The Fleming Fund

UK International Development
Partnership | Progress | Prosperity

Optimising AMR surveillance in animal health

Appendices

January 2026

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Acronyms

AMR	Antimicrobial resistance
AMS	Antimicrobial stewardship
AMU	Antimicrobial use
AST	Antimicrobial Susceptibility Testing (AST) – a laboratory method used to determine the effectiveness of antibiotics against bacteria.
ASLM	African Society for Laboratory Medicine
CHAZ	Churches Association of Zambia
CVRI	Central Veterinary Research Institute (Zambia)
CVL	Central Veterinary Laboratory (Nepal)
DVS	Department of Veterinary Services
GDP	Gross Domestic Product
GTA	Group for Technical Assistance (Nepal)
IPC	Infection Prevention Control
IVI	International Vaccine Institute
KII	Key Informant Interviews
LMIC	Low- and middle-income country
NRL	National Reference Laboratory
UTI	Urinary Tract Infection
VfM	Value for Money
WOAH	World Organisation for Animal Health
ZNPHI	Zambia National Public Health Institute

1. Appendices

1.1 Methodology

This study has employed a mixed methods approach that combined qualitative data collected during field visits with quantitative data collected by regional grants. (TADE Africa and TADEU Asia)

Field trips to Zambia and Nepal

Mott MacDonald, the Fleming Fund Management agent, sent teams to Nepal and Zambia in 2025 to gather evidence on the efficiency and effectiveness of AMR surveillance in the animal health sector, while seeking to identify any relevant outcomes, challenges, or successes. The evaluation teams were supported by Fleming Fund grantees CIDRZ and TADE Africa in Zambia, and FHI 360 and TADEU Asia in Nepal.

Case Study selection

The identification of case study countries was carefully considered. We balanced a desire to observe the challenges and successes of the programme in countries at different stages of animal health surveillance and One Health system development; a need to work within a tight budget and timeline; and alignment with grantees' activities. In addition, the trips provided an opportunity to perform monitoring activities and provide technical guidance to the regional grants on Data and Evidence Use. Table 1 and Table 2 outlines the selection criteria for the case studies and why Zambia and Nepal were selected.

Trip details

Both visits were completed in early 2025, supported by country and regional grantees. The trips consisted of stakeholder meetings with government ministries, international organisations, and other development partners, to identify the costs, facilitators and challenges to animal health surveillance. Visits to Fleming Fund sites and observation of surveillance activities allowed the collection of qualitative and quantitative data. This data was then used to inform analysis and costing estimates of different AMR surveillance methodologies. Nonetheless, it was not possible to conduct the same level of regional site and activity observation in both countries, as the Management Agent's restrictions prevented travel outside the Kathmandu Valley in Nepal.

Table 1: Case Study selection criteria

Criteria		Rationale
1	Countries where the 'Data and Evidence Use' regional grants were being implemented.	Allowed the conduct of monitoring activities and provision of technical guidance to the regional grants.
2	Country grantees should be the same as in phase 1.	Allowed consistency and a longer perspective to observe the impact of the Fleming Fund.
3	Countries reporting relatively strong activity in the animal health sector.	Allowed a focus on 'success stories' and a consideration of enabling factors and barriers.
4	Case studies needed to be from different regions.	AMR is a global issue; therefore, data is required from different regions to ensure the findings have broad contextual value.
5	Countries should have different geographic challenges.	Allowed consideration of facilitators and barriers in countries with different geographies and within varying contexts.

Table 2: Case Study selection rationale

Criteria	Zambia	Nepal
1	TADE Africa's first country for data collection. Visiting when there in February 2025 facilitated monitoring and technical support.	TADEU Asia had already completed data collection for Human Health, and there was an opportunity to monitor their work.
2	CIDRZ was a grantee in phases 1 and 2	FHI 360 was a grantee in phases 1 and 2
3	Zambia was highlighted as performing well in the ESA region.	Nepal was highlighted as a top performer in the SA region and across the whole programme.

