**Supplementary material C – Programme cost data**

Table C1. Model parameters and estimates used for quantifying the cost of **vaccination**.

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Vaccine (aqueous adjuvanted) | 140/dose (makes up 80% of total vaccine used) | Fixed | FAO-PK |
| Vaccine (oil adjuvanted) | 180/dose (makes up 20% of total vaccine used) | Fixed | FAO-PK |
| Delivery | 5-10 PKR/dose | Uniform distribution | |
| Number of doses required (cattle - zone) | 2,929,108 | Fixed | FAO-PK (data from previous campaign) |
| Number of doses required (buffalo - zone) | 1,515,431 | Fixed | FAO-PK (data from previous campaign) |
| Number of doses required (cattle – buffer area) | 615,962 | Fixed | FAO-PK (data from previous campaign) |
| Number of doses required (buffalo – buffer area) | 470,328 | Fixed | FAO-PK (data from previous campaign) |
| % of population as youngstock | 41.6% | Fixed | Pakistan Bureau of Statistics, 2006 |

Table C2. Model parameters and estimates used for quantifying the cost of **post-vaccination monitoring**.

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Small-scale immunogenicity studies | 2.1-4.1 million PKR | Uniform distribution | Expert opinion (follow up consultation with FAO-PK) |
| Number of samples tested by SP ELISA for population immunogenicity study | 1,050 (350 per serotype) | Fixed | FAO-OIE PVM Guidelines (Ferrari et al., 2016) |
| Structural protein antibody costs (per sample) | 1500-2000 (most likely 1700) | Betapert | Expert opinion (staff from national laboratory) |

Table C3. Model parameters and estimates used for quantifying the cost of **passive surveillance.**

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| DSA for staff attending outbreaks | 3000-4000 (most likely 3500) per staff member | Betapert | Expert opinion |
| Travel costs to attend outbreaks | 2000-3000 (most likely 2500) | Betapert | Expert opinion |
| Antigen testing costs | 2000-3000 (most likely 2500) | Betapert | Expert opinion (staff from national laboratory) |
| Shipping costs to national lab | 500-1500 (most likely 1000) | Betapert | Expert opinion |
| Shipping costs to OIE reference lab (annual) | 350,000-475,000 | Uniform | Expert opinion (FAO-PK) |

Table C4. Model parameters and estimates used for quantifying the cost of **active surveillance.**

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Sample size for NSP seroprevalence studies (50% seroprevalence in year 1) | 385 farms, 9000 samples | Fixed | (Thrusfield et al., 2001) |
| Sample size for NSP seroprevalence studies (40% seroprevalence in year 2) | 369 farms, 8500 samples | Fixed | (Thrusfield et al., 2001) |
| Sample size for NSP seroprevalence studies (30% seroprevalence in year 3) | 323 farms, 7500 samples | Fixed | (Thrusfield et al., 2001) |
| Sample size for NSP seroprevalence studies (20% seroprevalence in year 4) | 246 farms, 5700 samples | Fixed | (Thrusfield et al., 2001) |
| Sample size for NSP seroprevalence studies (10% seroprevalence in year 5) | 139 farms, 3200 samples | Fixed | (Thrusfield et al., 2001) |
| Sample size for NSP seroprevalence studies (when free) | 300 farms, 7000 samples | Fixed | (Thrusfield et al., 2001) |

| | | | |
|---|---|---|---|
| Number of farms visited per day for serosurvey | 2-8 (most likely 4.5) | Betapert | Assumed by authors |
| Number of full-time veterinary officers | 15-25 | Uniform | Assumed by authors |
| Salary for field veterinary officer and assistant managers | 75,000 PKR/month | Fixed | FAO-PK |

Table C5. Model parameters and estimates used for quantifying the cost of **sanitary measures.**

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Quarantine stations at border with Sindh province | 3-10 (most likely 5) | Betapert | Assumed by authors |
| Initial consultancy costs for establishing quarantine station (year 1 only) | 4.95m | Fixed | Assumed by authors |
| Cost of building quarantine station (year 2) | 4.2m-4.95m each | Uniform | Assumed by authors |
| Maintenance costs of quarantine station (year 3 onwards) | 250,000-495,000 each per year | Uniform | Assumed by authors |

Table C6. Model parameters and estimates used for quantifying the cost of **Programme management.**

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Salary for programme manager (every year) | 150,000 per month | Fixed | Assumed by authors |
| Initial costs to establish public private partnership (year 1 only) | 1.04m-1.85m per year | Uniform | Assumed by authors |
| Ongoing costs to support public private partnership (year 2 onwards) | 1.58m-3.0m per year | Uniform | Assumed by authors |
| Stakeholder communication costs (year 1 and 2 only) | 3.5m-5.25m per year | Uniform | Assumed by authors |

| | | | |
|---|---|---|---|
| Stakeholder communication costs (year 3 onwards) | 2.0m-3.0m per year | Unform | Assumed by authors |

Table C7. Model parameters and estimates used for quantifying the cost of **Preparatory studies, training and capacity building.**

| Parameter | Value (all costs In PKR) | Parameter type in model | Information source |
|---|---|---|---|
| Risk assessment and value chain analysis – cost of consultants and to train staff in Pakistan (initial studies in year 1 only) | 3.85m-5.99m | Uniform | Assumed by authors |
| Yearly updates to risk assessment and value chain analysis (year 2 onwards) | 625,000-1.065m per year | Uniform | Assumed by authors |
| Refresher training in risk assessment and value chain analysis (every 3 years) | 1.114m-1.8m | Uniform | Assumed by authors |
| Surveillance and PVM strategy development (workshops and training – year 1 only) | 4.25m-7.5m | Uniform | Assumed by authors |
| Research grant to establish the role of small ruminants in FMD epidemiology (year 1 only) | 6.25m-10.375m | Uniform | Assumed by authors |
| Training in outbreak investigation (initial training in year 1 only) | 5.623-6.875 | Uniform | Assumed by authors |
| Training in outbreak investigation (refresher every 3 years) | 1.875m-3.5m | Uniform | Assumed by authors |
| Laboratory training in VNT and vaccine matching | 1.5m-3.0m | Uniform | Assumed by authors |
| Establish QA system in laboratory | 1.5m-3.0m | Uniform | Assumed by authors |

| | | | |
|---|---|---|---|
| Refresher training in laboratory (every 3 years) | 850,000-1.5m | Uniform | Assumed by authors |
| Participate in proficiency tests (every year) | 400,000-800,000 per year | Uniform | Assumed by authors |
| Development of preparedness and contingency plans (years 2 and 3) | 1.875m-3.75m | Uniform | Assumed by authors |
| Building export abattoir in zone (year 2 only) | 671.01m | Fixed | Assumed by authors |