Solutions

2.1

- Private: $800 - 100P = 100P$ gives $P = £4$, $Q = 400$ crates.
- Social: buyers pay P_c, sellers keep $P_c - 1$.
- $800 - 100P_c = 100(P_c - 1)$ gives $P_c = £4.50$, $P_p = £3.50$.
- $Q = 350$.
- Fifty crates fewer than the private market.

2.2

- Buyer's value at 390: $8 - 390/100 = £4.10$.
- Private cost £3.90; social cost $3.90 + 1.00 = £4.90$.
- $£4.90 > £4.10$ – **not worth brewing**, even though the private ledger shows a 20p gain. Crates 351–400 all fail this test.

2.3

- Revenue: $350 \times £1 = £350$.
- It is money moved from buyers and sellers to the council – nothing created: a transfer.
- The triangle $\frac{1}{2} \times 1 \times 50 = £25$ is damage that no longer happens, net of value forgone.
- The only pure gain – and small.

2.4

- (a) Externality – an external cost on the canal.
- (b) Public good – non-rival and non-excludable, so no price can fund it.
- (c) Information failure – the seller knows what the buyer cannot.
- (d) No failure – a real cost moved, and the price tells the truth.

2.5

- Wrong target: the wedge still cuts quantity to 350, but the outfall still pours – the quantity moved, the failure did not.
- Wrong number: a £1 tax under-prices a £1.40 damage.
- Solving with 1.4 gives Q = 330, so crates 331–350 are still brewed although they should not be.
- Measurement IS the policy.

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