Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

natural capital: the stock of fish in the sea; natural income: the new fish added each year by growth and reproduction, which can be caught sustainably

2.2

(i) $92\,000 - 80\,000 = \mathbf{12\,000}$ t a year; (ii) the catch is larger than the yield, so the stock falls by about 3 000 t a year: the natural capital is being used up

2.3

$5.2 - 3.0 = \mathbf{2.2}$ gha per person; any two: renewable energy instead of fossil fuels; less meat in diets; less waste and more recycling; public transport

3.1

(a) inner ring: the social foundation, the minimum everyone needs (food, water, health, education); outer ring: the ecological ceiling, the planetary limits that must not be crossed

(b) a rich country often meets the social foundation but overshoots the ceiling through high consumption; a poor country may stay inside the ceiling but fall short of the social foundation

3.2

(a) reserve: P (EF below biocapacity); largest deficit: Q, 2.8 gha per person

(b) award up to [4]: strengths: one simple number, easy to compare countries and over time; links consumption to land and sea area; limitations: leaves out some impacts (e.g. pollution, water use, biodiversity loss); depends on assumptions in converting to global hectares; a country can import goods and "move" its footprint elsewhere; conclusion: useful for awareness and comparison, best used with other indicators

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