4	African Country	South Asian country
5	Zambia has vast plateaus dissected by deep valleys and rivers. Its landscape includes savannah, wetlands, and escarpments.	Nepal is a mountainous country dominated by the Himalayas. Its terrain ranges from high altitude mountains and rugged hills to fertile river valleys and subtropical lowlands.

1.1.1 Cost and output modelling

The cost and output analysis and modelling were based on the regional grants for data and evidence use (TADE Africa and TADEU Asia). Although the methodology and level of detail were different for each grant's data collection, this enabled the analysis of animal health surveillance in Zambia and Nepal and some comparisons to be made.

TADE Africa costing in Zambia

The Fleming Fund regional grant, Technical Assistance for Data and Evidence in Africa (TADE Africa[1]) collected cost and output data across the five sites supported by the Fleming Fund in Zambia. This study has leveraged data from animal laboratories in Chipata, Mongu, and CVRI, with the findings drawn from average costs across the three sites between 2021-2024.

Site selection

Although TADE Africa collected costing and output data from all five of the sites supported by the Fleming Fund in the animal health sector. The University of Zambia (UNZA) veterinarian laboratory was excluded as it included a significant proportion of passive sample collection, bringing down the cost per sample, and its funding source differed significantly. Additionally, the Choma Veterinarian Laboratory was excluded because its cost per sample was significantly higher and was deemed an outlier. The remaining sites in Chipata, Mongu, and the Central Veterinary Research Institute (CVRI) were seen as comparable and representative.

Ongoing vs Set-up costs

Table 3: Ongoing vs Set-up cost assumptions in Zambia

	Ongoing	Set-Up
Personnel	100%	0%
Consumables	100%	0%
Activities	50%	50%
Infrastructure	5%	95%
Equipment	5%	95%

The total costs recorded between 2021 and 2024 were assumed to include the costs to 'set up' the laboratory, on top of the ongoing cost of running the surveillance system. The assumptions made in Table 3 were based on stakeholder discussions, observations and selected literature. The ongoing column states the total recorded costs required to continue running the surveillance system with a farm-based active surveillance strategy, between those involved in setting up the activity (one-offs) and those required for its continuation. Ongoing costs comprised all of the personnel costs listed here (since only relevant personnel costs were included – e.g. if a lab technician spent 15% of their time on active surveillance then 15% of their total salary will be included in this figure); all of the reagent/consumable costs; half of the training/meetings and transport costs (a large portion of this relates to travel to active surveillance farms, but the bulk of this is for 'mentored' visits, which should become less necessary over time as staff learn their roles). An additional 5% of infrastructure, furniture and equipment costs is also included to cover maintenance and in the longer-term replacement.

The rest of the costs are deemed to be set-up costs. If staff switched from visiting farms for active surveillance to, for example, visiting them only during vaccination drives or to visiting abattoirs, then it is assumed that little to none of these set-up costs would need to be repeated. The same equipment and furniture would be used, for example, and only an initial brief retraining might be required.

1. **African Society for Laboratory Science** (ASLM).

Exchange rates in Zambia

The exchange rates found in Table 4 were calculated using the World Bank historical data. The mean of the exchange rate between 2021–2024 was used to convert the values. The GBP-Zambian Kwacha rate was calculated with the following formula, below (GBP-USD)/(Zambian Kwacha-USD).

Table 4: Great British Pound to Zambian Kwacha exchange

	2021	2022	2023	2024	Average
Zambian Kwacha to USD	20.02	16.94	20.21	26.17	20.83
GBP to USD	0.73	0.81	0.80	0.78	0.78
GBP to Zambian Kwacha	0.0363	0.0479	0.0398	0.0299	0.0385

Official exchange rate (LCU per US$, period average). **https://data.worldbank.org/indicator/PA.NUS.FCRF**

TADEU Asia costing in Nepal

The Fleming Fund regional grant Technical Assistance for Data and Evidence Use in Asia (TADEU Asia[2]) collected cost and output data in Nepal. The grant collected data from Pokhara Veterinary Laboratory and the National Avian Disease Investigation Laboratory (NADIL) in Chitwan. The findings of this study were drawn from average costs across the two sites selected by the Government of Nepal between 2021 and2023. The data collected by TADEU Asia was combined with further programmatic data, but it did not include equipment purchased before 2021 and is therefore, a reflection of the ongoing cost of AMR surveillance, rather than the total cost of setting up the bacteriology laboratory. Differences, such as the accuracy of sample collection numbers and the breakdown of the source of funding by component, meant that a different analysis was completed for the Nepalese data compared to the Zambian. The TADEU grant modelled the potential costs to operate surveillance systems across human, animal and food sectors until 2030, but this data was not included in this report's analysis and will be published elsewhere.

