities are planning to apply additional measures where appropriate<sup>6</sup>. These measures affect all sectors of activity. For example, they envisage the installation of phosphate removal systems in certain small-scale waste water treatment plants (< 10,000 p.e.), the self-monitoring of industrial discharges, the control and revision of environmental permits for industries with a significant impact on water bodies that have not achieved good status, the improvement of knowledge of industrial discharges and the suitable management of agricultural plots with a high risk of erosion.

<sup>[1]</sup> → SOILS 4 | <sup>[2]</sup> In 2015, 62 (88.6%) of the 70 waste water treatment plants of 10,000 population equivalent (p.e.) or more were equipped with tertiary denitrification and phosphate removal treatment. Only 15.1% of the stations from 2,000 to 9,999 p.e. were equipped with this type of treatment. | <sup>[3]</sup> Decrease of 16% for P, 78% for Cr and Cu, 80% for Pb and 94% for Hg | <sup>[4]</sup> → INDUS 3 | <sup>[5]</sup> Walloon Government Decree of 13/06/2014; → AGRI 9 | <sup>[6]</sup> → WATER 21

Fig. WATER 4-1 Carbon (C), nitrogen (N) and phosphorus (P) inputs to water courses in Wallonia

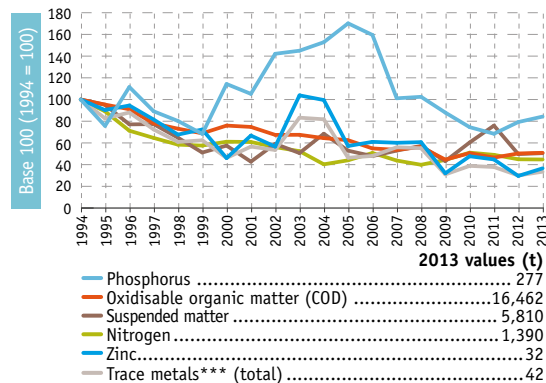


\* 2012 data

\*\* Estimated 2015 values taking into account the 8% reduction in cattle stock compared to 2010.

SOERW 2017 – Sources: SPW - DG03 - DEE; ULg (PEGASE model)

Fig. WATER 4-2 Pollutant loads of industrial nature\* discharged into surface water in Wallonia\*\*



\* Including the energy sector, drinking water production plants and the tertiary sector

\*\* Direct discharges to surface water by industry + discharges to sewers not connected to a treatment plant

\*\*\* As, Cr, Cu, Ni, Pb, Ag, Zn, Cd, Hg

SOERW 2017 – Source: SPW - DG03 - DEE