7. CONCLUSIONS

The general conclusions of the study are provided in this chapter, together with a summary table of main results and references to sections where more details are presented. An overview of the objectives, scope, results and conclusions can be found in the Executive Summary provided at the beginning of this report, however it should be recalled that the use of current practices and current technology has been assumed, and tailings from mining and milling are assumed to be stable in the long term.

Table 23. **Summary table of dose estimation for the public and workers from major fuel cycle stages of each option**
(*Note:* Collective doses in this report are used only in a comparative fashion)

Fuel cycle stage	**Public (generic calculations)**			**Workers (operational data)**	
	Collective dose truncated at 500 years (manSv/GWa)		**Average annual individual dose to the critical group (mSv/a)**	**Annual collective dose (manSv/GWa)**	
	Once-through	**Reprocessing**		**Once-through**	**Reprocessing**
Mining and milling	1.0[5] *(1-1 000)*[3][4]	0.8[1][5] [0.8 × 1-1 000)][3][4]	0.30-0.50 *(0.020-0. 940)*[3]	0.02-0.18	0.016-0.14[1]
Fuel conversion and enrichment	0.0009		0.020 *(10^{-6})*[3]	0.008-0.02	0.006-0.016[1]
Fuel fabrication				0.007	0.094[2]
Power generation	0.6	0.6	0.0005-0.0008	1.0-2.7	1.0-2.7
Reprocessing, vitrification	Not applicable	1.2[1] *(0.6)*[3]	0.40 *(0.005-0.059)*[3]	Not applicable	0.014[1]
Transportation	Trivial	Trivial	Trivial	0.005-0.02	0.005-0.03
Disposal	[6]	[6]	[6]	Trivial	Trivial
Total	**1.6[5]**	**2.6[5]**	**Not applicable**	**1.04-2.93**	**1.14-2.99**

1. Collective doses for the reprocessing option have been scaled down by the ratio of mined natural uranium needed for the two options (179.3 t and 141.7 t, see Figure 1).
2. Weighted by UO_2 and MOX-fuel amounts (21.1 t and 5.5 t, see Figure 1).
3. Site-specific assessment values are given within brackets. They provide an indication of the sensitivity of results to assumptions about population distribution, habits of individuals and characteristics of the environment in which they live, and about conditions of releases.
4. The range refers to the sensitivity discussed in other studies UNSCEAR, SENES, EC, using longer integration times (see Table 21 and Annex A1).
5. Collective doses from mining and milling could be a few tens of manSv in case of poor tailing-pile maintenance.
6. As explained in Chapter 6, no releases of radionuclides are expected within the first 500 years after placement of waste and spent fuel in a final repository.