Exchange rates in Nepal

The exchange rates in Table 5 were calculated using World Bank historical data. The mean of the exchange rate between 2021 and 2023 was used to convert the values. The GBP-Nepali Rupee rate was calculated with the following formula, below (GBP-USD)/(Nepali Rupee-USD).

Table 5: Great British Pound to Nepali Rupee exchange

	2021	2022	2023	Average
Nepali Rupee to USD	118.13	125.20	132.12	125.15
GBP to USD	0.73	0.81	0.80	0.78
GBP to Nepali Rupee	0.0062	0.0065	0.0061	0.0062

Official exchange rate (LCU per US$, period average) **https://data.worldbank.org/indicator/PA.NUS.FCRF**

Modelling alternative strategies for AMR surveillance in Zambia

As discussed in section 3.2, the modelling of alternative sampling strategies was based on Chipata's veterinary laboratory cost and output data in 2023-2024. This site was selected because its cost aligned with the national average and the laboratory was observed during field visits, confirming that only farm-based surveillance was completed. The ongoing costs at this site represented the baseline of farm-based surveillance[3].

Stakeholder discussions and field observations in Nepal and Zambia allowed set assumptions used to estimate the differences in cost components for each strategy. These assumptions included reductions in personnel and activity cost components, though these assumptions have been made conservatively and further efficiencies could be found.

2. **International Vaccine Institute** (IVI).
3. As discussed in Box 4, costs were separated into the total costs including 'set up' and an estimate of the 'ongoing' surveillance costs, assuming reduced training, equipment and infrastructure expenses.

The alternative surveillance strategies were assumed to require different proportions of the farm-based strategy baseline (e.g. farm-based, required 100% of the ongoing 50% of the total activity costs, and abattoir required 10% of the baseline). The opportunistic, collected samples were assumed to be the same level of effort for vaccination, movement and export, and other disease surveillance.

Table 6: Assumed variations in ongoing costs in Chipata, Zambia

	Ongoing	Farm-based	Opportunistic	Abattoir	Wastewater
Personnel	100%	100%	40%	25%	20%
Consumables	100%	100%	100%	100%	100%
Activities	50%	100%	20%	10%	8%
Infrastructure	5%	100%	100%	100%	100%
Equipment	5%	100%	100%	100%	100%

Scenarios considered

Different scenarios were considered, but two were most appropriate. The first was a flat budget in which alternative, more cost-efficient strategies would enable more samples to be collected. However, this study focused on a scenario in which the number of samples collected in 2023-2024 would continue at a flat rate. This facilitated the identification of how the sample throughput could be maintained, but with alternative strategies, requiring lower budgets. This scenario was deemed most appropriate as the withdrawal of Fleming Fund support was likely to result in a roughly 37% reduction in the available budget. Therefore, identifying strategies that would allow continued sample throughput was considered most beneficial.

Table 7: Alternative strategies cost modelling assumptions

Assumption	Reasoning
Chipata Veterinary Laboratory was used as the focus of the model.	This site was selected because its costs aligned with the national average and the laboratory was observed during field visits, confirming that only farm-based surveillance was completed.
2023–2024: Ongoing costs and outputs were used as the baseline for the modelling.	2023 and 2024 were deemed to be the most representative of what the laboratories' costs and sample numbers would be if funding continued. Using the ongoing costs gives a better estimate of what each strategy would cost to run after the set-up investments.
The three opportunistic strategies were assumed to have the same level of costs (vaccination campaigns, other disease surveillance and movement or export controls).	In discussions with stakeholders, the differences in the time taken and logistics were deemed negligible.

1.2 Cost and output data

The following tables outline the raw data collected by the regional grants and the figures calculated using them.

1.2.1 Data from TADE Africa[4]

Raw data collected from each site 2021–2024, Zambia

The source of the data is from TADE Africa, but they have been analysed by the Fleming Fund Management Agent.
The Ongoing and Set-up costs are estimated using the assumptions outlined in Table 3.

4. African Society for Laboratory Science (ASLM).

Chipata

Table 8: Cost of animal health surveillance 2021–2024, Chipata, Zambia

	2021	2022	2023	2024	Total	Annual total	Annual Set-up total	Annual Ongoing total	% per component ongoing
Personnel (ZMK)	54,771	61540	116486	130883	363,680	90,920	0	90,920	29%
Consumables (ZMK)	97,129	79122	239113	120556	535,920	133,980	0	133,980	42%
Activities (ZMK)	99,902	130287	145981	186102	562,271	140,568	70,284	70,284	22%
Infrastructure (ZMK)	30,525	0	12500	20000	63,025	15,756	14,968	788	0.2%
Equipment (ZMK)	625,197	154181	709371	213431	1,702,180	425,545	404,268	21,277	7%
Total (ZMK)	907,524	425130	1223451	670972	3227076	806,769			
Set-up total (ZMK)	672,887	211615	758768	314810	1958081	489,520			
Ongoing total (ZMK)	234,637	213515	464683	356161	1268996	317,249			
Total (GBP)	34,923	16360	47080	25820	124182	31,046			
Set-up (GBP)	25,894	8143	29198	12114	75350	18837			
Ongoing (GBP)	9029	8216	17882	13706	48833	12208			

Table 9: Annual samples collected 2021–2024, Chipata, Zambia

	2021	2022	2023	2024	Total	Average
Annual number of samples collected	40	29	78	35	182	46
Cost per sample total cost including Set-up	873	564	604	738		682
Cost per sample ongoing cost	226	283	229	392		268

Table 10: Source of funding total cost 2021–2024, Chipata, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	363,680	0	0	0
Consumables (ZMK)	0	247,951	314,320	0
Activities (ZMK)	189,477	341,109	5,335	0
Infrastructure (ZMK)	0	33,025	0	30,000
Equipment (ZMK)	645,066	883,120	141,444	32,550
Total (ZMK)	1,198,223	1,505,205	461,099	62,550
Share of funding %	37.1%	46.6%	14.3%	1.9%

Table 11: Source of funding ongoing cost 2021–2024, Chipata, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	363,680	0	0	0
Consumables (ZMK)	0	123,976	157,160	0
Activities (ZMK)	189,477	341,109	5,335	0
Infrastructure (ZMK)	0	1,651	0	1,500
Equipment (ZMK)	32,253	44,156	7,072	1,627
Total (ZMK)	585,410	510,891	169,567	3,127
Share of funding %	46.1%	40.3%	13.4%	0.2%

Mongu

Table 12: Cost of animal health surveillance 2021–2024, Mongu, Zambia

	2021	2022	2023	2024	Total	Annual total	Annual set-up total	Annual ongoing total	% per component total cost	% per component Ongoing
Personnel (ZMK)	54,146	61,530	68,748	79,940	264,365	66,091	66,091	66,091	10.1%	15.7%
Consumables (ZMK)	210,343	348,883	189,679	348,100	1,097,005	274,251	274,251	274,251	41.8%	65.2%
Activities (ZMK)	101,312	131,871	149,582	188,102	570,867	142,717	71,358	71,358	21.8%	17.0%
Infrastructure (ZMK)	170,223	0	12,500	20,000	202,723	50,681	48,147	2,534	7.7%	0.6%
Equipment (ZMK)	29,413	18,450	57,589	383,903	489,355	122,339	116,222	6,117	18.6%	1.5%
Total (ZMK)	565,437	560,734	478,098	1,020,045	2,624,314	656,079				
Set-up total (ZMK)	240,310	83,463	141,376	477,759	942,908	235,727				
Ongoing total (ZMK)	325,127	477,271	336,723	542,286	1,681,407	420,352				
Total (GBP)	21,759	21,578	18,398	39,253	100,987	25,247				
Set-up (GBP)	9,247	3,212	5,440	18,385	36,284	9,071				
Ongoing (GBP)	12,511	18,366	12,958	20,868	64,703	16,176				

Table 13: Annual samples collected 2021–2024, Mongu, Zambia

	2021	2022	2023	2024	Total	Average
Annual number of samples collected	182	28	26	19	255	63.75
Cost per sample total cost (GBP)	120	771	708	2,066		396
Cost per sample ongoing cost (GBP)	69	656	498	1,098		254

Table 14: Source of funding total cost 2021–2024, Mongu, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	264,365	0	0	0
Consumables (ZMK)	0	256,547	314,320	0
Activities (ZMK)	473,656	600,690	22,659	0
Infrastructure (ZMK)	0	172,723	0	30,000
Equipment (ZMK)	143,461	301,877	0	44,017
Total (ZMK)	881,482	1,331,837	336,979	74,017
Share of funding %	33.6%	50.7%	12.8%	2.8%

Table 15: Source of funding ongoing cost 2021–2024, Mongu, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	264,365	0	0	0
Consumables (ZMK)	0	128,273	157,160	0
Activities (ZMK)	473,656	600,690	22,659	0
Infrastructure (ZMK)	0	8,636	0	1,500
Equipment (ZMK)	7,173	15,094	0	2,201
Total (ZMK)	745,193	752,694	179,819	3,701
Share of funding %	44.3%	44.8%	10.7%	0.2%

CVRI

Table 16: Cost of animal health surveillance 2021–2024, CVRI, Zambia

	2021	2022	2023	2024	Total	Annual total	Annual Set-up total	Annual Ongoing total	% per component total cost	% per component ongoing
Personnel (ZMK)	424,760	482,682	539,309	627,103	2,073,854	518,463	518,463	518,463	24.2%	45.1%
Consumables (ZMK)	559,211	138,893	393,866	780,718	1,872,688	468,172	468,172	468,172	21.8%	40.7%
Activities (ZMK)	84,878	95,369	107,156	644,948	932,351	233,088	116,544	116,544	10.9%	10.1%
Infrastructure (ZMK)	0	0	0	110,400	110,400	27,600	26,220	1,380	1.3%	0.1%
Equipment (ZMK)	3,339,387	27,695	14,661	203,941	3,585,684	896,421	851,600	44,821	41.8%	3.9%
Total (ZMK)	4,408,236	744,639	1,054,992	2,367,110	8,574,977	2,143,744				
Set-up total (ZMK)	3,214,857	73,995	67,506	621,098	3,977,455	994,364				
Ongoing total (ZMK)	1,193,380	670,644	987,486	1,746,012	4,597,522	1,149,380				
Total (GBP)	169,635	28,655	40,598	91,090	329,977	82,494				
Set-Up (GBP)	123,712	2,847	2,598	23,901	153,058	38,265				
Ongoing (GBP)	45,923	25,807	38,000	67,189	176,919	44,230				

Table 17: Annual samples collected 202–2024, CVRI, Zambia

	2021	2022	2023	2024	Total	Average
Annual number of samples collected	190	42	106	187	525	131
Cost per sample total cost (GBP)	893	682	383	487		629
Cost per sample ongoing cost (GBP)	242	614	358	359		337

Table 18: Source of funding total cost 2021–2024, CVRI, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	2,498,613	0	0	0
Consumables (ZMK)	370,548	637,345	0	0
Activities (ZMK)	1,504,579	1,033,798	23,642	17,924
Infrastructure (ZMK)	0	110,400	0	0
Equipment (ZMK)	399,496	3,600,758	14,103	543
Total (ZMK)	4,773,236	5,382,301	37,746	18,467
Share of funding %	46.7%	52.7%	0.4%	0.2%

Table 19: Source of funding ongoing cost 2021–2024, CVRI, Zambia

	Government	Fleming Fund	FAO	Other
Personnel (ZMK)	2,498,613	0	0	0
Consumables (ZMK)	185,274	318,672	0	0
Activities (ZMK)	1,504,579	1,033,798	23,642	17,924
Infrastructure (ZMK)	0	5,520	0	0
Equipment (ZMK)	19,975	180,038	705	27
Total (ZMK)	4,208,441	1,538,029	24,347	17,951
Share of funding %	73%	27%	0.4%	0.3%

Synthesised data 2021–2024, Zambia

Table 20: Cost components as a percentage of spending 2021–2024, Zambia

	Total spending including Set-up				Ongoing costs			
	Chipata	Mongu	CVRI	Average	Chipata	Mongu	CVRI	Average
Personnel	11%	10%	24%	15%	29%	16%	45%	30%
Consumables	17%	42%	22%	27%	42%	65%	41%	49%
Activities	17%	22%	11%	17%	22%	17%	10%	16%
Infrastructure	2%	8%	1%	4%	0.2%	1%	0.1%	0.3%
Equipment	53%	19%	42%	38%	7%	1%	4%	4%
Annual budget (GBP)	31,046	25,247	82,494	46,262	12,208	16,176	44,230	24,205

Table 21: Source of funding 2021–2024, Zambia

	Total spending including Set-up				Ongoing costs			
	Chipata	Mongu	CVRI	Average	Chipata	Mongu	CVRI	Average
Government	37%	34%	47%	39%	46%	44%	73%	54%
Fleming Fund	47%	51%	53%	50%	40%	45%	27%	37%
FAO	14%	13%	0.4%	9%	13%	11%	0%	8%
Other	2%	3%	0.2%	2%	0.2%	0.2%	0.3%	0.3%

Table 22: Source of funding by component and average cost per laboratory 2021–2024, Zambia

	Consumables				Infrastructure			
	Chipata	Mongu	CVRI	Average	Chipata	Mongu	CVRI	Average
Government	35%	43%	58%	46%	0%	0%	0%	
Fleming Fund	64%	55%	40%	53%	52%	85%	100%	79%
FAO	1%	2%	1%	1%	0%	0%	0%	
Other	0%	0%	1%	0.2%	48%	15%	0%	21%
Annual total budget (GBP)				11,241.74				1,206.23
Annual ongoing budget (GBP)				11,241.74				60.31

	Activities				Equipment			
	Chipata	Mongu	CVRI	Average	Chipata	Mongu	CVRI	Average
Government	0%	0%	37%	12%	38%	29%	10%	26%
Fleming Fund	44%	45%	63%	51%	52%	62%	90%	68%
FAO	56%	55%	0%	37%	8%	0%	0.4%	3%
Other	0%	0%	0%	0%	2%	9%	0.01%	4%
Annual total budget (GBP)				6,623.57				18,526.29
Annual ongoing budget (GBP)				3,311.79				926.31

The personnel source of funding was 100% from the Government of Zambia. The annual average was £8,664.40.

Table 23: Cost per sample 2021–2024, Zambia

	Chipata	Mongu	CVRI	Total	Average
Total number of samples collected	182	255	525	962	320.7
Average annual number of samples	45.5	63.75	131.25		80.2
Cost per sample total cost (GBP)	682	396	629		569
Cost per sample ongoing cost (GBP)	268	254	337		286

Alternative strategies modelled, Chipata, Zambia

Table 24: Number of samples collected 2023–2024, Chipata, Zambia

	2023	2024	Average
Number of samples	78	35	56.5

The model was based on the 'ongoing' costs in Chipata between 2023-2024. The reasoning and assumptions are outlined in Section 1.1.1, Table 6 and Table 7.

Table 25: Alternative strategies modelled, Chipata, Zambia

	Farm-based			Opportunistic		
	Percentage of baseline ongoing	2023/2024 average cost (GBP)	Percentage of cost	Percentage of baseline ongoing	2023/2024 average cost (GBP)	Percentage of cost
Personnel	100%	4,760	30%	40%	1,904	18%
Consumables	100%	6,920	44%	100%	6,920	67%
Activities	100%	3,195	20%	20%	639	6%
Infrastructure	100%	31	0.2%	100%	31	0.3%
Equipment	100%	888	6%	100%	888	9%
Total		**15,794**			**10,382**	

	Abattoir			Wastewater		
	Percentage of baseline ongoing	2023/2024 average cost (GBP)	Percentage of cost	Percentage of baseline ongoing	2023/2024 average cost (GBP)	Percentage of cost
Personnel	25%	1,190	13%	20%	952	11%
Consumables	100%	6,920	74%	100%	6,920	77%
Activities	10%	319	3%	8%	240	3%
Infrastructure	100%	31	0.3%	100%	31	0.3%
Equipment	100%	888	9%	100%	888	10%
Total		**9,349**			**9,031**	

1.2.2 Data from TADEU Asia[5]

Raw data collected from each site 2021–2023, Nepal

The source of the data is from TADEU Asia who also completed their own basic analysis. The costs excluded equipment that had been purchased before 2021 and thus the data represents the 'ongoing' costs of surveillance at the two selected sites. Further modelling of costs until 2030 can be found in their own publication.

National Avian Disease Investigation Laboratory (NADIL), Chitwan

Table 26: Cost of animal health surveillance 2021–2023, NADIL, Nepal

	2021	2022	2023	Total	Annual average	% per component total cost
Human Resources (GBP)	28,760	28,667	29,221	86,648	28,883	22%
Allowances (GBP)	620	651	6,207	7,479	2,493	2%
Consumables (GBP)	70,632	72,958	70,425	214,014	71,338	55%
Other direct costs/ equipment (GBP)	54,990	11,005	11,587	77,582	25,861	20%
Total (GBP)	155,003	113,281	117,440	385,723	128,574	
Number of samples				3,150	1,050	
Cost per sample (GBP)	148	108	112		122	

5. International Vaccine Institute (IVI).

Table 27: Source of funding 2021–2023, NADIL, Nepal

	Government	Fleming Fund	Other
Total contribution (GBP)	346,650	9,127	29,947
Percentage share of funding	89.9%	2.4%	7.8%

Pokhara Veterinary Laboratory

Table 28: Cost of animal health surveillance 2021–2023, Pokhara, Nepal

	2021	2022	2023	Total	Annual average	% per component total cost
Human Resources (GBP)	23,242	23,169	23,735	70,146	23,382	31%
Allowances (GBP)	421	664	4,523	5,608	1,869	2%
Consumables (GBP)	32,067	34,335	33,068	99,471	33,157	44%
Other direct costs/ equipment (GBP)	22,825	14,680	13,307	50,812	16,937	22%
Total (GBP)	78,555	72,848	74,634	226,037	75,346	
Number of samples				1,740	580	
Cost per sample	135	126	129		130	

Table 29: Source of funding 2021–2023, Pokhara, Nepal

	Government	Fleming Fund	Other
Total contribution (GBP)	201,319	9,674	15,043
Percentage share of funding	89.1%	4.3%	6.7%

Synthesised data 2021–2023, Nepal

Table 30: Cost components and cost per sample 2021–2023, Nepal

	Total at NADIL	Total at Pokhara	Total	Average per site
Human Resources (GBP)	86,648	70,146	156,794	78,397
Allowances (GBP)	7,479	5,608	13,087	6,544
Consumables (GBP)	214,014	99,471	313,485	156,743
Other direct costs/ equipment (GBP)	77,582	50,812	128,394	64,197
Total (GBP)	385,723	226,037	611,760	305,880
Total number of samples collected	3,150	1,740	4,890	2,445
Average annual number of samples	1,050	580	1,630	815
Cost per sample (GBP)	122	130		126

Table 31: Source of Funding 2021-2023, Nepal

	NADIL	Pokhara	Average
Government	89.9%	89.1%	89.5%
Fleming Fund	2.4%	4.3%	3.3%
Other	7.8%	6.7%	7.2%

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